

THE CHANGES IN ECONOMY AND IN AGRI-FOOD SECTOR IN POLAND - MACROECONOMIC ANALYSIS

*Marek Wigier*¹

Summary

Polish membership in the EU structures was a milestone which affected the acceleration of structural transformations in the entire national economy. In the period 2002-2014 the integration processes and the support of the agricultural policy was affected on structural changes in agribusiness sector. The purpose of this study is to assess the degree of development of agribusiness sector and the presentation the achievement related with Poland's membership in the EU. Using the statistical and descriptive methods, has been carried an analysis of the Central Statistical Office macroeconomic data with regard to assessing the degree of the structural changes in the economy and in the agro-food sector; the changes in food trade. Regarding to agriculture were represented among others changes in the agrarian structure, the income dynamics, regarding to food industry - amount of investments, the development of the output value etc.. The article conclusions are referred to macroeconomic and structural changes taking place in economy, in polish agriculture and in food industry.

Keywords: *agribusiness, macroeconomic changes, public support*

JEL Classification: *Q10, Q18, O13*

Introduction

The characteristic feature of the long-term development of agriculture is its decreasing share in the structure of the national economy and of agribusiness (Lewis, 1954, Jakubczyk 2010). The degree of industrialisation has always been a derivative of the development of agriculture, and, consequently, of the food industry (Wilkin 2003). The economic development consisted in a gradual transition from the agricultural economy to the industrial economy financed from agricultural revenues. This process has proceeded along with an increase in the level of the socio-economic development of the country. The share of agriculture in the gross domestic product decreased, the number of the employed declined and the socio-economic situation of agriculture was increasingly dependent on what happened outside of it, in other sectors of the

1 Marek Wigier, PhD, Principal Research Fellow, Institute of Agricultural and Food Economics – National Research Institute, Swietokrzyska street no. 20, 00-002 Warsaw, Poland, Phone: 48 22 50 54 438, E-mail: wigier@ierigz.waw.pl

national economy (Woś 1979, Tomczak 2005). The stimulus for the development of the economy was the modern sectors, i.e. industry, services, IT. In the theory of economics, those dependencies have been included in the three sector theory².

Currently, the contribution of agriculture to the industrialisation process, sustainable development, provision of public services or political stability is being reassessed. Today, a modern agricultural holding is sort of an enterprise (Rembisz, 2005). It applies advanced manufacturing techniques, is horizontally and vertically integrated with other entities, has the well-developed marketing system, and in its decisions it is guided by market trends and consumer preferences (Kowalski, Rembisz 2005). The modern agricultural holding is characterised by a high degree of complexity, diversity and integration. Thus, the allocation of resources in agriculture becomes increasingly dependent on market forces and forming networks of interbranch connections. The agricultural production is increasingly dependent on the progress in genetic research, the implementation of advanced manufacturing technologies, the development of research regarding the health and nutritional values of food, the application of organic production criteria. Distinguishing between the stage of the production of raw materials and the stage of their initial processing, while still easy, is often more and more fuzzy. The industrialisation of agriculture and its development become inseparable processes.

Implementing the objectives of CAP support has important impacts on food economy. The current objective set of the CAP, according to the “EU 2020” strategy, is that agriculture should contribute to smart, sustainable and inclusive growth (European Commission, 2010). Government policy measures have static effects, risk-related effects and dynamic effects on production (OECD, 2001a), and different transfer efficiency on farm income depending on policy tools applied (OECD, 2001b). The impact of agricultural subsidies on income distributional effects depends on their type, the structure of the markets and the existence of market imperfections (Ciaian, 2011). Most of the studies investigate the direct impacts of subsidies on prices, output, income, the environment, etc. by assuming that subsidies do not alter the structure of agricultural markets and do not interact with market institutions. In reality, government policies may have various unintended effects (they can change the structure of market organization or crowd out some market institutions) (Forgasi et al., 2014).

