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Результати підтримки сільського господарства в ході реалізації спільної сільськогосподарської політики в Польщі

Метою даного дослідження є аналіз розвитку сільського господарства в Польщі протягом 2002-2013 років. Стаття включає в себе теоретичне міркування про функціонування ринку і невдачі держави, аналіз державної підтримки аграрного сектора, рівня інвестицій і змін в їх структурі, виявлення причин тих змін, що відбуваються в сільському господарстві Польщі внаслідок європейських інтеграційних процесів. Крім того, здійснено оцінку міцності і характеру зв'язків між аграрним сектором і його зовнішнім середовищем. Використано статистичні та описові методи, проведено аналіз інформації Чеського статистичного управління (CSO) та Мережі даних бухгалтерського обліку в сільському господарстві (FADN), оцінено ступінь розвитку сільського господарства і сформовано пропозиції щодо довгострокової стратегії його ефективного функціонування.

Ключові слова: економіка сільського господарства, реалізація спільної сільськогосподарської політики (CAP) в Польщі, структурні перетворення в сільському господарстві, підтримка та інвестиції в сільське господарство.

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Результаты поддержки сельского хозяйства в ходе реализации совместной сельскохозяйственной политики в Польше

Целью данного исследования является анализ развития сельского хозяйства в Польше в течение 2002-2013 годов. Статья включает в себя теоретическое рассуждение о функционировании рынка и неудачах государства, анализ государственной поддержки аграрного сектора, уровня инвестиций и изменений в их структуре, выявление причин тех изменений, которые происходят в сельском хозяйстве Польше в результате европейских интеграционных процессов. Кроме того, проведена оценка прочности и характера связей между аграрным сектором и его внешней средой. Используются статистические и описательные методы, проведен анализ информации Чешского статистического управления (CSO) и Сети данных бухгалтерского учета в сельском хозяйстве (FADN), оценена степень развития сельского хозяйства и сформированы предложения по долгосрочной стратегии его эффективного функционирования.

Ключевые слова: экономика сельского хозяйства, реализация общей сельскохозяйственной политики (CAP) в Польше, структурные преобразования в сельском хозяйстве, поддержка и инвестиции в сельское хозяйство.

Results of Support for Agriculture during the CAP Implementation in Poland

The purpose of this study is to analyze the development of agriculture sector during the years 2002-2013. It includes theoretical reflections on the market and state failure, an analysis of public support for agricultural sector, level of investments and changes in its structure, the identification of reasons for changes taking place due to the European integration processes as well as the determination of strength and nature of the connections between the agricultural sector and its environment. Using the statistical and descriptive methods, was carried out an analysis of the CSO and FADN data, was evaluated the degree of development of agricultural and was formulated proposals for a long-term strategy of the agricultural sector.

Keywords: agricultural economic, CAP implementation in Poland, structural transformations in agriculture, support and investments in agriculture.

Adjustment in economic theory - market and state failure.

The active role of government and justification for state intervention in economic process results from the conviction about market failure [Bator, 1958]. This concept suggests that in the realities of the market economy the processes of allocation of goods and services show a number of frictions. As a result, the state of actual equilibrium achieved by the market is not comply with Pareto optimum. In broader terms, the

concept of market failure is identifies the scope and circumstances of observed defects of market mechanisms that lead to the perpetuation of market imbalances [Baumol, 1952]. In this context emphasizes to the positive aspects of market intervention by public authorities [Stiglitz, 1989]. Economic theory distinguishes a number of reasons for market failure. The mechanism and the logic of intervention in modern agriculture shows Fig. 1.

