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# **IMPORTANCE AND CONTRIBUTION OF AGRICULTURE TO THE NATIONAL ECONOMY OF POLAND BEFORE AND AFTER ITS ACCESSION TO THE EUROPEAN UNION (1994-2016)**

*JEL codes: D24, J43, Q10*

**Summary:** The article attempts to determine the importance and share of the agricultural sector in creating the national economy in Poland. The survey covered the years 1994-2016 and was carried out from the perspective of two subperiods: pre-accession (1994-2003) and post-accession (2004-2016). To achieve the goal, the shaping of the share of agriculture in the creation of global production and gross domestic product is presented and discussed. The development of the share of investment outlays and the value of assets involved in the agricultural sector and the percentage of people employed in agriculture in relation to employment in all sectors of the economy was also examined. The data used in the work came from the Central Statistical Office. To achieve the intended research goal, among others dynamic indexes, which were used to compare the phenomena in question over time and average annual values of particular parameters, calculated using the arithmetic mean. Based on the conducted research, a gradual decline in the share of the agricultural sector in creating value in the national economy was observed, consistent with the global tendency for developing countries.

**Key words:** agricultural markets, European integration.

## **1. INTRODUCTION**

Agriculture differs from other branches of economy, as it is very closely connected with the land factor, which is distinct from other production factors mainly because of being determined by the laws of nature (e.g. photosynthesis, climate, soil fertility) [Wilkin 2003, p. 27-36]. Therefore, it is not possible to rapidly increase agricultural production, and certainly not without a substantial decline in quality and other properties of crops. Moreover, contrary to labour and capital, agricultural land cannot be easily adapted for alternative applications, similarly to a considerable part of capital resources used in agriculture. In addition, the agricultural sector is characterised by a long payback period. As a result, the competitiveness of farms' activities will always be restricted in relation to other

capital applications. Therefore, farming activity often generates losses, which are covered by taxpayers or farmers themselves depending on legal and political conditions [Stiglitz 1987, p. 51-53].

Another reason for the deprivation of farming income is the intermediary nature of the demand for agricultural raw materials, which translates into a substantial distance between the final consumers and agricultural producers. Thus, although being the most crucial element of the food chain and incurring the greatest production risk, the farmers' income share is lower than that of processing companies and traders. This phenomenon can be explained with the fact that the largest profits are generated in sectors being the closest to the final customers [Hamman and others 2012, p. 465-483]. In the case of agricultural products, the added value chain is often long, as a substantial part of crops undergoes a number of modifications in the processing industry before reaching the end user. This is how the market depreciates agriculture, redistributing the financial surplus in a way which is unfavourable to this sector [Czyżewski, Czakowski 2017, p. 138-150].

## **2. RESEARCH MATERIAL AND METHODOLOGY**

The main objective of this article was achieved by way of analysing and comparing the development of the contribution of agriculture to the following macroeconomic indicators: global production, gross domestic product, investment value, fixed assets and the number of people employed. The study covers a long research period, i.e. 1994-2016, which is divided into two subperiods taking into account the accession of Poland to the European Union: the pre-accession one (1994-2003) and the post-accession one (2004-2016).

The data used in the article were provided by the Central Statistical Office. In order to achieve the intended purpose of the research, the authors used, among other things, the dynamic indices, which were applied for comparison of the considered phenomena over time, as well as the annual average values of individual parameters, which were calculated using the arithmetic mean.

## **3. RESEARCH FINDINGS**

The contribution of agriculture to creating value in the national economy in 1994-2016 in Poland was significantly determined by two fundamental events (Table 1). The first of them was the political transformation, the consequences of which were observed at the beginning of the period analysed, and the second one was the accession of Poland to the European Union. In the first case, the major changes connected with the said event in the agricultural sector include ownership transformations related to the privatisation of the State Agricultural Enterprises, as a result of which around 3.5 million ha of cultivated land were sold and leased [Michna 2011, p. 12-14]. Moreover, this was connected with

deregulation of the prices of agricultural products, the elimination of the majority of state budget subsidies for agriculture and food products, as well as opening the domestic agricultural and food market to foreign entities [Czakowski, Czyżewski 2017, p.9-14]. On the other hand, the accession of Poland to the European Union was the greatest economic and social event of the 21<sup>st</sup> century. The preparations for the accession began before 2004 as part of gradually adjusting the national structures to the EU ones. However, the most important changes were the abolition of customs barriers and the functioning within the EU common market, as well as assuming the common agricultural policy [Czakowski 2017, p. 161-180].