The agrarian structure in Poland, which currently undergoes transformations, leads to an absolute reduction in the number of farms and polarisation of the area. Agriculture as a sector involved in the creation of the GDP loses its importance to the other sectors

2 The concept of the three-sector economic structure, its changes and correctness of the development of sectors (the theory of three sectors of the economy), is inextricably connected with the names of three authors, who built its foundations. This theory was developed in the 1930s by A.B.G. Fisher, C. Clark and J. Fourastie. It is based on a thesis about the changing role of the individual sectors in the historically considered process of development of economies, namely the decrease in the importance of the agricultural sector; growth, stabilisation and then also decrease in the share of the industrial sector and the continuing increase in the role of the service sector, related to the economic development.

of the economy. Therefore, a characteristic feature of the process is deagrarianisation the national economy and the development of rural areas. Throughout this process, it is extremely important for the ongoing structural changes to result in the improvement of the competitive position of farms and long-term and sustainable rural development. Poland's accession to the EU has generated new economic and organisational conditions to support structural changes in the broadly defined food economy and rural areas (Poczta 2012). Policy instruments implemented within the CAP create chances for the stabilisation of structural policy conditions over the period of several production cycles, thus stimulating the desired changes in the area structure of farms, the improvements in the competitiveness of production, environmental protection and multi-functional development of rural areas. Thus they are a fundamental instrument supporting the process of modernisation of Polish rural areas and agriculture (Wigier, 2014 b).

Macroeconomic situation

Polish integration with the EU structures was a milestone which affected the acceleration of structural transformations in the entire national economy. The dynamics of this process resulted from, inter alia, the adoption in Poland of new solutions and regulations in the field of the economic policy, including the agricultural and trade policy, access of more than 505.7 million³ consumers, inflow of public financial resources from the structural funds, cohesion policy and the CAP policy or the free movement of persons, goods and services.

Table 1. Selected macroeconomic indexes in 2002-2014

Specification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP value in PLN billion (fixed prices of 2012)	1,059	1,101	1,158	1,198	1,277	1,369	1,422	1,459	1,515	1,588	1,616	1,643	1,700
GDP per capita (current prices in PLN thousand)	21.1	22.1	24.2	25.8	27.8	30.8	33.5	35.2	37.3	40.3	41.9	43.2	45.0
Dynamics of GDP changes (previous year = 100)	102.0	103.6	105.1	103.5	106.2	107.2	103.9	102.6	103.7	104.8	101.8	101.7	103.4
Share of investments in GDP (in %)	13.5	13.1	13.0	13.3	14.5	16.2	17.0	16.1	15.1	15.7	14.7	13.9	14.4

3 Eurostat data as of 1 January 2013 http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_statistics_at_regional_level/pl (date of reading: 14.08.2015).

Specification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Inflation (CPI) (previous year = 100)	101.9	100.8	103.5	102.1	101.0	102.5	104.2	103.5	102.6	104.3	103.7	100.9	100.0
Unemployment rate (%; BEAL)	19.7	19.3	18.0	16.7	12.2	8.5	6.7	8.5	9.3	9.7	10.1	9.8	8.1

Source: Own elaboration based on the CSO data. Statistical Yearbook of the Republic of Poland, CSO, Warsaw, subsequent years and <http://stat.gov.pl/wskazniki-makroekonomiczne/> access date 18.09.2015.

In 2002-2014, a macroeconomic situation in the Polish economy was relatively stable (*Table 1*). In the same period, the GDP grew by 4-7% per year. Indeed, the world economic crisis of 2008 caused a slowdown, but GDP developments were positive throughout the period considered. The nominal GDP per capita grew by over 100% to reach about PLN 45 thousand in 2014. In the first half of 2014 Poland's GDP increased by 3.4% compared to the same period of previous year. At the same time, domestic demand grew by 5.1%. These data show an economic recovery when compared with the tough last year, when GDP grew by 1.7% (year/year) in the entire year and domestic demand dropped by 0.2% (Wigier 2014 b).

The growth rate was stabilised by EU structural funds and domestic demand. Since Poland's accession to the European Union in 2004 the country has come a long way. A strong support in this process has been and continues to be provided by the inflow of structural funds granted in the framework of the EU's cohesion policy. In the EU's 2007-2013 budget, the subsidies for Poland amounted to nearly EUR 68 billion, the highest sum among the EU funding beneficiaries. According to the Regional Development Ministry's data as of July 2015, since the launching of EU subsidies programs of the 2007-2013 framework, authorities and beneficiaries signed 106,311 contracts for the total sum of PLN 410 billion of qualified expenses, including co-funding on the part of the EU amounting to PLN 284.4 billion⁴.