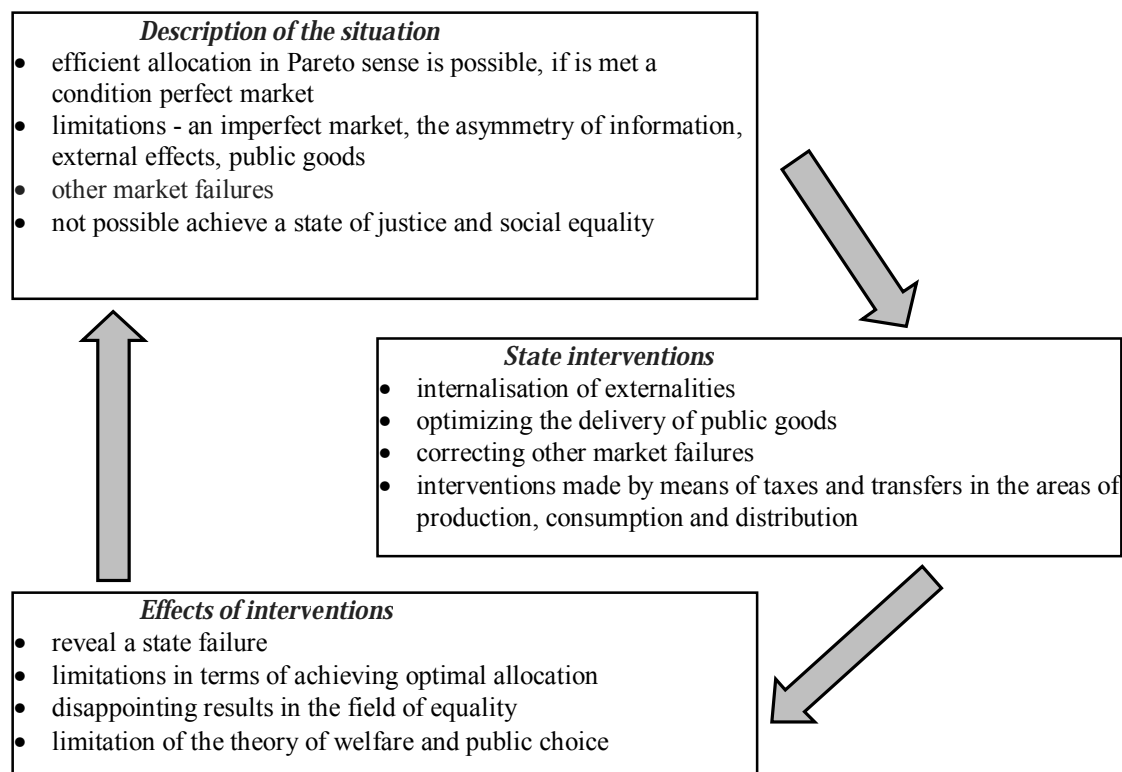


Figure 1. The mechanism of the modern intervention in agriculture

Source: own study based on a literature review of studies of welfare economics and public choice economics.

K. Arrow [Arrow, 1983] was one of the first to point out that, in fact, one can distinguish two different states of efficiency in the allocation of goods depending on the degree of fulfilment of the Pareto demands. The first approach suggests that each allocation of goods in equilibrium meets only the demand of the so-called 'poor efficiency' in the sense of Pareto. In this perspective, there is no balance on the market, which would potentially increase the level of usefulness of all its participants. Collective consideration of usefulness of operators is critical to this approach. In fact, one cannot distinguish an attribute of 'equitable distribution' in market mechanisms, as the market cannot be assessed from the perspective of ethical distribution of wealth, skills or holdings [Hammond, 1998].

The second dimension of the analysis of market efficiency points to the more complex nature of the allocation of goods that meet the demand of the so-called 'strong efficiency', when potentially there is no alternative state of distribution of goods on the market, which would allow, at least one, entity to increase usability without deteriorating the state of prosperity in other entities. Moreover, even if the transfer of goods allows for an efficient allocation in terms of Pareto, it does not rule out the existence of alternative market equilibriums. This means that market mechanisms lack the natural stimuli, so that the market can consequently evolve to desired equilibrium in terms of Pareto. Even if the market equilibrium assumptions had met the Pareto efficiency assumptions, it would be characterised by a particularly high instability with a tendency to move towards alternative market equilibriums that do not meet such demands [Samuelson, 1958].

Analysis of the conditions of market failures in the context of the so-called public goods is associated with the postulated State foundations to support the supply of certain goods, which imply significant external benefits to the general public, but there are inefficiencies in their supply in a market based mechanism. The role of the public authorities is to create a social mechanism to availability of public goods through indirect financing system based on compulsory social tribute (taxes) and thus ensure the supply of sufficient size in relation to the actual demand¹. The attributes used to distinguish public goods in relation to private goods was formulated by Evans [Evans, 1970]. Private goods are created as a result of market competition mechanism, ensuring allocation of private benefits and costs to each individual, and

¹ An example of the State's role understood in such a manner is the postulate to ensure the availability of socially desirable goods (merit goods), which, according to R. Musgrave are goods, whose consumption should result from the materiality of social needs, and not the unitary ability to cover the costs of their production. On the other hand, the State should limit the availability of goods, which, due to the extremely high external costs have negative impact on social welfare (e.g. alcohol and tobacco). A manifestation of this concept is the differentiation in taxation of particular goods depending on the scale of their importance in terms of internal benefits and costs (Buchanan J.M., Musgrave R.A., 1999).

excluding others from use. In turn, public goods are characterised by general and unlimited terms of consumption, and the benefits and costs are not clearly defined or assigned to specific individuals. One can also distinguish public goods of intermediate nature, which are produced by private operators, and the State, although it does not maintain ownership of the means of production, it provides public support. Public administration determines the rules of supply of such goods or favours the development of specific sectors, establishing the principles of availability or directing support to specific beneficiaries, and the allocation is highly discretionary, as a consequence of regulations corresponding to the economic programmes of political authorities [Stiglitz, 2004].

In the classical theory of welfare economics the cause of market failure consist in high transaction costs that accompany the conclusion and execution of contracts in the allocation of goods and services. R. Coase [Coase, 1960] was one of the first to argue that the costs of the operators should distinguish expenses to identify the relevant transaction prices and the costs of negotiation, conclusion and securing contracts for market transactions. Transaction costs affect the decline in viability of economic activity, which reduces the activity of market participants and leads to inefficient allocation of goods and capital in the economy, and even the lack of sufficient supply of goods on the market. In a first aspect, the parties bear the costs associated with finding contract partners and reaching consensus on opposing negotiating positions [Gwartney, 2013]. In a second - depending on the types of goods and services, there are the costs of valuation, depending on the scope of their specific attributes that determine the complexity and overall risk of the transaction. The last aspect of transaction costs includes expenditures for legal services and institutional and legal consolidation of property rights.