**Table 1. Contribution of agriculture<sup>a</sup> to the national economy in 1994-2016 (in %)**

Specification	Global production <sup>a</sup>	GDP <sup>b</sup>	Investment expenditures	Gross fixed assets	Employed <sup>c</sup>
1994	8.41	6.29	3	13	26.6
1995	8.27	5.98	3.3	12.8	26.2
1996	7.76	5.54	3.3	11.7	26.6
1997	6.38	4.79	2.9	9.8	27.0
1998	5.82	4.14	2	9.1	27.0
1999	4.95	3.39	1.9	8.4	27.1
2000	5.33	4.38	1.9	7.9	28.0
2001	5.36	4.52	1.9	7.5	28.9
2002	4.94	3.97	2.1	7.2	29.0 / 16.6
2003	4.74	3.85	2	6.9	16.5
2004	5.04	4.50	2.2	6.6	16.4
2005	4.49	3.97	2.3	6.5	16.2
2006	4.19	3.75	2.2	6.3	15.9
2007	4.38	3.77	2.2	6	15.1
2008	4.00	3.26	2.1	5.7	14.7
2009	3.89	3.23	1.9	5.4	15.0
2010	3.79	3.24	2	5.2	16.5
2011	4.06	3.48	2.2	5	16.3
2012	4.07	3.39	2.4	4.9	16.4
2013	3.71	3.31	2.6	4.7	16.3
2014	3.08	3.01	2.5	4.6	16.5
2015	2.85	2.55	2.3	4.4	14.9
2016	2.82	2.47	2.3	4.2	14.5
1994-2003 <sup>d</sup>	6.2	4.69	2.43	9.43	-
2004-2016 <sup>d</sup>	4.16	3.59	2.21	5.63	15.9
2004-2016/ 1994-2003 <sup>e</sup>	62.53	75.90	92.43	56.69	-

<sup>a</sup> Data for agriculture together with hunting and forestry; <sup>b</sup> in connection with the change of the current principles of the national accounts system related to the compliance with the requirements of the European System of National and Regional Accounts "ESA" 1995, data for the years 1994-1999 were

developed according to a different methodology; ° on average in a year; until 2002, results based on the PSR methodology from 1996, in 2002-2009 results based on the PSR methodology from 2002; from 2010 results based on the 2010 PSR methodology; <sup>d</sup> arithmetic mean of years; <sup>e</sup> index of dynamics between indicated periods, 1994-2003 = 100.

Source: CSO, 1994-2013, Statistical Yearbook of the Republic of Poland (data for 1994-2013), Warsaw.

Because of, *inter alia*, the political changes in Poland, there was a clear trend toward a decreasing contribution of agriculture to global production and GDP in the beginning of the period analysed (1994-1998). The change in intersectoral relations in the national economy resulted mainly from the transformation of the price system. The contribution of agriculture to global production was determined by a slower pace of changes in the prices of agricultural products in comparison with price dynamics of the whole economy [Czakowski 2016, p. 247-260]. On the other hand, the contribution of the agricultural sector to GDP was smaller because of deteriorating price conditions of exchange with regard to agriculture [Baer-Nawrocka, Poczta 2014, p. 85-89]. It is worth adding that the accession of Poland to the European Union, in particular on account of being subject to the CAP and an increase in foreign demand, contributed to the stabilisation of the level of agriculture's contribution to the national economy [Kowalski, Figiel, Halamska 2011, p. 29-42]. In 2016, agriculture together with hunting and forestry were responsible for 2.82% of global production and 2.47% of GDP. Another thing to be observed is the decrease in the contribution of agriculture to global production and GDP during the economic crisis dating back to the end of the first decade of the 20<sup>th</sup> century [Bigiel and others, 2012, p. 29-38].