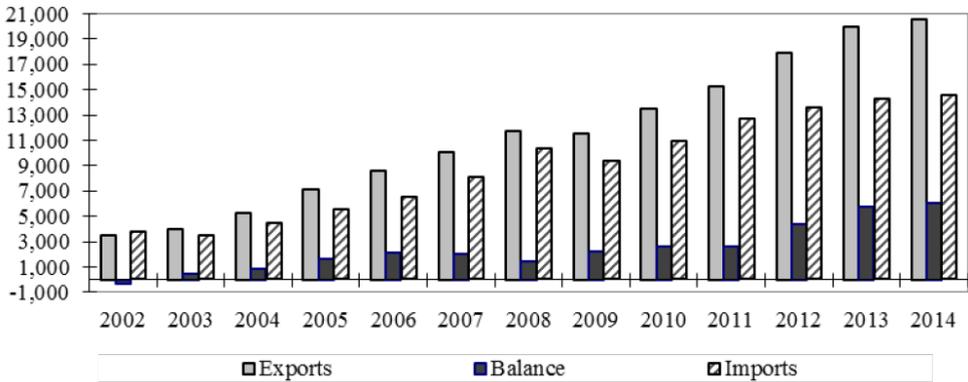
The factors stabilising the development rate were high investments, at the level of about 13-17% of the GDP value, inflow of financial resources from the structural funds, foreign direct investments (FDI) and internal demand. Poland has so far stood out in terms of FDI among the CEE countries. Strong internal demand and solid private consumption used to be named by economists as strengths of the Polish economy, helping the country to retain its economic growth even in the face of difficult conditions on international markets. The unemployment rate gradually decreased, from about 16-19% in the period preceding integration with the EU to about 8% in 2014. The inflation rate oscillated around the inflation target designated by the Government (from 1 to 4%). Poland is now the sixth-largest economy in the EU. Living standards more than

⁴ https://www.mir.gov.pl/media/7562/NSRO_miesieczna_lipiec_2015.pdf

doubled between 1989 and 2014, reaching 62% of the level of the prosperous countries at the core of Europe.

The dynamic economic growth translated into the reduction of the unemployment rate and general improvement of the income of Polish citizens. This, in turn, was reflected in the growing demand, including demand for food products. However, the share of the latter in household budgets remains substantial (ca. 25% of the general expenses). The foreign trade plays also a prominent role in stimulating GDP growth. Following years of stagnation or sluggish growth Polish foreign trade in agri-food products soared after EU accession. Previously a net importer of food products, Poland has become a net food exporter. In 2014 export surplus amounted to about EUR 6 billion (*Figure 1*). The positive balance is generated by trade in products of the food industry, and the surplus is several times higher than deficit in agricultural trade. The share of the Polish agriculture in creating the added value following the accession to the EU shows a tendency to decrease. Currently it is at the level of 3-4%. At the same time, agriculture employs ca. 15% of the total number of employed people, which is indicative of low labour efficiency.

Figure 1. Polish foreign trade in agri-food products in 2002-2014 (EUR million)



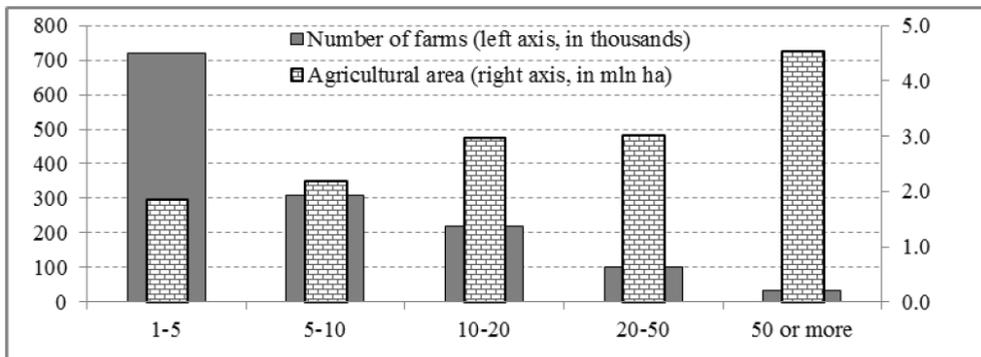
Source: Authors' own calculation according to: Handel zagraniczny produktami rolno-spożywczyymi. Stan i perspektywy, No. 20-40, "Analizy Rynkowe" 2005-2014, IERIGŻ-PIB, ARR, MRiRW, Warszawa.