Incomplete or imperfect information is conducive to a failure of market mechanisms as a result of the rise of inefficient allocation of resources in the market. Because of the imbalance of parties to the transaction in terms of scale of resources and quality of information resources, trading decisions are not optimal in terms of Pareto. Lack of complete market information is the cause that the primary mechanism for the valuation of goods and services does not reflect their actual value, but constitutes a resultant of expectations of parties to the transaction which depends on their knowledge. Influence of subjective factors in the process of exchange undermines the credibility of prices as the primary instrument of efficient allocation of goods and services. At the same time, there may be negative phenomena affecting the level of utility of parties in the market processes, as the lack of complete information makes it risky to conduct economic activity [Mas-Colell et al., 1995].

State intervention has opposite meaning in the process of information diffusion within the scope of provision of patent protection and support to innovations resulting from capital intensive investments in research and development (R&D). Here, the state to some extent supports information asymmetry in the market, however,

it contributes to economic growth, encouraging market players to invest in projects with a high degree of risk. However, state intervention should not completely replace market mechanisms, but only support transparency and integrity of flow of accurate public information through a set of regulatory incentives. In this context, public administration itself targets the problem of information asymmetry in the scope of assessment and awareness of all the consequences and own regulatory actions. In addition, decision-making mechanisms are often highly bureaucratic and thus create significant barriers to the functioning of market players.

Therefore, the state should intervene only in areas where it has a distinct advantage over the market mechanism, where the market does not protect the interests of the society as a whole. However, in these cases we see significant disadvantages intervention. In addition to the discussed, and resulting from the failure of the government, they are related to, among others, with: delays decision-making, discussion criterion of economic efficiency, usability, efficiency, sustainability and social justice.

Scale of support and level of investment in agriculture during Poland membership in EU.

The implemented programmes feature a certain continuity of overall objectives, while gradually extending the forms of aid and changing the scope and value of provided support [Wigier, 2013 b]. The pre-accession adjustment programmes, direct aid and rural development programmes that were continued during the period of Polish membership in the EU are the examples of financial state aid instruments to support structural changes in the broadly defined food economy and within rural areas. Thus, they have been the fundamental instruments to support the process of modernisation and transformations in the Polish agriculture since 2002. In 2002-2013, the most important programmes co-financed by EU funds and supporting these transformations include:

- SAPARD – Special Accession Programme for Agriculture and Rural Development (2002-2004);
- SOP ‘Agriculture’ – Sectorial Operational Programme: ‘Restructuring and modernisation of the food sector and the development of rural areas’ 2004-2006;
- RDP 2004-2006 – Rural Development Plan for 2004-2006;
- RDP 2007-2013 – Rural Development Plan for 2007-2013;
- direct payments – paid in the form of basic, supplementary and special payments, decoupled from the structure and volume of agricultural production.

The SAPARD programme was aimed at preparing the Polish agri-food sector to the accession, in particular in the adjustments to the sanitary, hygienic and environmental protection requirements of the EU. In order to achieve this goal, SAPARD was implemented under six measures relating to improving the efficiency of the agri-food sector, improving the business environment and creating jobs within rural areas.

After 2004, the strategic objectives of agricultural policy implemented via SOP Programme ‘Agriculture’

and RDP 2004-2006 covered: improving the competitiveness of the agri-food sector, sustainable development of rural areas, improvement of the condition of the natural environment, improvement of the quality of life and diversification of economy in rural areas. In the next programming period, the RDP 2007-2013 has become the programme to support the implementation of the concept of multifunctionality of agriculture and rural development. It assumed economic strengthening of farms and an increase in the competitiveness of the agri-food sector, while assuring instruments for diversification of economic activities towards the acquisition and the creation of alternative sources of income for the rural population². This task has been accomplished through specific objectives reflected in four priority axes, namely: Axis I: Improving the competitiveness of the agricultural and forestry sector, Axis II. Improving the environment and the countryside, Axis III. Quality of life in rural areas and diversification of rural economy, Axis IV: Leader.

Given the implementation of the above-mentioned programmes from July 2002³ to the end of December 2013, the cumulative value of financial aid for the agri-food sector and rural areas, financed by the EU budget and co-financed by the national budget exceeded PLN 171 billion. It comprised SAPARD payments - ca. PLN 4.5 billion⁴, SOP ‘Agriculture’ - ca. PLN 6.5 billion, RDP 2004-2006 – ca. PLN 10.9 billion⁵, RDP 2007-2013 – PLN 52.7 billion⁶ and over PLN 93.0 billion from direct payments (Figure 2).

Direct support is the most important (from a financial point of view) source of support for income and investment in farms [Wigier, 2013 c]. The share of such expenditure in the total volume of expenditure on the implementation of CAP in Poland from July 2002 to the end of 2013 exceeded 54%. The second largest programme (in terms of the resources involved) to support the transformation of agriculture and rural areas is the RDP 2007-2013, whose share in the expenditure on the implementation of CAP (as of the end of December 2013) amounted to 1/3 of the above-mentioned budget. By the end of the programme, there were still about PLN 17 billion to be spent, but 90% of the budget has already been contracted by the beneficiaries. At the same time, it should be emphasised that the other programmes the implementation of which was completed in 2004-2006, despite a modest budget, provided a strong investment and demonstration stimulus in farms and within rural areas. State aid has become a driver of investment activities [Forgasi, Wieliczko, Wigier, Toth, 2014].