Investment activities in agriculture were of great importance for the whole agribusiness, as they meant the ability and willingness of farms to adjust to the changing environment. Because of investments, it was possible to replace fixed assets which were used in the process of production and to purchase new ones. Accumulation, as well as simple and expanded reproduction are of key importance for the development of agricultural markets, as they determine the competitive position of farms in the long term [Jóźwiak 2012, p. 29-30]. In particular, the last of the phenomena mentioned above is highly desired, as it covers replacement of used means of production and labour force, as well as their extension, which have a positive result in the form of the increasing production volume [Grzelak 2012, p. 57-67]. The contribution of agriculture to investment expenditures before the accession of Poland to the European Union showed a downward trend, and after 2004 this indicator stabilized and began to slightly increase. This was also caused by an increase in investment expenditures related to the implementation of the common agricultural policy. The net effect of the implementation of these activities (i.e. activities which mainly supported investments, but also included other activities, e.g. direct subsidies) in Poland in 2004-2011 is PLN 9.1 billion [Czubak 2015, p.199-206]. Fixed assets, similarly to the level of investments, shaped the production and economic situation of farms. Because of the low income in Poland, the majority of farms could not afford to replace fixed assets, even as regards simple reproduction [Sass 2014, p. 155-170]. The above-mentioned

problem was strongly connected with the fragmentation of the agrarian structure in Poland. The slight increase in the contribution of agriculture to investment expenditures in the whole economy, as well as the increase in net investments did not stop the decline in agriculture's contribution to the value of fixed assets. However, attention should be paid to the fact that, in the case of fixed assets, their structure is of great significance. Thus, although the absolute value of fixed assets in agriculture did not change, it should be highlighted that the changes that took place as regards the direction of investments were very favourable and stimulated a higher productivity. The post-accession period was characterised by an increase in the real value of investment expenditures, and the structure of assets had a lower share of buildings and structures in the total value of fixed assets [Kapusta 2015, p. 100-106]. It is also worth emphasising that capital, as the most mobile factor of production, can relieve constraints resulting from the lumpiness of land. This is possible due to the fact of capital seeking compensation for the marginal return. Thus, as aptly expressed by R. Sobiecki, *'an attractive land can be approached by capital'* [2007, p. 107].

Agriculture provided jobs for almost 15% of people employed in the national economy at the end of the period analysed (2015-2016). In comparison with highly developed countries, this was a very significant percentage. It was more difficult for the labour force to leave the agricultural market in favour of other economic sectors because of, among other things, the high unemployment rate and relatively slow structural changes taking place in agriculture. Another factor to block the reduction of employment in agriculture was the natural duration of generation change of farm owners and the fact of them conducting activities until their retirement age [Frenkel 2014, p. 51-63].

The indicators showing the contribution of agriculture to the national economy proved that this sector was depreciated by the market mechanisms. The return of the economic surplus generated by agriculture, which flew out to other economic sectors, was a serious problem. Agriculture is not able to operate effectively in the long term with no adequate funds necessary to conduct restructuring processes. One of the ways of solving the above-mentioned problem is the economic interventionism [Sobiecki 2015, p. 38]. It is based on a long-term development policy and consistent investments in agriculture. It should be highlighted here that actions undertaken by a government in this regard should be aimed at subsidising agriculture so that it is possible to create new production structures and self-sufficiency of rural areas is guaranteed. No investments permitting restructuring and reorganisation may cause agriculture to turn into a "social sector" over time, the maintenance of which will each year require larger and larger amounts of state funds [Czyżewski 2007, p. 55-56].