The development prospects of agriculture less and less depend on conditions endogenous to the sector and increasingly depend on sectorial policy and, primarily, macroeconomic policy. Growth trends in the whole economy are of paramount importance to the competitiveness of the food sector. Positive macro-results spread to agriculture and its environment. GDP growth stimulates disposable income, which in turn translates into increased demand for food products.

Transformations in agriculture

Following the accession to the EU have been major changes in the agrarian structure which continued long-term trends. In the period preceding accession to the EU (1996-2002), large agricultural holdings (20-50 ha UAA), which took over arable land from small and medium agricultural holdings, but also from holdings of over 50 ha, developed dynamically. The growth in numbers was accompanied with the decrease of surface. The arable land of holdings below 1 ha grew, but their number dwindled. Following the accession to the EU, the number of holdings decreased by 28%, and their surface – by 3%. The development of large holdings lost dynamics, but still arable land were taken over by holdings of the surface of 20 to 50 ha, for both smaller holdings, of which the number and area decreased, and bigger, the number of which, despite the decrease of the area, grew. The number of holdings taking over land slightly increased. The number of holdings smaller than 1 ha decreased by 27%. To a slightly lesser extent the number of small and medium holdings decreased (from 25% to 16%). Their area also shrunk, including, to a largest extent, in the group of 10 to 20 ha (by 8%). These changes indicate that the Polish agriculture, despite major changes, is still to a large extent dispersed. *Figure 2* shows the use of land in different groups of farms in 2014..

Figure 2. Land use by groups of farms in 2014



Source: Agriculture in 2014. CSO data, Warsaw 2015.

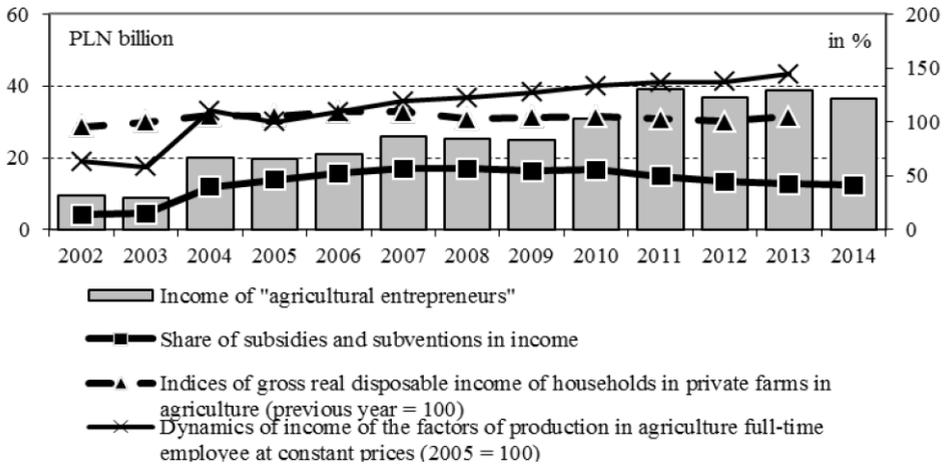
In 2002 26% of agricultural holdings did not run agricultural activity, and in 2014 this share decreased to 16%, which confirms the thesis of the growth of productive and pro-market orientation of holdings. After transformation into market oriented economy in Polish agriculture there appeared a slow increase in the fixed assets share in the structure of means of production, on the one hand, and, on the other, depreciation of fixed assets was observed (not sufficient replacing rate to keep the value of fixed assets on constant level). Average image of the Polish agriculture is very unfavourable in this regard. In 2014, the use of fixed agricultural assets exceeded 76%. This situation concerns mostly buildings and facilities. The usage of machinery is considerably lower. While, following the accession to the EU, the investments largely increased, and their share in the value of fixed assets almost doubled, it does not change the general situation of the Polish agriculture. Firstly, investments are made by large holdings, economically

strong secondly, investments concern in majority the machinery and not buildings and facilities used in agricultural production. The estimated number of farms amounts to 150-250 thousand (Fogarasi J., Wieliczko B., Wigier M. Tóth K., 2014). Agricultural activity conducted in the remaining farms does not enable recovery of fixed assets which increases its usage (Rembisz, Floriańczyk, 2015).

