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## **EVALUATION OF THE COHESION OF DEVELOPMENTAL PROCESSES OF AGRICULTURE AND FOOD INDUSTRY**

### **Abstract**

*Coherence of developmental processes of the Polish farming and the food industry were assessed. This analysis covered dynamics of the evolution of production and demand, the value added of both incomes of the agricultural entrepreneur and the food processing industry worker and the agricultural prices, the food processing industry worker and the consumer.*

*It was stated that there is a lack of coherence in the developmental processes of these two main elements of the food economy and lack of correlation between them. On the domestic (and local) scale the interlinks are weakening and their course does not confirm the often formulated thesis about the transfer of profits from farming to processing. This requires introducing phenomena of a global character into the research of developmental processes and the verification of many theses proposed earlier by agri-economic sciences.*

### **Introduction**

Agriculture and food industry are the main parts (links, sectors) of food economy, recently also known as food complex or agribusiness and food industry. A common feature of these two sections is that they directly participate in food production and distribution. A. Woś defined agribusiness as follows: 1) “distinct subsystem of the food economy, 2) field of activity of economic entities, and 3) field of knowledge and scientific research” (Woś A. 1998a). Further he emphasises that “Agribusiness is a complex structure, joining with one another all the human activities, which directly or indirectly participate in producing final food products [...]”, and that it is “[...] a system integrating many independent and economically separate entities [...]” which “[...] are vertically linked” (Woś A. 1998a). The same author likewise defined the concept of the food economy as “[...] related

to each of these links of national economy, which are directly or indirectly involved in the production and distribution of food” (Woś A. 1998b).

Part of this system is not only agriculture and food industry, but also other sectors of the economy, indirectly involved in the process of production and distribution of food. These are sections providing food producers with different means of production, services, knowledge, or information and intermediating between the subsequent links of the food chain and final food consumers. Therefore, the agribusiness and food economy also include manufacturing and food industries, storage, agricultural trade, food wholesale and retail trade. These types of activities, which as a result of the deepening social division of labour stood out from agriculture and agricultural holding, created a complex system of different types of links between food producers and the whole economy as well as the sphere of consumption. It is a system which is increasingly losing its agrarian (agricultural) character and developing business and market features, thereby undermining the legitimacy of defining it as agribusiness. In my opinion, its essence is better described by the concept of food economy, food sector, or even the food industry. This way of defining the system is also supported by the fact that the leading link and integrator is not agriculture. This role was and still is played by food industry, and now its integrating functions are increasingly being taken over by trade and large retail chains (Chechelski P. 2008; Kowalczyk S. 1998).

For studying the relationship and interaction between two main parts of the food sector, it is important to take account of agriculture and food industry considerations of Figiel and Rembisz about the conditions of production growth in the agri-food sector. In the conclusion of these considerations, the authors formulate a clear thesis that “the main determinant of growth in agricultural production [...] is consumer demand for food” (Figiel S., Rembisz W. 2009) and that this is “[...] a result of the derivative nature of demand for agricultural products and dependence of the agricultural producer’s equilibrium on the agri-food processor’s equilibrium, conditioned in turn by consumer maximising their utility” (Figiel S., Rembisz W. 2009). They explain it as follows:

- food demand results from the consumer’s maximisation of utility of consuming food and non-food goods within their budget constraint;
- demand for agricultural products results from agri-food processor’s pursuit to maximise profits;
- certain level of agricultural production is shaped by farmer’s pursuit to maximise the expected income.

Main participants of the food sector seek to maximise different categories of effects, which may explain the different conclusions of Figiel and Rembisz, formulated as follows: “[...] the potential increase in demand for food, being a result of a further increase in consumer income, will not be translated into a proportional increase in the income of agricultural producers” as “increase in consumer income results in an increase in demand for processed products offered in the form increasing their utility”, and this means “[...] higher demand

for value added created by manufacturing and trade” (Figiel S., Rembisz W. 2009). The confirmation of this thesis is that in the entire transition period production of highly processed foods (i.e. the so-called secondary processing) was developing many times faster than the industrial processing of agricultural products (Urban R. 2010).

These general considerations indicate that agriculture and food industry are lasting key parts of the food sector, but the cohesion of their development does not necessarily mean equal growth rate of agriculture and processing, nor compliance with the rate of changes and the level of income of those members of the assessed sector. The results of the analysis are presented for the evaluation of this kind of coherence in the process of development of agriculture and industry:

- conformity of production development trends of both of these branches of food economy;
- level of income generated by farms and food industry companies;
- compatibility of development trends in prices paid to farmers, food and beverage producer prices and retail prices of these goods.