² RDP 2007-2013, Ministry of Agriculture and Rural Development, March 2010, p. 123.

³ To be precise, from the launch of the SAPARD programme.

⁴ The amount includes PLN 468 million of payments financed from the RDP 2004-2006.

⁵ The amount does not include payments from SAPARD commitments and the payments of commitments moved to be financed under RDP 2007-2013.

⁶ Including the commitments under the RDP 2004-2006 - ca. PLN 9.2 billion.

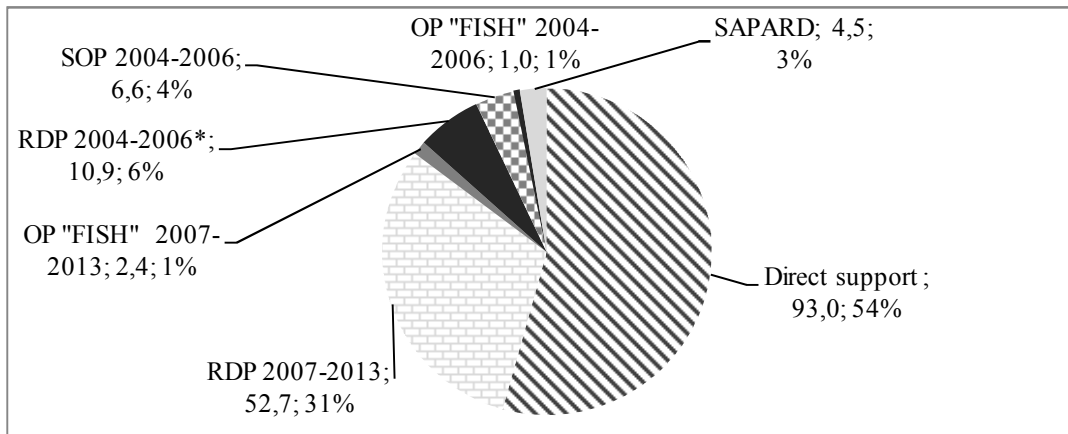


Figure 2. Expenditure on the implementation of CAP from July 2002 to December 2013 (PLN billion and %)

Source: Own calculations on the basis of data from Agency for Restructuring and Modernisation of Agriculture (ARMA) and Ministry of Agriculture and Rural Development from the websites of these institutions.

Investment capacity of farms are reflected by their current economic situation and expressed by the expectations about the economic situation in the future [Babuchowska, Kisiel., Marks-Bielska, 2012]. When it is advantageous, entrepreneurs (farmers) demonstrate a greater tendency to increase funds for development purposes. As a result, the investment rate tends to increase. This state indicates the existence of a correlation between the rate of investment and the current and expected condition of the agricultural economy. Such a link exists both at the micro- and macro-level. In 2002-2012, the rate of investment in agriculture amounted to about 8 % (Fig. 3), with the highest value reached in 2008 (over 9 %). The economic upturn in agriculture, which followed the Polish accession to the EU, and the flow of public funds resulted in increased interest of farmers in investment. This process has slowed down slightly in 2009-2010. The reason was both the end of the investment funding under EU programmes under the 2004-2006 budget and increasing effects of the global economic crisis. However, in 2011, the downward trend

has been reversed and the value of investment increased again.

Inflow of funds from the EU budget and the upturn in agriculture and the related increase in income contributed to a gradual increase in the value of investment. In 2002-2005, capital expenditure in agriculture and hunting were relatively low, but stable and amounted to ca. PLN 2-2.5 billion, however from 2005 on, they began to increase gradually. In 2012, it was almost two times higher than in the pre-accession period (Fig. 4). The accumulated value of investment for the whole period of 2002-2012 exceeded PLN 35.4 billion in current prices (PLN 32.5 billion in 2002 prices). As a result, there was a slow increase in the book value of fixed assets in the structure of the forms of production. In 2002-2012, however, investment accounted for only 2-4 % of the book value of productive assets, and its share in the net value of fixed assets increased from 8 to about 16 %. However, even assuming the same level of investments as in 2012, the value of productive assets in agriculture would be replaced restored only after about 30 years.

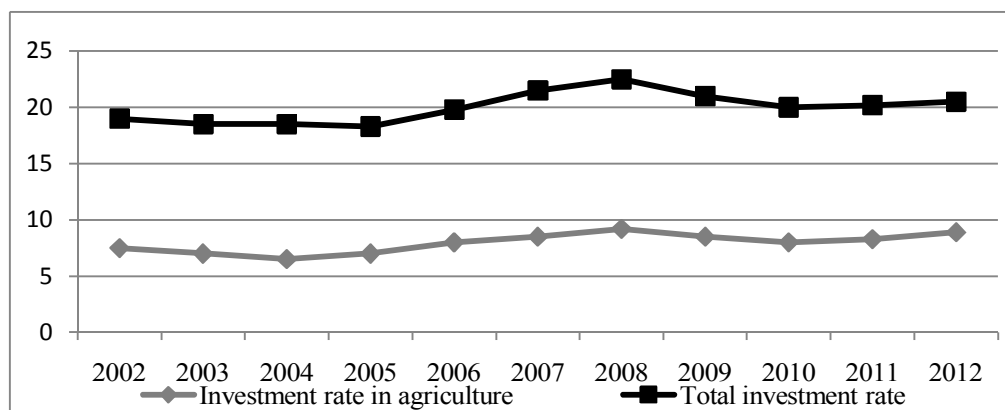


Figure 3. Investment rate (%)

Source: Own compilation on the basis of: Statistical Yearbook of Agriculture 2010, CSO, Warsaw 2013; Statistical Yearbook of Agriculture and Rural Areas 2007, CSO, Warsaw.

