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Development of Production in the Food Industry in Poland in 2000-2016

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Abstract. In 2000-2016, the sold production of the food industry (including tobacco) increased more than two times in current prices (from PLN 92.8 to 220.3 billion), i.e. it was growing at a rate of 5.6% per annum, and in constant prices increased 78.7%, i.e. it was growing 3.7% per annum. Development of individual directions of food processing indicates that in the analysed period production for non-food purposes, i.e. production of feed and pet food, esters, dehydrated and methylated spirits, was developing the fastest (nearly threefold increase in the value of production). Secondary processing of food, which includes, *inter alia*, the production of canned food, dishes, prepared meals, desserts, snacks and non-alcoholic beverages, was also developing quickly (more than twofold increase). Initial processing, i.e.: slaughter of animals, milk processing, milling of cereals (by approx. 93%) and production of stimulants (by approx. 54%) was developing more slowly, and the most slowly proper processing, e.g.: production of cured meat, milk, butter, cheese, bread (by 28%). Food export became the main factor in the production growth in the food industry in Poland which in 2000-2016 managed about 62% of its growth. Changes in producer prices and domestic demand were factors which created development of production in the food industry to a smaller extent, and in some years inhibited it. Increase in the producer prices contributed approx. 30% to the production growth, and domestic demand 8%.

Keywords: Food Industry, Production, Export, Consumption, Prices.

1 Introduction

Food industry is one of the main links (elements) of the food economy. It is the largest recipient of unprocessed agricultural raw materials, and at the same time the largest supplier of food to the sphere of trade (wholesale and retail) [4, 6]. Food industry performs many functions as in economic terms it contributes to the country's GDP, affects trade, and in socio-economic terms provides jobs, creates changes in agricultural production, meets consumers' tastes and expectations, mitigates rapid increases in purchase prices of agricultural products, ensures food safety for consumers, as a food producer and the entity responsible for the product placed on the market [6].

The food market is constantly changing (evolving) which to some extent is creating the food industry, but also adapting to these changes, hence the development of this branch of the processing industry is conditioned by many factors [1, 3, 4]. In 2016, the share of the food industry (including the production of foodstuffs, beverages and tobacco products) in the creation of Poland's gross domestic product amounted to 3.1%, and about 417 thousand people were employed in it [9].

2 Methods and Sources of Materials

The objective of this study was to show development of sold production of the food industry in Poland in 2000-2016 compared to economic development of the country, agricultural commodity production, the entire processing industry, food consumption, food export and import. The analysis of the varying rates of development of the basic directions of the food industry processing was carried out. Factors determining development of production in the food industry and their significance were indicated. The focus was on the analysis of development of the food industry in relation to changes in the production volume, without taking into account the quality changes of the food produced.

This paper is a comparative analysis in which secondary source materials were used. The relevant indicators were used to determine changes over time. The study mainly used published and unpublished data of the Statistics Poland, the Analytical Centre of the Customs Administration (CAAC), the Ministry of Finance (MF) and publications referring to the broadly understood food economy.

3 Development of Production in the Food Industry

In the period preceding Poland's accession to the European Union (2000-2002), the rate of development of the food industry (including tobacco) was small – at 2.1% per annum (calculated in constant prices) and it was several times slower than in the second half of the 1990s. Another production revival in the food industry started immediately prior to Poland's accession to the EU (Table 1). In 2003, the production of this sector increased 7.6%, and in 2004-2007 on average 7.3% annually. In the following years, the dynamics of the sector's development weakened, which was undoubtedly related to the global financial and economic crisis (2007-2008). In 2008, the production of the food industry in Poland (in constant prices) was at the level of the previous year, and in the next three years, it was growing at the rate of 3.3% annually, to accelerate to 6.1% in 2012. In 2013-2015, the growth dynamics of production in the food industry decreased to 2.6% per annum, and in 2016 accelerated to 5.3% (Table 1).

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Table 1. Comparison of the pace of development of production in the food industry and its market environment (in per cent) [8,10,11,12].