The basis for the assessment of these phenomena was their analysis in 2000-2010, carried out based on CSO data.

### **Economic potential of agriculture and food industry**

Agriculture and food industry, the two main members of the food economy, show large differences in economic parameters describing their potential and economic performance, and productivity of production factors (Table 1). They are the result of the following phenomena:

- value of global food industry production is two times higher than agricultural one, and sold production of this industry is almost 2.5 times higher than agricultural commodity production;
- gross value added generated by agricultural producers is about 27% lower than the one for food, beverages and tobacco producers;
- number of people employed in agriculture is 4.5 times higher than in food industry;
- value of fixed assets (initial value) in agriculture is about 60% higher than in food industry, and after adjusting the value of assets to the current value of agricultural land (16 million hectares  $\times$  PLN 12.5 thousand) this relationship would be four times higher (over PLN 300 billion to PLN 77.6 billion).

The consequence of these differences are large disproportions between agriculture and processing in terms of fixed assets productivity and labour productivity. Productivity of assets measured by gross value added is:

- in agriculture, including value of land, only 0.085 PLN/PLN, and without land 0.224 PLN/PLN;
- in food industry 0.483 PLN/PLN.

In contrast, labour productivity in 2010 was: in agriculture PLN 13,300 of value added per 1 employee, and in food industry PLN 82,900 per person. These indicators show that fixed assets productivity and labour productivity in the food

industry was on average six times higher than in agriculture. It is also important that these differences are constantly increasing, as for example, in the past decade, labour productivity in agriculture at fixed prices grew by about 35%, and in food industry by almost 60%.

Table 1

**Basic economic parameters for the Polish agriculture and food industry**

Specification	Agriculture	Food industry
Number of entities (2009) in '000	1,766	15.7
including commercial and industrial	210-250	6.1
Number of employees (2009) in '000	2,073	452.5
including commercial and industrial	300	387
Value of output in current prices in PLN billion		
global (2009)	79.7	169.9
market (2010)	60.3	176.0
Gross value added (2009) in PLN billion	27.5	37.5
Exports (2010) in EUR million	2,237	11,031
Imports (2010) in EUR million	3,109	7,584
Value of supplies (2009) in PLN billion	39.9	39.9
Capital expenditures (2009) in PLN million	3,710	6,618
Value of fixed assets (2009) in PLN billion	122.6	77.6
Value of consumption of food, beverages and tobacco (2009) in PLN billion	218.8	

Source: CSO Statistical Yearbooks from 2002 to 2009 and IAFE-NRI data.

Different productivity of agriculture and food industry stems not only from differences in the nature of the business, but also from different concentration of activities in these parts of food sector. There are approximately 1.8 million farms active in agriculture, including about 210-250 thousand farms permanently linked to the market<sup>1</sup> and about 75-80 thousand farms with development potential (Poczta W. 2010) achieving over parity income and net investment. While there are almost 16,000 enterprises with food, beverages and tobacco production, including 6 thousand industrial firms and less than 1,500 large and medium-sized entities. One food manufacturer cooperates with an average of approximately 110 farms, one industrial firm with about 35-40 commercial farms, and large and medium-sized enterprises with about 50 farms with development potential. Turnover of a single farm amounts just to PLN 3,400, in the case of a commercial farm it amounts to approximately PLN 24,000 and in a processing company to PLN 11.2 million.

Assessing the economic potential of agriculture and food industry there are also two other phenomena that have to be taken into account:

<sup>1</sup> Based on the estimation considering 12-13% of farms to be highly commercial ones.

1. Agriculture is a net importer, the balance of trade in agricultural products is negative, amounting to almost EUR 0.9 billion, and the food industry is a net exporter reaching a surplus of exports over imports amounting to approx. EUR 3 billion with the value of exports almost five times higher than the value of agricultural products. This results from different structure of exports and imports of agri-food products; in imports the share of raw materials and semi-finished components amounts to approx. 60% of the turnover in both sectors and in exports the share of finished products exceeds 50%.
2. Value of supplying agricultural raw material to processing represents only 23.5% of the food industry's production value, and including imports of agricultural products (at domestic prices), this ratio does not exceed 30%. If it is also taken into account that PLN 1 of market agricultural output, including imports of such products (approx. PLN 70 billion), generates approx. PLN 4 in the turnover value on domestic and foreign markets (PLN 218.8 billion + PLN 53 billion), it can be stated that the main source of economic potential of the Polish food economy and its competitive potential lies the agri-food processing.