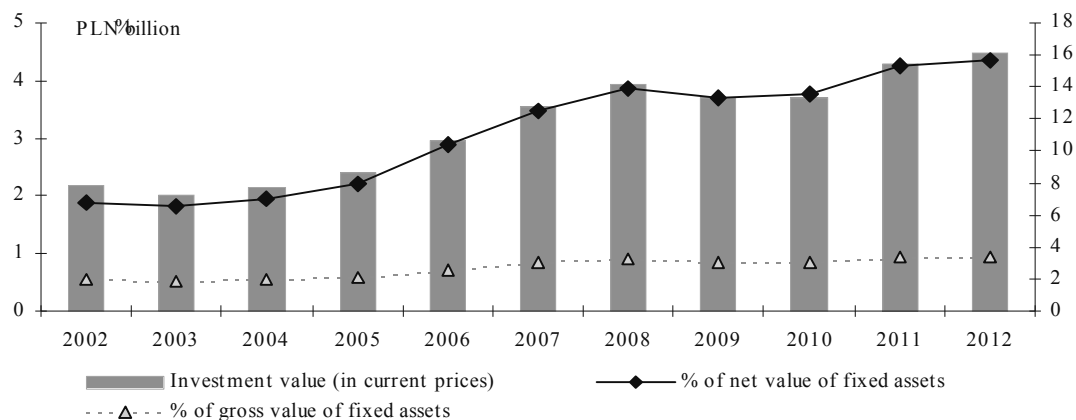


Figure 4. Value of investment (in current prices) and its share in gross and net fixed assets in agriculture in 2002-2012
 Source: Own compilation on the basis of: Statistical Yearbook of Agriculture 2010, CSO, Warsaw 2013; Statistical Yearbook of Agriculture and Rural Areas 2007, CSO, Warsaw.

Rural development programmes, and indirectly also direct payments, are the primary source of support for investments in the Polish agriculture⁷. The role of the latter is particularly significant in farms with a large area. The area-related nature of direct and supplementary payments and LFAs⁸ means that each year, farms receive cash they can spend on any purpose they want⁹. The importance of these payments in the support for income, indirectly also for investment, is evidenced by the fact that they are received commonly. In order to obtain the payments, a farmer is only required to properly fill in an application and keep land in a good agricultural condition. The single area payment scheme is used every year by nearly 1.36 million farms, i.e. about 92 % of farms with an area above 1 ha. They cover approximately 14 million ha, i.e. over 90 % of the area of land maintained in good agricultural condition. The value of payments received by farmers in 2004-2012 increased gradually from PLN 6 billion to PLN 14 billion a year¹⁰.

⁷ Direct payments in agriculture fulfil a number of functions, i.e. the income function (they compensate the farmers' increased production costs), the stimulating function (they can define the direction of agricultural production), the modernisation function (they can be used for co-financing of investment), the information function (they indicate the areas of production).

⁸ About half of the land used for agricultural purposes in Poland is located within LFAs. These include e.g. the areas where there are difficult climatic conditions, rainfall is too big or too small, there is an disadvantageous topography (e.g. mountains), or the quality of soil is low.

⁹ Many studies suggest that about 1/4 of payments is allocated for the purchase of the forms of production, 1/4 for the current needs of a farm, about 20 % for the expansion of a farm and the purchase of land and the rest for other purposes.

¹⁰ During the transitional period, i.e. from 2004 to 2013, the payment expressed in Euro and received by Polish farmers increased from 25 % to 100 % of the average rate in the EU-15. At the same time, since the beginning of the transitional period, Polish farmers received additional 30% subsidies from the national budget. This way, the payment rate in Poland in 2010 has reached the level equal to the average payment rate in the EU-15. The payment variability expressed in PLN per ha resulted from the instability of the EUR/PLN exchange rate. From the point of view of a farmer who receives payments, the rate was particularly disadvantageous in 2008 (EUR 1 = PLN 3.3967). In 2009, the exchange rate increased to EUR 1 = PLN 4.2295, which resulted in a significant increase in the amount of the direct payment in 2009. The most advantageous exchange rate for the farmers was in 2011, when EUR 1 = PLN 4.4050.

The value of basic and supplementary payments per farm in 2011 even exceeded PLN 9,000 (together with other payments, i.e. hops, energy crops, sugar beet, potato starch, fruits and vegetables, legumes and animal payments – up to PLN 10,000). Payments for less-favoured areas (LFA) are an equally important source of income (independent of production, based only on the farm's location). Each year, these payments are used by ca. 720,000 farmers, i.e. nearly half of those who receive direct payments. The area of land covered by the LFA payments amounts to 7 million ha, and the total value of payments made since the beginning of this measure exceeded PLN 11 billion.

Structural changes in agricultural sector during Poland's membership in EU.