Year	Increase in sold production of the food industry (including tobacco) compared to the previous year[a]	Dynamics compared to 2000							
		global production of agriculture[a]	marketable production of agriculture[a]	GDP[a]	industrial production[a]	production of the food industry (including tobacco)[a]	Consumption of food, beverages and tobacco products[a,b]	export of products of the food industry[c]	import of products of the food industry[c]
2001	4.5	5.8	2.9	1.2	0.6	4.5	0.9	17.0	10.1
2002	-0.2	3.8	7.2	2.6	1.7	4.3	2.4	17.4	9.3
2003	7.6	3.0	12.8	6.6	10.1	12.2	3.5	34.7	6.6
2004	4.0	10.7	16.5	12.3	24.0	16.7	6.4	75.0	32.5
2005	2.5	5.9	11.2	16.3	28.6	19.6	8.2	140.7	71.1
2006	6.6	4.7	15.8	23.5	43.5	27.5	12.1	195.5	105.3
2007	6.7	10.8	17.6	31.9	58.9	36.0	14.7	245.4	149.6
2008	0.0	14.4	24.7	38.7	64.6	36.0	17.4	293.6	210.2
2009	3.8	17.1	28.6	47.1	57.2	41.3	18.9	284.2	203.7
2010	2.9	13.9	26.5	52.4	72.8	45.4	18.8	360.2	249.6
2011	3.7	16.4	31.3	60.0	87.8	50.8	18.0	410.6	284.8
2012	6.1	15.4	32.9	62.6	89.1	60.0	14.8	464.4	307.3
2013	0.8	19.3	39.1	64.9	92.7	61.3	13.1	527.6	323.3
2014	1.0	25.8	42.0	70.3	103.3	62.9	8.9	568.8	342.4
2015	4.2	20.9	41.0	76.8	117.3	69.7	7.6	619.4	364.7
2016	5.3	29.5	49.0	81.9	126.0	78.7	11.7	644.8	364.7

[a] in constant prices, [b] in households in accounting terms, [c] in value in EUR without conversion into PLN

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Due to the comparative advantages of the Polish food industry (lower labour costs, cheaper raw material, lower sale prices) and high quality of produced food in the conditions of deteriorating macroeconomic situation and the economic majority of societies in the EU-28 countries, the sector managed well and used the situation (recession followed by a slow return to the path of economic growth of the European Union countries), increasing food exports, which was an impulse for further rapid development in the following years [7]. Another feature of recent years was large volatility (turbulence) in the prices of agricultural raw materials in global markets. In 2011-2013, the FAO food price index was more than twice as high as in 2002-2004 and on average amounted to 218%, to decrease to about 163% in 2015-2016 [13].

Between 2000 and 2016, the rate of development of the food industry in Poland (including tobacco) measured by the value of sold production (in constant prices) amounted to 4.0% per annum. The development dynamics of this industry sector was lower than of the entire Polish industry (5.2% a year) and slightly slower than the growth rate of gross domestic product (3.8%). Sold production of the food industry (in constant prices) was increasing almost two and a half times faster than the global production of agriculture (1.6%) and 50% faster than the marketable agricultural production (2.5%) and five times faster than the consumption of food, beverages and tobacco in households (0.7% per year). In final years, consumption of food and stimulants was decreasing (in constant prices), and their share in total expenditure by household decreased from 27.1% in 2010 to 22.5% in 2016 [7].

In the analysed period, the growth rate of export of food industry products was the fastest (more than eight times faster than that of production of the food industry) and import of these products, which increased about 10% annually, was slower.

In sixteen years, as a result of such changes both in the food industry and in its environment, there was an increase in the production of food, beverages and tobacco of 78.7%, with the increase of production of the whole industry of 126.0%. Growth of production in the food industry in the analysed period was slightly lower than the increase in gross domestic product (by 81.9%). At the same time, it was definitely larger than that of the marketable agricultural production (49.0%) and the consumption of food, beverages and tobacco products (11.7%). Therefore, it can be concluded that the food industry strengthened its position in the food sector and increased its share in satisfying the demand for food. However, its position in the entire Polish industry and economy is weakening, which is associated with a change in consumption patterns and a decreasing share of food in the expenses and incomes of the population.

In the 1990s, the basis for development of the food industry was a rapid increase in the uptake of the domestic market [2]. After Poland's accession to the European Union, development of demand for food, beverages and tobacco products declined, and in some years this factor inhibited the growth of food production as domestic demand was decreasing (Tables 2, 3). The situation was similar in the case of producer prices as in the analysed period they were increasing but also decreasing. In 2011-2012, thus the period of high prices of agricultural raw materials on global markets, the increase in producer prices had the greatest impact on the increase in the value of sold production of the food industry.

Table 2. Impact of export, producer prices and domestic demand on the increase in production of the food industry in Poland (year/year) (in current prices) [8, 10, 11].