According to CSO data, the number of employees in agriculture has been relatively stable recently and it was at the level of slightly over 2 million. Nevertheless, the so-called “hidden unemployment” is included in these numbers, as significantly large part of family holdings members spend little time working in agriculture. Undoubtedly, the employment in agriculture decreases. Currently ca. 22-24% of the working age rural residents work in agriculture. It should be pointed out, that 40-45% of the total number of the unemployed live in rural areas. Following the accession to the EU, this proportion slightly increased, but it resulted from the reduction of unemployment in other sectors of the national economy (Nurzyńska, Poczta, 2014).

The value of agricultural production was on the increase in 2002-2014. Nominally, the value of global⁵ and commercial output has more than doubled (PLN 112 billion and PLN 84 billion respectively). In real terms (in 2002 prices) the value of global production in 2014 increased by 27%. On average over the year, the output value increased at a 1% rate, and for goods it increased at a 2% rate. A faster growth in the value of commercial production than the output results from greater commercialisation of production and increased marketability of agriculture. The share of commercial production in the output in the period in question increased by 10 pp. to 72%. Fluctuations in production cause changes in prices of plant products and, consequently, result in business fluctuations in livestock sector, and change in the production level. Following the accession to the EU no major changes were observed in the share of plant and animal products (Rolnictwo, 2015).

5 The output is the sum of plant and animal products obtained during a year in a given farm. Its primary source is crop production, animal production and income from mechanisation services, but also processing. The output reflects the actual size of the agricultural production. It is therefore a measure that makes it possible to determine the production orientation of an enterprise (Woś 1999).

Figure 3. Income in the Polish agriculture and their dynamics in 2002-2014

Source: Authors' own calculation according to CSO data.

The income of the agricultural sector significantly increased after the accession to the EU. A sudden increase of income was noted in 2004, namely in the first year after Poland's accession to the EU and covering the national agriculture with the CAP income support system. In following years the dynamics of income growth was slowed down, yet a clear growing tendency was observed (Wigier 2014 a). In nominal prices their value in 2014 amounted to almost PLN 37 billion, as compared to less than PLN 10 billion in the pre-accession period (*Figure 3*). The growing income of the sector, combined with employment reduction, resulted in significant growth of income calculated per persons employed full time. In 2014 their amount was almost twice higher than in 2005 and almost twice as high compared with the pre-accession period. The share of subsidies and grants in income as a result of the implementation of direct payments and other measures investment aid schemes increased from 15 to more than 45 percent.

The EU funds had a significant share in the financing of transformations in agriculture until Poland's accession to the EU. The direct payments are the most common type of support, each year about 1.4 million of farmers use this form of support. The value of payments in the 2004-2014 period increased from ca. PLN 6 billion to PLN 14 billion per year. When calculated per one farm it reaches an average of ca. PLN 9 thousand, and this form of support is used by 87% of farms having an area of more than 1 ha. An equally important source of income (regardless of production, and only based on the farm's location) are payments for less-favoured areas (LFA). Each year these payments are granted to ca. 700 thousand farmers, i.e. half of those receiving direct payments. The land surface covered with LFA payments amounts to ca. 6.9 million ha. The manner of spending of the resources is not subject to settlement. Smaller farms usually allocate the granted payments to current needs and means of production (fuel, fertilisers), while the bigger ones also make investments.

The resources earmarked for investments are also an important source of aid for farms. In order to obtain them a farm has to prepare a business plan and gain its acceptance from a body managing the programme. So far, the financial resources for investments in farms available under SAPARD, SOP "Agriculture", RDP 2004-2006 and RDP 2007-2013 were used in their entirety. By 2002 a total of 15% of farms benefited from measures aimed at improvement of competitiveness of farms. The greatest share, i.e. 6% benefited from measure "Modernisation of agricultural holdings", 5% from "Early retirement", 2.7% from "Setting up of young farmers" and 1.3% from "Diversification of agricultural activities". The value of grants is rather considerable, and in the current RDP 2007-2013 their average value as calculated per one beneficiary is even higher. In measure "Modernisation of agricultural holdings" it exceeded PLN 140 thousand, in measure "Diversification of agricultural activities" – PLN 84 thousand, and in "Setting up of young farmers" – PLN 66 thousand (Sprawozdanie, 2014).