The agricultural sector plays an important role in the economic and social development of rural areas. It is confirmed primarily in the structure of employment and land use. Using over half of the total area of the country for economic purposes, agriculture defines the main functions and fields of land use and shapes the natural environment and landscape. The area of agricultural land used for agricultural purposes decreased as a result of the structural ongoing changes, concentration of production, professionalization of farmers and functional changes in numerous suburban areas. In 2002-2012, the area of agricultural land in good agricultural condition decreased to 15 million ha (Tab. 1), i.e. by nearly 12 %. The outflow of agricultural land beyond the farm sector has taken place mainly because of the reduction in the area of land not used as agricultural and grazing land. At the same time, there was an increase in the forest area and other land types and an increase in the area earmarked for the purposes related to service activities, construction and infrastructure development.

Changes in employment in agriculture take place at a slow pace. In 2012, employment in the sector covered about 15 % of the total employment. However, the number of the entire analysed period ranged from

2,100,000-2,300,000 people¹¹. Employment per annual work unit (AWU)¹² in 2002-2012 decreased from 2,267,000 to 2,101,000, i.e. by approximately 7%. In 2012, employment per 100 ha of agricultural land

amounted to about 12 people. The relatively large number of people working in agriculture indicates a negative relationship between the resources of labour, land and capital, which in turn results in low productivity.

Table 1

Land and labour resources in 2002-2012

Years	Agricultural land (thousand ha)	Change index (2002 = 100)	People employed in agriculture (AWU thousand)	Change index (2002 = 100)
2002	16,899	100.0	2,267	100.0
2003	16,169	95.7	2,279	99.2
2004	16,327	96.6	2,284	100.7
2005	15,906	94.1	2,292	101.1
2006	15,957	94.4	2,292	101.1
2007	16,177	95.7	2,292	101.4
2008	16,154	95.6	2,292	103.6
2009	15,607	92.4	2,214	97.7
2010	15,503	91.7	2,101	92.7
2011	15,134	89.6	2,101	92.6
2012	14,969	88.6	2,101	92.7

Source: Statistical Yearbook of Agriculture 2013, Statistical Yearbook of Agriculture 2010; Statistical Yearbook of Agriculture and Rural Areas 2007, CSO, Warsaw and EUROSTAT

The changes taking place in the Polish agriculture manifest themselves e.g. in transformations in the area structure of farms. When evaluating them from the economic point of view, one can definitely conclude that they are positive in nature since they lead to the concentration of land resources of larger farms and the cessation of agricultural production in the small ones. In general, the number of farms with area smaller than 1 ha decreased by ¼ (i.e. to approximately 1.5 million) in 2002-2012. However, structural changes in individual

area groups varied to a great extent (Tab. 2). Most farms (i.e. about 40%) were in the group with an area of 1-2 ha and 2-5 ha (Fig. 10), which resulted from exclusion of a portion of their land from direct payments and from the actual giving up of agricultural production in such production entities. The area groups of 5-10 and 10-20 ha have seen a decrease of about 18% of farms. The land used by such farms moved to the largest acreage farms. In the group of farms with over 50 ha, there was an increase in their number (over 50%).

Table 2

Area structure of agricultural holdings in Poland in 2002 and 2012

Specification	2002		2012	
	Number (thousand)	Structure (%)	Number (thousand)	Structure (%)
over 1 ha	1,956	100.0	1,478	100.0
of which:				
1-2	517	26.4	308	20.9
2-5	630	32.2	472	31.9
5-10	427	21.8	349	23.6
10-20	267	13.7	218	14.7
20-50	96	4.9	101	6.9
50 or more	19	1.0	29	2.0

Source: Statistical Yearbook of Agriculture 2013, Statistical Yearbook of Agriculture 2010; Statistical Yearbook of Agriculture and Rural Areas 2007.

¹¹ Change in the method for CSO's determining the number of persons working in the individual agriculture caused that after a few years of slow decline, employment rose in 2010 by about 250,000.

¹² AWU – Annual Work Unit. CSO assumes 2,120 hours of work a year.

From the point of view of increase in the production potential and improvement in the competitive position, greater importance is attributed to the changes in land use. The conducted studies¹³ suggest that they are directionally consistent with the changes in the number of farms, i.e. the most significant loss of agricultural land area occurred in the smallest farms (i.e. for 1-2 ha by 30 %, for 2-5 ha by 23 %), whereas in medium-sized farms (20-50 ha 10 %) and large ones (over 50 ha 12 %) there was an increase. This means that the loss affected the farms that do not have a parity income and hence have no opportunities for development whereas growth took place in farms in which income ensures fulfilment of the production and consumption function [as confirmed

by Poczta 2012]. Despite these changes, small farms are still most common in the area structure in Poland (as in the countries of southern Europe) whereas large farms still possess only about 30 % of agricultural land.

The value of agricultural production was on the increase in 2002-2012. Nominally, the value of global¹⁴ and commercial output increased approximately twice (PLN 103 billion and PLN 75 billion respectively). In real terms (in 2002 prices), the increase in the value of production¹⁵ in 2012 reached PLN 62 billion and PLN 43 billion respectively (Fig. 5), which means that it increased by 11 % and 24 %. On average over the year, the output value increased at a 1 % rate, and for goods it increased at a 2 % rate.