Detailed list	2001	2002	2003	2004	2005	2006	2007	2008
Value of production in the food industry (including tobacco) (in PLN billion)	100.0	98.5	105.0	116.8	125.2	131.9	147.5	149.7
Increase in the production of the food industry (year/year) (in PLN billion), including:	+7.2	-1.5	+6.5	+11.8	+8.4	+6.7	+15.6	+2.2
change in the main components (in PLN billion), i.e.								
• export	+0.7	+0.5	+3.5	+4.9	+4.2	+4.5	+3.7	+1.9
• producer prices	+3.2	-1.3	-1.0	+8.0	-1.5	-1.5	+6.9	+2.4
• domestic demand	+3.3	-0.7	+4.0	-1.1	+5.7	+3.7	+5.0	-2.1

Table 3. Impact of export, producer prices and domestic demand on the increase in production of the food industry in Poland (year/year) (in current prices) [8, 10 ,11].

Detailed list	2009	2010	2011	2012	2013	2014	2015	2016
Value of production in the food industry (including tobacco) (in PLN billion)	158.1	162.3	182.7	201.9	206.0	204.4	207.5	220.3
Increase in the production of the food industry (year/year) (in PLN billion), including:	+8.4	+4.2	+20.4	+19.2	+4.1	-1.6	+3.1	+12.8
change in the main components (in PLN billion), i.e.								
• export	+4.9	+7.0	+8.1	+8.0	+8.6	+5.3	+6.5	+7.0
• producer prices	+2.9	+0.5	+15.7	+8.5	+2.5	-3.5	-5.4	+1.8
• domestic demand	+0.6	-3.3	-3.4	+2.7	-7.0	-3.4	+2.0	+4.0

A large increase in producer prices occurred also earlier, i.e. in 2004 and 2007. In 2000-2016, the value of sold production of the food industry (in current prices) increased PLN 127.5 billion, of which 62% was the result of an increase in the export of food products, 30% resulted from the increase in producer prices, and 8% from internal demand (Tables 2, 3). This means that without development of food export, which was the effect of Poland's integration with the European Union, the increase in the sector's production would be more than half lower.

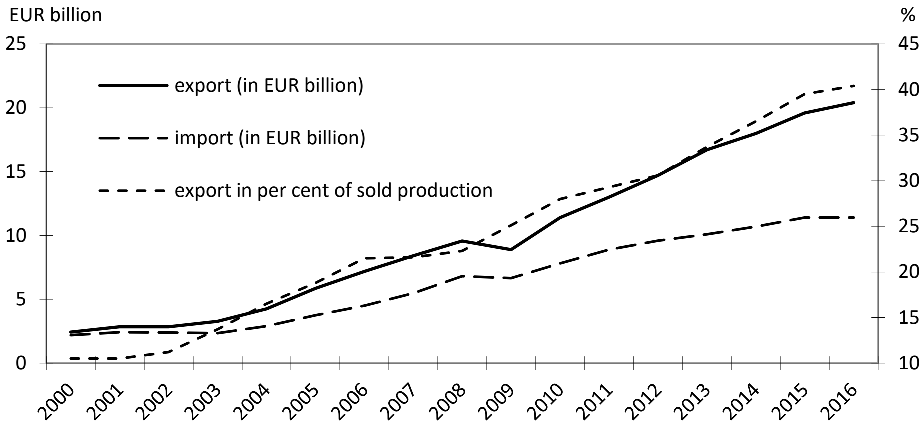

Fig. 1. Development of foreign trade in food industry products [2, 10, 11].

In the analysed period, the share of export of food industry products increased from 10.5% to 40.4% of the sold production of this sector (Fig. 1). The increasing share of food export indicates an important role of this factor in the use of surplus production of the food industry, and thus in its development (see Tables 2, 3). Export was not only an important sales channel for products of the domestic food industry, but also stimulated the economic situation in many industries and contributed to the improvement of the economic and financial performance of the food industry. The balance of trade in products of the food industry increased from EUR 0.24 billion in 2000 to EUR 9.0 billion in 2016.

4 Development of Individual Directions of Food Processing

Another important factor in development of the food industry in the analysed period was the constantly growing demand for highly processed food as well as development of industries which produce for the needs of other sectors of the economy. The production of these products (i.e. feed for livestock, pet food, dehydrated and methylated spirits, esters, glucose and isoglucose) increased 6.8% per year. The value of this production (in constant prices) in 2016 was almost three times higher than in 2000 (Fig. 2).

The secondary processing of food, which includes the production of canned food, dishes, prepared meals and other multi-ingredient products as well as various types of snacks, desserts and non-alcoholic beverages, was also developing quickly. Its growth rate amounted to 5.1% per annum and was higher than that of the entire food industry. The production of highly processed food in 2000-2016 increased 220%.