The situation of farms conducting agricultural activities may also improve by way of reducing transaction costs. This process is complementary to the economic interventionism, and it can even, along with its development, gradually replace the budgetary re-transfer of revenue to agriculture [B. Czyżewski 2007, p. 57]. According to the transaction cost theory, the key issue for entities, which in this

case are farms and processing enterprises, is whether the amount of costs incurred in connection with making transactions within an organisation (hierarchically) is higher than those incurred in the case of transactions made in a free market [Blaug 2000, p. 619-620]. According to B. Czyżewski, in the case of agriculture, a hypothesis can be put forward that the most favourable option is a not fully integrated hierarchical structure, which means maintaining the autonomy of both parties to a transaction [B. Czyżewski 2007, p. 83-88]. Examples of such an organisation are farming cooperatives, which manage agricultural production in agreement with processing enterprises. Here, the economic surplus is achieved thanks to higher selling prices of agricultural products and lower production costs. It is possible to establish higher selling prices because of benefits derived by processing enterprises thanks to limiting the uncertainty as regards the amounts, timeliness and quality of the raw materials delivered. Producers, on the other hand, are able to reduce their costs because they can plan the type and amount of their crops, as well as use their assets better. In the case of free market structures there would be no transfer of profits back to farms, as none of the above-mentioned benefits and savings resulting from hierarchized structures would occur.

When executing the above-mentioned options, which guarantee that a greater part of the economic surplus is transferred to agriculture, it is also worth paying attention to the agrarian structure of farms. Thus, a separate approach should be adopted for industrial farms and for those operating according to the concept of socially sustainable agriculture [Zegar 2011, p. 11-22]. Industrial (factory, conventional) farms are understood as large farms deriving profits mainly from economies of scale. Their major disadvantage is degradation of agricultural ecosystems through the outflow of biogenic substances to groundwater and pollution of soil with toxic chemicals. Unfortunately, despite the fact of being aware of the negative impact of industrial farms, for many years now, the economic order has been valued above the social and environmental order, which is in contradiction to the rules of sustainable development [Runowski 2007, p. 13-26]. The current form of the common agricultural policy is aimed at ensuring that, in the immediate future, industrial farms become friendly to environments in which they operate. According to the definition provided by J. S. Zegar, in turn, farms representing the socially sustainable agriculture should at the same time satisfy the requirements (threshold values) in three above-mentioned spheres, i.e. the economic sphere (providing a satisfactory income to a family or user in comparison with the income of other social groups), the environmental sphere (observing the code of good agricultural practice, and observing the legal and administrative criteria when receiving support from public funds), and the social sphere (contributing to the maintenance or development of the economic and social viability of rural areas and cultural values) [Zegar 2005, p. 8-9].

Both groups of the farms described above follow different prerequisites as regards their operation. However, both these groups complement each other, as they satisfy different needs. Intensification of agricultural production has a positive influence on its efficiency through better use of production resources. Large farms are able

to derive profits more rapidly thanks to a significant reduction of their operating costs. Consequently, food security is ensured. On the other hand, socially sustainable agriculture is connected with higher operating costs, especially because of the small size of farms, which limits economies of scale. Nevertheless, this type of production is characterised by a higher quality of agricultural raw materials demonstrating health properties, which are more beneficial to consumers. Moreover, socially sustainable agriculture enhances the broadly defined “rural well-being”, which should be perceived, among other things, through the improvement of the social function of agriculture and rural areas, the supply of public goods and the maintenance of family farms [Henisz-Matuszczak 2007, p. 102-103].

#### 4. SUMMARY

To sum up, a gradual decrease in the agricultural sector’s contribution to the creation of value in the national economy was observed, and this trend is typical of developing countries. This was proved by the lower annual average contribution of agriculture to global production and GDP, which was determined, inter alia, by the slower pace of price changes of agricultural products in comparison with the price dynamics in the economy as a whole. Unfortunately, at the same time, the percentage of people employed in agriculture remained the same, which impeded structural changes of this sector. However, an increase in agriculture’s contribution to investment expenditures in the national economy after 2004 was observed, which was determined by the accession of Poland to the European Union and a substantial increase in the amount of financial support provided to this sector, which resulted from the fact of being subject to the common agricultural policy. Moreover, it should be remembered that, despite the decrease in agriculture’s contribution to the value of fixed assets in economy, in the post-accession period of 2004-2016, the structure of these assets underwent favourable transformations. This was connected with the increasing pace of providing utility infrastructure of land, and the contribution of machinery, technical equipment and manual equipment to the structure of assets, as well as the simultaneous decrease in the share of buildings and structures in the total value of fixed assets.