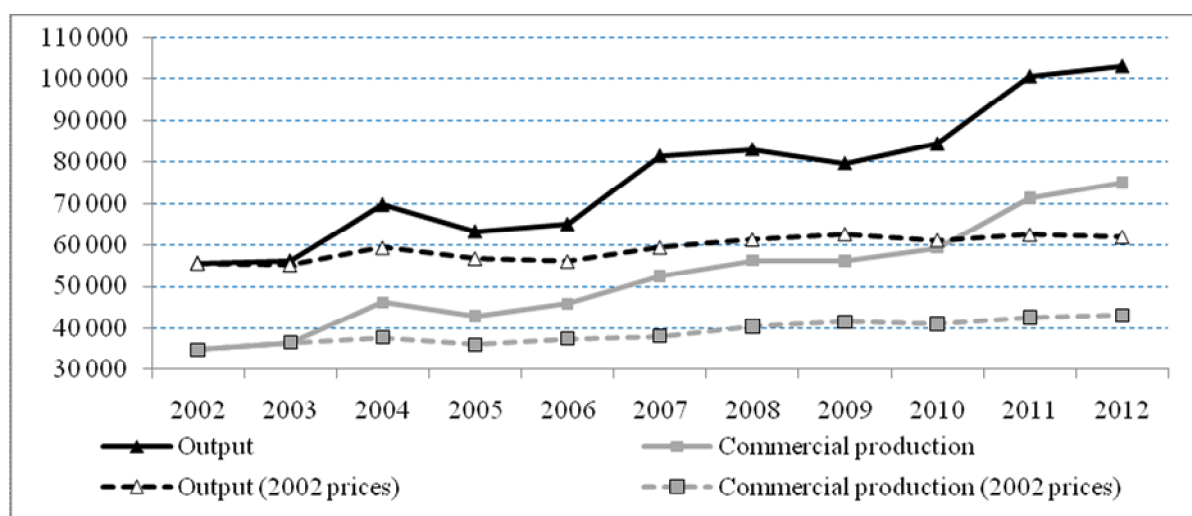


Figure 5. Output and commercial production in agriculture in 2002-2012 in current and fixed prices for 2002 (PLN million)

Source: Own calculations on the basis of Statistical Yearbook of Agriculture 2013, Statistical Yearbook of Agriculture 2010; Statistical Yearbook of Agriculture and Rural Areas 2007, CSO, Warsaw.

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 %. An increase in the value of commercial production took place with a simultaneous small decrease in the area of agricultural land. The value of commercial production (in 2002 fixed prices) per unit area of agricultural land increased to PLN 2,878 per 1 ha, i.e. by 40 %. At the same time, the productivity of land,

understood as the value of agricultural output per 1 ha also improved (growth in 2002 fixed prices by 26%), as well as labour productivity understood as the value of output per 1 FTE person (increase in 2002 fixed prices by 20 %). Improvement in the agricultural productivity and marketability index results, among other things, from improvement in technical equipment in the best farms, from an increase in agricultural condition (because of high cost of current assets, agriculture becomes more and more precise) and from increasing specialisation of production.

¹³ Cf. for instance the studies by IAFE-NRI under Multi-Annual Programme for 2005-2010 entitled 'Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej' (Economic and social conditions of development of the Polish food economy after the Polish accession to the European Union) and under the Multi-Annual Programme for 2011-2014 'Konkurencyjność polskiej gospodarki żywnościowej w warunkach globalizacji i integracji europejskiej' (Competitiveness of the Polish food economy in the context of globalisation and European integration) [www.iergz.waw.pl].

¹⁴ 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 2003].

¹⁵ Calculated by means of the cumulative rate of increase in the price of the output and commercial agricultural production.

A significant impact on structural changes in agriculture, and thus on the processes of concentration and specialisation of production was exerted by increased requirements of the processing industry for the supply of raw materials, increased competition from abroad, the necessity to make adjustments to the sanitary and veterinary requirements of the EU, changes in the regulation of agricultural markets and production quotas on the sugar and milk markets and finally change in the socio-professional determinants in rural areas [Wigier, 2012]. In consequence, changes also began to take place in the structure of output and commercial production. Plant production began to supersede animal production mainly because of the increased value of cereals production (mainly maize) and oilseeds (rapeseed) and the decreased value of pig production. Between 2002 and 2012, the share of crop production value in the output increased to 54 % (i.e. by 1.4 percentage points) while the commercial production to nearly 45 % (i.e. by 5.7 percentage points). The largest share in the commercial production was still for: production of cow's milk (17 %), pig, poultry and cattle (14.2 %, 12.3 % and 5.7 %) and egg production (5.3). Wheat (7.4 % share), various kinds of vegetables and fruits (7.4 % and 6 %) and potatoes and beets (3.2 % and 3 % respectively) prevailed in commercial crop production [Czubak, Poczta, Pawlak, 2008].

In the dynamic terms, the relationship between the factors of production has improved. Growing capital expenditure resulted in the improvement of technical equipment for labour input and land resources; the degree of specialisation of farms increased as well. However, farms have become strongly polarised. At one extreme, there are competitive farms (with an average area of over 30 ha of agricultural land), and at the other there are farms with underdeveloped developmental abilities, some of which are not involved in agricultural production. In general, there were many factors that contributed to the acceleration of changes, and it is difficult to attribute and identify the impact of each of them. Undoubtedly, the Poland's accession to the EU and the introduction of CAP funds to the agricultural sector were the most important ones. In addition to direct payments, an important role in structural transformations was played by the measures of the second CAP pillar to support investment measures in the pre- and post-accession programmes [Wigier, 2013 c].