In the 2004-2014 period, the cumulative value of support for the agri-food sectors from three main sources of support, i.e. a grant from the national budget to KRUS, a grant from the national budget co-financing of the CAP, and payments from the EU budget, exceeded PLN 370 billion. The largest share of these payments were subsidies to insurance (38%) and grants coming directly from the EU budget (over PLN 160 billion, i.e. 35% of the above amount). Aid for the implementation of the CAP was approx. 27% of the total amount. RDP 2007-2013 with a budget of nearly PLN 72 billion is the largest of the CAP investments programs (Matuszczak 2013, pp. 33-43). Its participation in the CAP expenditure exceeded 33%. Given the budget for RDP 2007-2013, sharing between the principles of agricultural models, we can assume that the program in approx. 41% supports the development of industrial agriculture, 34% – socially sustainable agriculture and 25% – environmentally sustainable agriculture (Wigier 2013 b, pp. 22-42). It should also be emphasized that the remaining programs, the implementation of which was completed in 2004-2006, despite the modest budget, gave a strong impetus to investment and "demonstration" on farms and in rural areas, and public aid has become a stimulus for investment activities.

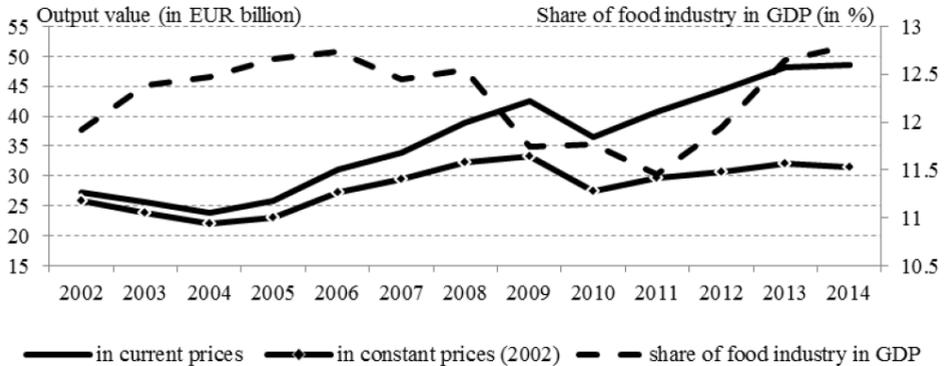
An improvement of competitiveness in agriculture depends on structural changes (that predetermine the efficiency of production factors used) and on development of the entire national economy, especially in the context of capacities to create new jobs outside agriculture. The rural development programmes, direct payments and changes in the entire economy accelerated structural transformations in agriculture, which consisted e.g. in concentration of production (Floriańczyk, 2006).

Changes in the food industry

Changing the economic system after the year 1990 triggered the process of structural transformation in the food industry. These changes were caused by the privatization process, restructuring and inflow of capital. In turn the development and improvement of competitiveness occurred mainly in the first decade of the twenty-first century, and particularly rapidly in the first years of the Polish membership in the EU. Over the

last ten years there has been increase of: investment and modernization of production, labour productivity, value of production and value of exports. These phenomena constitute a firm basis for further strengthening the competitive position of Polish food industry on the national and EU markets.

Figure 4. Development of the output value



Source: Authors' own calculations based on CSO data.

In the period 2002-2014 the value of Polish food industry production sold has nearly doubled (*Figure 4*). There was particularly dynamic growth between 2003 and 2007, which was initially related to the prospect of Poland's entry into the EU and the increase in food prices, and later was primarily the result of increased agri-food product exports and growing domestic demand. The economic downturn that in most EU countries turned into a short-lived recession contributed to a halt to the rapidly growing Polish food industry production sold. In nominal terms, over the whole period, growth in the value of production amounted to 6.8% per annum and in real terms approx. 3.8% per year.