#### BIBLIOGRAPHY

- Baer-Nawrocka A., Pocza W., 2014, *Przemiany w rolnictwie*, [w:] Nurzyńska, I., Pocza W. (red.), *Polska wieś 2014. Raport o stanie wsi*, Wydawnictwo Naukowe Scholar, Warszawa, s. 85-124.
- Bigiel M., Czakowska H., Grzelak, A., 2012, *Kryzys gospodarczy-źródła i propozycje przeciwdziałania*, „Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy” no 5, s. 29-38.
- Blaug M., 2000, *Teoria Ekonomii. Ujęcie retrospektywne*, PWN, Warszawa.

- Czubak W., 2015, *Nakłady inwestycyjne w rolnictwie polskim w kontekście wdrażania Wspólnej Polityki Rolnej Unii Europejskiej*, [w:] Czyżewski A., Klepacki B. (red.), *Problemy rozwoju rolnictwa i gospodarki żywnościowej w pierwszej dekadzie członkostwa Polski w Unii Europejskiej*, IX Kongres Ekonomistów, PTE, Warszawa, s. 199-206.
- Czakowski D., 2017, *Konkurencyjność międzynarodowa podstawowych produktów rolnych w Polsce przed i po akcesji do Unii Europejskiej (1994-2013)*, „Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy” no 10, s. 161-180.
- Czakowski D., 2016, *Tendencje w kształtowaniu się cen skupu podstawowych produktów roślinnych przed i po akcesji Polski do Unii Europejskiej (1994-2013)*, „Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy” no 9, s. 247-260.
- Czakowski D., Czyżewski A., 2017, *Podstawowe rynki rolne w Polsce przed i po akcesji do Unii Europejskiej. Poziom i uwarunkowania rozwoju*, KPSW, Bydgoszcz, s. 9-14.
- Czyżewski A., 2001, *Rola polityki makroekonomicznej w kształtowaniu warunków zrównoważonego rozwoju rolnictwa*, „ZN AE w Poznaniu. Współczesne problemy agrobiznesu w Polsce” nr 13, s. 9-22.
- Czyżewski A., 2007, *Teoretyczne przesłanki polityki rolnej*, [w:] Czyżewski A. (red.), *Uniwersalia polityki rolnej w gospodarce rynkowej ujęcie makro- i mikroekonomiczne*, Wyd. AE w Poznaniu, Poznań, s. 55-56.
- Czyżewski A., Czakowski D., 2017, *Changes in Agricultural Markets in Poland following its Accession to the European Union*, „Management” vol. 21(2), s. 138-150.
- Czyżewski B., 2007, *Instytucje w tworzeniu struktur agrobiznesu*, [w:] Czyżewski A. (red.), *Uniwersalia polityki rolnej w gospodarce rynkowej ujęcie makro- i mikroekonomiczne*, Wyd. AE w Poznaniu, Poznań, s. 57-98.
- Frenkel I., 2014, *Ludność wiejska*, [w:] Nurzyńska I., Poczta W. (red.), *Polska wieś 2014. Raport o stanie wsi*, Wydawnictwo Naukowe Scholar, Warszawa, s. 27-84.
- Grzelak A., 2012, *Ocena procesów reprodukcji w gospodarstwach rolnych w Polsce po integracji z UE w świetle danych systemu rachunkowości rolnej FADN*, „Journal of Agribusiness and Rural Development” nr 2 (24), s. 57-67.
- Henisz-Matuszczak A., 2007, *Dualny rozwój rolnictwa i obszarów wiejskich*, w: Czyżewski, A. (red.), *Uniwersalia polityki rolnej w gospodarce rynkowej ujęcie makro- i mikroekonomiczne*, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań, s. 99-132.
- Józwiak W., 2012, *Polskie rolnictwo i gospodarstwa rolne w pierwszej i drugiej dekadzie XXI wieku*, Program Wieloletni 2011-2014 (nr 52), IERiGŻ-PIB, Warszawa.
- Kapusta F., 2015, *Zmiany strukturalne środków trwałych w polskim rolnictwie i ich produktywności w okresie przedakcesyjnym i po akcesji do Unii Europejskiej*, „Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu”, tom XVII, zeszyt 1, s. 100-106.
- Kowalski A., Figiel S., Hałamska M., 2011, *Spoleczne i ekonomiczne uwarunkowania rozwoju sektora rolno-żywnościowego*, „Polish Journal of Agronomy”, nr 7, s. 29-42.
- Michna W., 2011, *Dotychczasowe próby restrukturyzacji wsi i rolnictwa*, [w:] Michna W., Firlej K., Wierzbicki K., *Wybrane problemy wizji rozwoju wsi i rolnictwa w pierwszej połowie XXI wieku*, IERiGŻ-PIB, Warszawa, s. 11-29.
- Runowski H., 2007, *Poszukiwanie równowagi ekonomiczno-ekologicznej i etycznej w produkcji mleka*, „Roczniki Nauk Rolniczych”, seria G, tom 93, zeszyt 2, s. 13-26.
- Sass R., 2014, *Wpływ inwestycji przed i po akcesji polski do Unii Europejskiej na potencjał produkcyjny gospodarstw rolnych*, „Journal of Agribusiness and Rural Development”, nr 2 (32), s. 155-170.