These phenomena, i.e. different potential, productivity or market position of agriculture and food industry indicate that the internal consistency of the food sector (food economy, agribusiness) does not depend on proportional development of each part of the sector or similar changes in their internal proportions, but requires maintenance of a variety of development trends of its elements, allowing them to adapt to the changing environment (local, regional or global).

### **Comparative evaluation of agriculture and food industry development**

In the past decade, industrial production of food (at fixed prices) grew at an average rate of 4.56% per year, while market agricultural output – like the final one – at a rate of 2.54% (gross output at a rate of 1.42% per year), with an increase in the consumption of food and beverages by 1.74% per year (Table 2). Throughout the decade, production of food industry increased by approx. 56%, market agricultural output by 28%, and consumption of goods produced by those sectors by less than 20% (Fig. 1). Thus, food industry developed two times faster than agriculture and almost three times faster than domestic demand for food, beverages and tobacco products. These differences in the growth in dynamics resulted mainly from the fact that in the past decade half of the increase in the food industry production was located on foreign markets. To a lesser extent it resulted from the increasing degree of food processing in the case of products supplied to the domestic market and from increasing food industry's share in managing agricultural production or in covering the needs of the domestic market. At the same time, food industry was developing slightly faster than the whole Polish economy, but slower than the production of other branches of our industry.

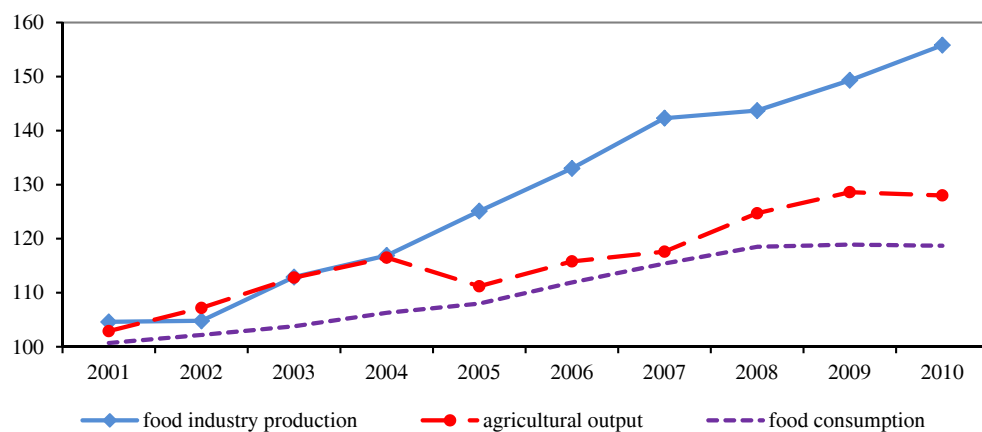
Table 2

**Comparison of agriculture's and food industry's growth rate with Poland's economic development in % per year in 2001-2010**

Year	Agricultural output		Sold food industry production	Gross domestic product	Industrial production	Consumption of food, beverages and tobacco products	Retail sale of food, beverages and tobacco products
	final	market					
2001	8.6	2.9	4.6	1.1	0.6	0.7	0.8
2002	0.1	4.2	0.2	1.4	1.1	1.5	3.2
2003	2.5	5.2	7.7	3.8	8.3	1.6	3.7
2004	8.0	3.3	3.6	5.3	12.6	2.4	1.4
2005	-4.4	-4.6	7.0	3.6	3.7	1.6	-0.7
2006	0.0	4.2	6.3	6.2	11.2	3.6	1.3
2007	5.6	1.5	7.0	6.8	11.2	3.1	2.7
2008	3.6	6.1	1.0	5.1	3.6	2.7	1.3
2009	3.0	3.1	3.9	1.6	-4.5	0.4	-0.1
2010 <sup>a</sup>	-1.6	-0.5	4.3	3.8	9.7	-0.2	-1.0
$\bar{x}$	2.54	2.54	4.56	3.87	5.75	1.74	1.26

<sup>a</sup> Estimation.

Source: CSO data published in the Annals of Statistics.