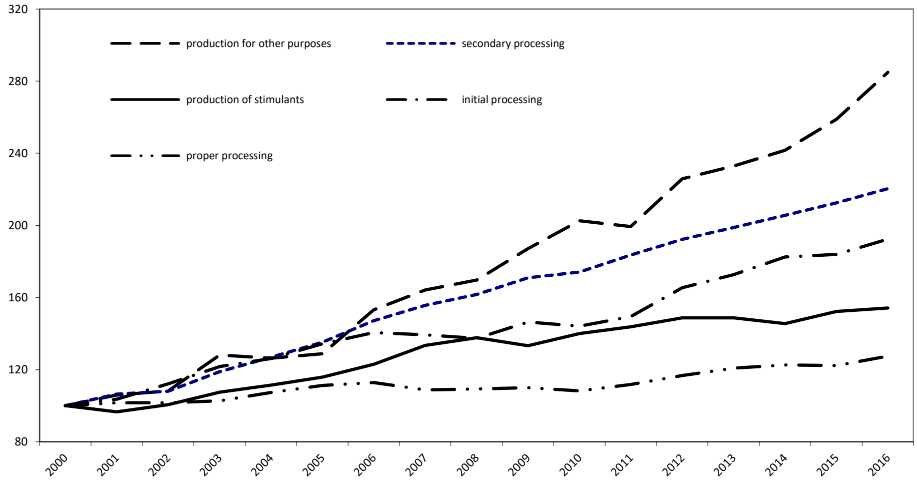

Fig. 2. Dynamics of development of the main directions of industrial processing of agri-food products (2000 = 100) [12].

A large increase in production was also achieved in the so-called initial processing of agricultural products (i.e. industrial slaughter, processing of milk, rapeseed, sugar beet, fruit and vegetables, milling of cereals for food and feed and their industrial use). The value of initial processing in 2000-2016 increased almost two times, and its average annual growth rate was slightly faster than that of the entire food industry and amounted to 4.2%. Between 2005 and 2011, there was a slowdown and even stagnation of this direction of processing. Since 2011, its dynamics clearly accelerated.

In 2000-2016, the value of the production of stimulants increased about 54%, i.e. at a rate of 2.7% per year, so it was developing a bit slower than that of the entire food industry. A new phenomenon after the integration with the EU was the acceleration of development of production of spirit drinks and tobacco products, with a significant reduction in the production of the wine sector (more than 2/3). After the rapid development of production of stimulants in the first half of the last decade, there has been a marked reduction in its dynamics since 2007. J. Drożdż explains these changes with the fact that demand for these items is more flexible than for the main food products (this is not a basic good). Production of beer and cigarettes had a steady upward trend in the analysed period in terms of volume [2].

The production of standard food products, the so-called proper processing, was developing the most slowly. In 2000-2016, the production value of this processing direction in constant prices increased only 27.5%, and the average annual growth rate amounted to 1.5%. It was the largest (about 4%) in the first years after integration (2004-2005) and in the last years of the analysed period (2010-2016), when the growth rate amounted to 2.8% per annum. In 2007-2010, there was stagnation and even a slight decrease in this processing (similarly to the initial processing).

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4 Conclusions

In 2000-2016, the sold production of the food industry in Poland increased more than two times from PLN 92.8 to 220.3 billion, i.e. it was growing at a rate of 5.6% a year, and in constant prices increased 82.8%, i.e. it was growing 3.8% a year. Poland’s accession to the European Union in 2004 became an impulse for faster development of this sector.

In the analysed period, the driving force of production in the food industry in Poland was food export, which managed about 62% of the production growth in this sector. The share of the other two factors, i.e. the increase in producer prices and internal demand, was lower and contributed 30% and 8% to growth, while in some years they hindered this growth.

In 2000-2016, development of individual directions of food processing was very diverse because:

- production for non-food purposes, i.e. production of feed and pet food, esters, dehydrated and methylated spirits, was developing the fastest (nearly threefold increase in the value of production),
- secondary processing of food, which includes the production of canned food, dishes, prepared meals, desserts, snacks and non-alcoholic beverages, was also developing quickly (more than twofold increase),
- initial processing, i.e.: slaughter of animals, milk processing, milling of cereals, was developing more slowly (by approx. 93%),
- production of stimulants increased about 54%,
- proper processing, e.g. production of cured meat, milk, butter, cheeses and bread, was growing the most slowly (by 28%).

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