- Sobiecki R., 2007, *Globalizacja a funkcje polskiego rolnictwa*, Wyd. SGH, Warszawa.
- Sobiecki R., 2015, *Interwencjonizm w rolnictwie: dlaczego jest konieczny?*, „Kwartalnik Nauk o Przedsiębiorstwie”, nr 2, s. 38-47.
- Stiglitz J.E., 1987, *Some Theoretical Aspects of Agricultural Policies*, „The WorldBank Research Observer”, tom 2, nr 1, s. 43-60.
- Wilkin J., 2003, *Interwencjonizm państwowy w rolnictwie: dlaczego był, jest i będzie*, [w:] Kowalski A. (red.), *Dostosowania polskiego rynku rolnego do wymogów Unii Europejskiej*, ARR, Warszawa, s. 27-36.
- Zegar J. S., (red.), 2005, *Koncepcja badań nad rolnictwem społecznie zrównoważonym*, Program Wieloletni 2005-2009 (nr 11), IERiGŻ, Warszawa.

## **ZNACZENIE I UDZIAŁ ROLNICTWA W GOSPODARCE NARODOWEJ W POLSCE PRZED I PO AKCESJI DO UNII EUROPEJSKIEJ (1994-2016)**

**Streszczenie:** W artykule podjęto próbę określenia znaczenia i udziału sektora rolnego w tworzeniu gospodarki narodowej w Polsce. Badanie objęło lata 1994-2016 i zostało przeprowadzone z perspektywy dwóch podokresów: przedakcesyjnego (1994-2003) i poakcesyjnego (2004-2016). Aby osiągnąć cel, przedstawiono i omówiono kształtowanie udziału rolnictwa w tworzeniu produkcji globalnej i produktu krajowego brutto. Badano również kształtowanie się udziału nakładów inwestycyjnych i wartości aktywów zaangażowanych w sektor rolny oraz odsetek osób zatrudnionych w rolnictwie w odniesieniu do zatrudnienia we wszystkich sektorach gospodarki. Dane wykorzystane w pracy pochodziły z Głównego Urzędu Statystycznego. Dla osiągnięcia zamierzonego celu badawczego wykorzystano m.in. indeksy dynamiczne, które zostały użyte do porównań rozpatrywanych zjawisk w czasie oraz średnioroczne wartości poszczególnych parametrów, liczone przy wykorzystaniu średniej arytmetycznej. Na podstawie przeprowadzonych badań zaobserwowano, zgodny z ogólnoświatową tendencją dla krajów rozwijających się, stopniowy spadek udziału sektora rolnego w tworzeniu wartości w gospodarce narodowej.

**Słowa kluczowe:** rynki rolne, integracja europejska.

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