**Fig. 1.** Comparison of dynamics in production of market agricultural output, sold food industry production and consumption of food, beverages and tobacco products (at fixed prices 2000 = 100)  
Source: Based on Table 2.



Analysing the scale of changes in agricultural output, processing and domestic demand in each year of the period under assessment, there is no observable dependence between these phenomena. A high growth rate of food industry production (more than 6% a year) occurred only twice in the years when the increase in market agricultural output was also high (i.e. 2003 and 2006). It is not a rule that a greater increase in the food industry production occurred in the years characterised by an accelerated growth of the supply in agricultural raw materials or domestic demand. There are no correlations between these phenomena. In the past decade, the correlation coefficient between food industry's growth rate and market agricultural output's growth rate was only 0.008, and between changes in processing and domestic demand – 0.029. Therefore, not that obvious is the already cited thesis presented by Figiel and Rembisz that the main premise for agricultural production's growth is the demand for food and that it is a result of a derivative nature of the demand for agricultural products. The increase in food industrial production is, in fact, possible even if there is no recovery in agricultural output or consumer demand, as an extremely important food industry's development stimulating factor is export (foreign demand) and import of agricultural raw materials. Thus, foreign trade is an important stabilising factor for the food sector's development and for restoring balance in this sector. On this basis, a thesis can be formulated that if foreign trade fulfils well these functions, the entire food sector is competitive on foreign markets. This also means that a lot of obvious theses about relationship and development of agriculture and its surroundings do not have an obvious nature and that in the conditions of globalisation they should be verified.

### **Comparative evaluation of value added and income of the agricultural entrepreneurs and processors**

Direct comparison of the value added of agriculture and food industry (Table 3) indicates that:

- during almost the whole past decade the value added of agriculture was about 20-30% lower than the value added generated in the food industry, with the exception of 2004, when there was an opposite situation;
- during this period the agricultural value added increased by 76% (i.e., 5.8% a year), food industry's one by 61.5% (4.9% annually), and at fixed prices (Fig. 2) by 34% and 23.3% (i.e. 3.0 and 2.2% a year);
- an increase in value added in the processing was fairly uniform as at fixed prices it increased at an average of PLN 0.68 billion a year, with a decline only in 2002 and 2010, and the same indicator for agriculture increased on average by approx. PLN 0.8 billion, but with a large decline in 2002, 2005 and 2008 and a rapid surge in 2004;
- compliance in the scale and direction of changes in the value added in the agriculture and the processing occurred in half of the analysed years (i.e. in five and a large in three), and a lack of such compliance was observable also in five years, including a significant one also in three years (2005, 2009 and 2010).



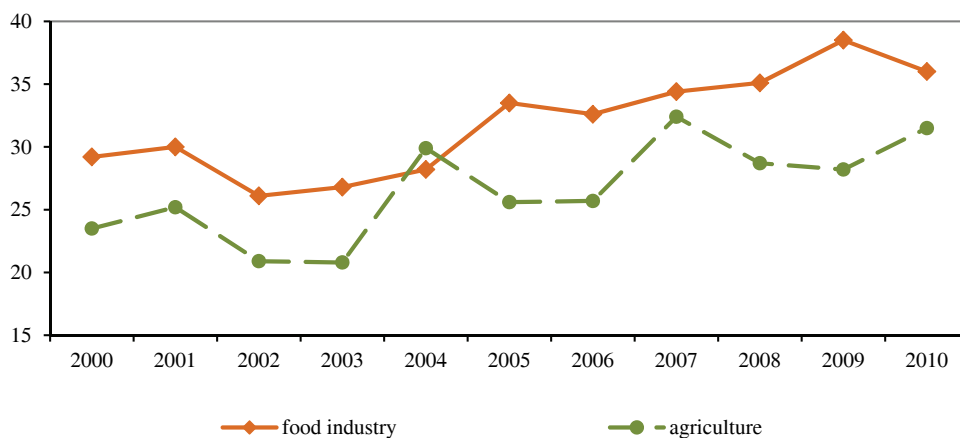
Table 3

**Value added and income of agricultural enterprises and food industry  
(PLN billion in current prices)**

Year	Gross value added		Income		
	agriculture	food industry	agricultural entrepreneurs	of which: excluding subsidies	industrial entrepreneurs
2000	17.88	22.28	9.1	8.2	8.28
2001	20.27	24.15	11.3	10.4	9.25
2002	17.12	21.38	9.0	8.1	10.07
2003	17.17	22.11	8.2	7.4	9.93
2004	25.54	24.14	20.2	12.2	13.20
2005	22.32	29.23	18.3	9.8	13.32
2006	22.65	29.74	20.7	9.9	14.52
2007	29.23	31.08	27.4	15.9	17.23
2008	27.06	33.04	25.5	11.1	15.71
2009	27.47	37.48	24.9	11.4	19.91
2010 <sup>a</sup>	31.50	36.00	28.5	13.0	19.77

<sup>a</sup> Preliminary estimate.