Food processing is characterised by high fragmentation and a low level of concentration. This is due to a lower level of technical development of this sector and the nature of the object of labour, determined by the variability of processed agricultural products. Other significant characteristics of the food industry include its high relation to local and regional markets, assortment diversity and relatively short production series and short shelf life of products. Significant impact on the process of concentration of production in the food industry had the transnational corporations. Their impact was both positive and negative. The corporations positively influenced: the process of transformation, the accelerations of restructuring of many industries, technological progress (introduced not only in their factories, but also through their imitation by other companies), increase in wages, improvement in the quality of market offer, accelerated processes of specialization of production. The corporations influenced negatively: the monopolistic practices, transfer of profits abroad. Corporations activity contributed also in the demise of many domestic companies and contributed to a rise in unemployment. Transnational corporations' share in the value of sales of sectors of

the Polish food industry is estimated at about 40%. This participation was increasing slowly but steadily. Therefore, the activity of TNCs is a competition for domestic producers (Wigier, 2014 c).

Food producers have the most of competitive advantages, most of which relate to price and quality; they have significantly increased production and exports, and consequently improved their economic and financial situation. The improvement of the condition of the food industry was also significantly affected by the public support given to the sector in connection with the Polish accession to the European Union (both in the pre-accession period and in the period of Polish membership). An improvement in the financial performance of the food industry was evident directly after the accession of Poland to the EU. The increase in profits was accompanied by increased liquidity. The good economic and financial situation shows that the industry has proved to be quite resilient during the global economic crisis (Mroczek, 2014).

The processes of globalisation and integration have influenced the change of trends in the entity structure development of the food industry. Concentration of production processes returned to the sector, which replaced the tendency for fragmentation of processing occurring throughout the transition period. The perspective of Poland's entry to the European Union resulted in increased capital expenditure. Investments have led to improved production efficiency, reductions in employment and labour productivity growth (Szczepaniak, 2014). Despite visible progress in productivity growth in Poland, it was still on average more than 40% lower than in the EU-15. During the economic downturn, processing companies made more sensible investments (*Figure 5*).

Figure 5. Annual amount of investments (in EUR billion) and investment rate (in %) in the food-industry



Source: Authors' own calculations based on CSO data.

An important role in the transition process of the food industry has been played by support of investment with public funds from the EU budget and national resources. In 2002-2014 investments in food industry focused mainly on: improvement of the sanitary and hygienic as well as veterinary conditions of production (23% of the total value),

improvement of production quality (25%) and introduction of new or modernisation of the existing technologies (20%). Almost two thirds of all projects delivers one of the three objectives. The shares of investment pertaining to the improvement of animal welfare was 1%, creation of new and rationalisation of the existing marketing outlets was 2% and reducing the negative impact on the environment was 4%. The total investment in the sector, in 2002-2014, was equal to EUR 24 billion. Approximately 5% of the investments was financed by EU subsidies (Wigier, 2014 d). Although the public resources are a change stimulator, in the whole food industry investments, they represent only an additional source of financing. Development of the most important agri-food industries, supported by external resources, has been and is a necessary condition of sustainable development of food economy.

Conclusions

The structural changes taking place in the Polish agriculture, food industry and rural areas in the last decade became more dynamic. Within the last decade there has taken place the dynamisation of structural changes occurring in Polish agriculture. As the most important should be recognised: a decrease in the number of farms with a simultaneous increase in the share taken by the largest farms; the decrease in employment in agriculture and the progressing concentration and specialisation of production. The size of the investment has increased noticeably, but their value still does not exceed the value of depreciation of fixed assets. Despite these changes, the Polish agriculture is still characterised by a strong polarization of the agrarian structure.

In the period 2002-2014 the value of Polish food industry production has nearly doubled and its share in GDP fluctuated of approximately 11.5 to 13%. The good economic and financial situation shows that the industry has proved to be quite resilient during the global economic crisis. Over this period there has been increased: the investment and progressed modernization of production, labour productivity, value of production and value of exports. An important role in the transition process of the food industry has been played the support of investment with public funds from the EU budget. Macroeconomic changes in the economy, the restructuring and the modernisation proces in entire agricultural sector constitute a firm basis for further strengthening the competitive position of Polish food industry on the national and EU markets.

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