Source: (Poczta W. 2009; Zegar J. et al. 2010), CSO Statistical Yearbooks from 2001 to 2009 and own elaboration based on CSO data on the financial results of the food industry.



**Fig. 2.** Gross value added in agriculture and food industry in PLN billion in 2010 prices

Source: Data Table 3 – adjusted index of retail prices of goods and services (inflation) published by the Central Statistical Office.

Such a distribution of changes (increases or decreases) in the value added in agriculture and processing means that there is no correlation between these phenomena. It is also important that the value added growth rate in the agriculture was higher than in the case of market output and final output. In the case of food industry there occurred an opposite phenomenon, i.e., the growth rate of sold production was two times faster than the growth rate of value added. These phenomena contradict an often formulated thesis on seizing the economic surplus generated in agriculture by the processing industry, but also indicate that in agriculture the ratio of value added to intermediate consumption increased, and in food processing it decreased.

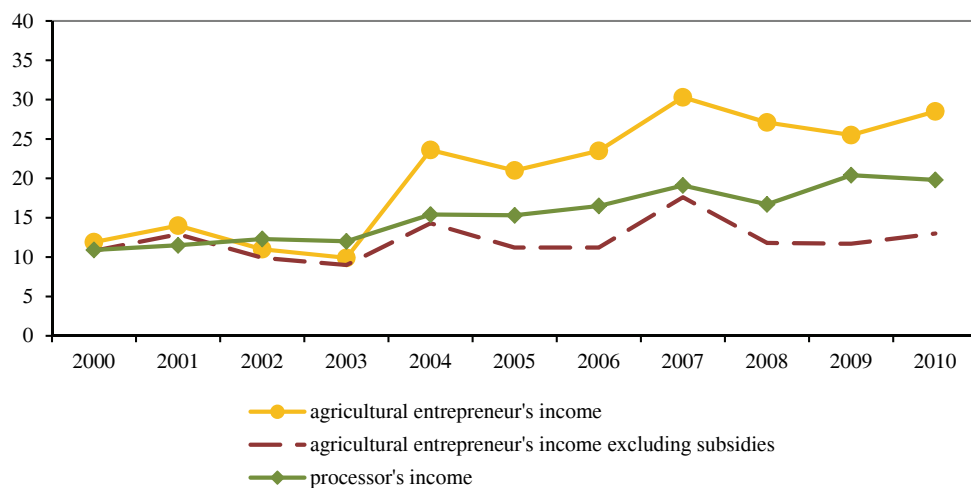
Such a development in the level of value added contributed to a faster growth in the agricultural entrepreneur's income<sup>2</sup> than the processor's one. In the past decade, the level of agricultural income tripled at current prices (from PLN 9.1 to 28.5 billion), and in the case of food industry it increased 2.5 times (from PLN 8.3 to 19.8 billion) at fixed prices (Fig. 3), an increase, respectively, by 139% and 82% (i.e. 9.1% and 6.2% a year). At the end of the decade, agricultural entrepreneurial income was 50% higher than the processor's income. It should be noted that before the Polish accession to the EU the income value of these entrepreneurs was similar, and only in 2004 there was a sharp (150%) increase in agricultural income, while at the processing level income growth was moderate and its relation to agricultural income remained as 1 to 1.5.

Analysing agricultural entrepreneur's and processor's income two phenomena can be identified:

- the main source of agricultural entrepreneur's income are agricultural subsidies (in the form of direct payments), which stand for more than 50% of this income, and their role rapidly increased after the Polish accession to the EU (from approx. 10% in 2000-2003 to approx. 55%), while the agricultural entrepreneur's income from business activities increased only by 58.5% at current prices and by about 20% in fixed prices, and its value is about one third lower than the processor's income;
- in the case of processor's income there is a constant upward trend, and agricultural entrepreneur's one shows high variability: in a decade there were five large rises and five reductions recorded, including three fairly significant reductions (in 2002, 2005 and 2008). Average annual change was  $\pm 26.8\%$  in the case of agricultural entrepreneur's income and  $\pm 10.5\%$  in the case of processor's income. A large convergence in both groups' income changes was reported in 2004 and a significant one also in 2003, 2007 and 2008, providing a fairly high correlation ( $R = 0.60$ ) between these incomes.

<sup>2</sup> According to the Economic Accounts for Agriculture, agricultural entrepreneur's income is gross value added with other subsidies minus assets' depreciation, taxes, cost of hired labour, lease payments, balance of interest paid and recovered (Zegar J. et al. 2010). Suitable for this category of agricultural entrepreneur's income is processor's net profit increased by gross cost of labour (but without social security), which is called processor's income.

The analysis of agricultural entrepreneur's and processor's incomes leads to quite contradictory conclusions. The higher increase in farmers' income than the processors' one contradicts the thesis about processor's seizing the economic surplus generated in agriculture. On the other hand, slowly increasing farmers' income from business activity and their strong support with subsidies may, however, indicate a low economic efficiency of farming or taking over surplus by the market environment, including processors. These doubts can be explained by an analysis of the developments in agricultural, processor and consumer prices.



**Fig. 3.** Income of agricultural entrepreneurs and processors in PLN billion in 2010 prices

Source: As for Fig. 2.

### Comparison of dynamics in agricultural, processor and consumer prices

Comparison of an average growth in agri-food market prices indicates that, in 2001-2010, the average growth rate of processor prices was lower than the one for agricultural prices and lower than the growth rate for retail food and beverages prices (Table 4). The ranges were different in different markets: higher in cereals and milk market and lower throughout the agri-food market, including meat market. These differences increased after Poland's EU accession. During this period, the average increase in agricultural prices was on average two times higher than that of the processor prices, and in three major markets also higher than the growth rate of prices paid by consumers. These relationships suggest, therefore, that there cannot be any talk of seizing the economic surplus of agriculture by the food industry. It also proves that the increase in farmers' income is also the result of rapidly rising prices of agricultural products. Lower processor price growth rate than in the case of agricultural prices or prices paid by consumers also means that processing is constantly under strong pressure from suppliers and customers, and the processing and food industry are important factors stabilising and restoring balance to the agri-food sector.

Comparison of price changes in the agri-food sector in the consecutive years of the past decade (Table 5) indicates that:

- each rise in agricultural prices generally results in higher processor and consumer prices, but on average two times lower than the increases in purchase prices;
- not every significant drop in agricultural prices is followed by a fall in processor and consumer prices, but it always results in a slowdown in growth of these prices, allowing for at least partial compensation of processors' losses incurred in earlier periods of strong price increases;
- in the past decade the volatility of agricultural prices ( $\bar{z}$ ) was more than twice higher than volatility of processor prices and 2-3 times higher than the variation of prices paid by consumers.

These phenomena confirm the earlier assessment that the processing and food industry are the factors stabilising the agri-food sector and mitigating consumer annoyance with strong fluctuations in agricultural prices. They also indicate that flows of economic surplus from agriculture and processing activity can only occur during periods of rapid agricultural price reductions and in other periods, these flows can have an opposite direction, i.e. from processing of agriculture.

Table 4

**Average rate of price increases on agri-food markets in 2001-2010, % per year**

Specification	Agri-food market	Including		
		cereals and cereal products	meat and meat products	milk and milk products
<b>2001-2010</b>				
Purchase price	2.00	4.38 <sup>a</sup>	2.29 <sup>a</sup>	3.68
Processor price	1.54	1.80	1.79	1.85
Consumer price	3.35	4.11	2.18	2.43
<b>2003-2010</b>				
Purchase price	3.14	7.12 <sup>a</sup>	3.36 <sup>a</sup>	5.55
Processor price	1.71	3.04	1.80	1.95
Consumer price	3.22	4.23	2.39	2.85

<sup>a</sup> Average purchase price of a basket of wheat and rye, or cattle, poultry and pigs.

Source: Own elaboration based on Polish Central Statistical Office data.

Table 5  
Changes in agricultural, processor and consumers prices (% of the past year)

Year	Agri-food prices			Slaughter and meat prices			Cereals and cereal products prices			Milk and milk products prices		
	purchase	food processors	retail food and beverages prices	purchase <sup>a</sup>	processor	retail	purchase <sup>a</sup>	processor	retail	purchase <sup>a</sup>	processor	retail
2001	4.4	3.5	5.0	11.3	7.5	8.3	-0.4	-0.4	7.0	0.0	-0.3	3.3
2002	-9.5	-1.4	-0.7	-15.3	-4.0	-3.6	-12.8	-6.0	0.3	-7.7	-4.5	-1.7
2003	0.6	-1.0	-1.0	-6.5	-3.4	-5.1	1.9	2.6	0.5	0.0	1.3	0.7
2004	14.4	7.2	6.3	24.8	11.8	9.6	5.9	10.5	5.3	20.8	9.5	5.1
2005	-2.9	-1.3	2.1	-3.9	0.0	2.6	-20.6	-14.3	1.0	6.9	1.5	1.3
2006	-2.7	0.7	0.6	-5.0	-3.3	-3.9	22.4	9.9	1.2	0.0	-0.6	0.1
2007	13.8	4.8	4.9	8.2	4.2	4.2	57.6	19.6	8.0	15.0	10.3	5.0
2008	-0.1	2.0	6.1	8.2	2.4	4.7	-10.1	-0.3	11.5	-4.7	-1.9	9.5
2009	-3.8	1.6	4.1	11.0	6.9	8.4	-24.8	-0.3	3.5	-12.4	-4.5	-1.2
2010	5.8	-0.3	2.7	-9.9	-4.2	-1.4	24.7	6.7	2.8	18.9	7.7	2.3
$\bar{z}$	±4.80	±2.34	±3.35	±10.41	±4.77	±5.18	±18.12	±6.06	±4.11	±8.64	±4.21	±3.01

<sup>a</sup> Average purchase price of a basket of wheat and rye, or cattle, poultry and pigs.

Source: Own elaboration based on price indicators estimated by Polish Central Statistical Office.

## **Conclusions and findings**

Agriculture and food industry continue to be the main parts of the food economy. They are directly involved in the production and distribution of food and directly related to each other. They also form a system integrating many independent and economically separated activities and entities. Development and balance of these two parts of the food sector is determined by consumer demand for food, which is the result of maximising the consumer's utility. This utility is determined not so much by material components (of agricultural origin) of the food product, but by the accompanying various types of processing services and trade, facilitating access and use of the goods. This results in a farmer's diminishing share in the price of food paid by consumers (Świetlik K. 2008). In Poland, it does not exceed 30% and in many segments of food production and in countries with a high level of economic development it is even lower (15-20%) (Figiel S., Rembisz W. 2009; Urban R. 2002).

The problem of the relationship between consumer, food processor and farmer becomes more complicated with the processes of globalisation. They lead to a situation where there is no need for the regional, national and local markets to have the consistency of processes of development of consumption, processing and agricultural production. The result are loose relations of these developmental processes of these parts of the food sector. This phenomenon occurred in Poland in the first decade of the 21<sup>st</sup> century, as the development of food production was significantly accelerated by ties with the EU market in the form of exports of food industry's products and imports of raw materials and semi-finished products. This enabled the development of many branches of food processing that do not have their own resource base (fish, tobacco, manufacturing of chocolate or coffee and tea processing), and yet they produced and provided food not only for the national market, but also for many foreign markets.

The level and its changes in the value added as well as farmer's and food processor's income are a prove of a loose connection between developmental processes of agriculture and food industry. In the past decade, the corresponding values for agriculture and food industry had a clear upward trend, which in agriculture was even faster than in processing. The value added and the agricultural income were mainly shaped by transfers of the EU funds and rising agricultural prices that grew faster than the processor prices. In the case of food industry the increase was a result of adjustment of supply to demand (domestic and foreign) and of an improvement in efficient use of production factors, mainly labour. The development of these two parts of the food sector does not confirm the thesis about the transfer of income from agriculture to processing. This thesis is contradicted by different dynamics of agricultural, processor, and consumer prices. In the past decade, processor prices had a (twice) lower growth rate than agricultural prices and slightly lower than consumer prices. This phenomenon means that the food industry is a stabilising factor in the food sector and the one mitigating the effects of high volatility of prices paid to farmers.

The presented lack of coherence of the development process of agriculture and food industry points to a need to verify many obvious statements made by agricultural economists. They require a more global approach to the development processes throughout the food economy and its main parts. The theoretical analysis of these issues should also take into account the changing economic strength and the role of the leading integration link, which is increasingly likely to be the trade in food, not the food industry.

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