The most important aspect of verification in the assessment of effectiveness of the agricultural policy includes the results achieved at the microeconomic level (at farm level). You should be aware that not all farms could be and will be able to be the beneficiaries of pro-investment measures. For some of the smallest farms, EU funds offer a variety of other mechanisms to support the transformations. On the other hand, the results of pro-investment measures are manifested mainly in larger, economically stronger, development-oriented entities that guarantee an appropriate level of income and the ability to reproduce an extended property. It is precisely such farms that were mostly the beneficiaries under measures

of EU's agricultural funds, in which it was possible to co-finance investment.

Conclusions

The contemporary global economy often rejects the thesis on the perfect market thereby justifying the role of state intervention. Explaining the main reasons for intervention in the modern global agriculture we point on the high level of risk linked to agricultural activity and lack of efficiency as regards prevention of this risk. This risk results from e.g. changing climate conditions, lack of sufficient information and underdevelopment of agribusiness structures, including also consultancy. The need for interventions in the agro-sector is justified also by: the phenomena of external costs and effects, low price elasticity of supply, lower level of labour productivity than in other sectors of the national economy, low mobility of the workforce employed in agriculture, the need to provide public goods, implementation of the sustainable development concept.

The CAP constitutes an example of state intervention in the agricultural sector, which among its instruments has market-based instruments (referring to supply and demand regulation) and non-market instruments (direct and indirect grants). The market-based instruments, related to price support, favour the biggest producers, in particular the most productive ones and producers of goods. Thus they fail to meet the criterion of fairness and providing support to the weaker as the reason for intervention. The rural development programmes and regional policy are an example of non-market instruments. As an instrument of state intervention policy they provide an opportunity to stabilise the policy in several production cycles. They stimulate changes as regards the production structures, competitiveness improvement, environmental protection and multi-functional development of rural areas. Thus they constitute the basic instrument supporting the process of food economy and rural areas modernisation.

After the Polish accession to the EU, major changes took place in the formulation and implementation of the agricultural policy [Kowalski, Wigier, Bułkowska, 2014]. They consisted mainly in systematising the policy objectives and increasing the expenditure earmarked for financing of changes in agriculture and rural areas. The structural changes taking place in the Polish agriculture in the last decade became more dynamic. In agriculture the most important changes cover: a drop in the number of farms with simultaneous growth in the share of the largest farms, which directly influences the increase in the average area of farms, drop in employment in agriculture and progressing production concentration and specialisation. The structural changes are, however, slow and cannot be efficiently accelerated due to non-agricultural circumstances.

The Polish agriculture is still characterised by a strong polarization of the agrarian structure [Wigier, 2013 b]. A group of market holdings emerged, which are strong economically and able to compete within the EU. Market orientation of agricultural producers increased. The progressive decapitalization of fixed assets of agricultural holdings is a major problem. The size of the

investment, after the entry into the EU, has increased noticeably, but their value still does not exceed the value of depreciation of fixed assets. The investments were mainly in machinery and to a much lesser extent in buildings and structures. However, there is a group of agricultural holdings which radically differs from the average picture in this respect. About 150-250 thousand agricultural holdings are able to increase their fixed assets.

Presented below the SWOT analyse shows the key areas of strengths and weaknesses and the opportunities and challenges related to agriculture (Tab. 3). In the next programming period, to year 2020, in order to increase the competitiveness of Polish agriculture, this will require intervention scheme, based on the mechanisms of the CAP.

Table 3

SWOT analysis of agricultural sector

Strengths	Weaknesses
<ul style="list-style-type: none"> • Large land resources and the resulting production potential; • Multi-branch agricultural production in the scale of the country; • Increasing average size of an agricultural holding(regional differences); • Advantageous conditions for the development of organic farming and other niche products. 	<ul style="list-style-type: none"> • Low profitability of the agricultural sector; • Low capital level and insufficient funding for agricultural holdings; • Slow changes in the area structure of the farms; • High percentage of poor and acidified soils; • Setting aside large areas of farmland;
Opportunities	Threats
<ul style="list-style-type: none"> • Open access of agricultural products to the Single Market; • Trade opportunities with third countries; • Increase of consumers' purchasing power, resulting from economic growth and resulting in the demand for processed and niche products; • Shaping of the group of economically viable holdings; • Young labour force on the labour market. 	<ul style="list-style-type: none"> • Barriers in trade with third countries; • Non-rational agricultural management leading to increased natural environment pollution. • Increase of poverty and social exclusion in rural areas; • Limited opportunities of employment diversification for persons leaving agricultural activities, resulting from slow economic growth.

Source: Own analysis

The role of the CAP in the transformations of the Polish agricultural sector was and still is irrefutable, as evidenced in particular by a clear and sustained increase in agricultural income. In the 2004-2012 period, an average of ca. 40 % of agricultural income in Poland came from direct payments. Having analysed FADN data, it can be stated that the CAP impact on Polish agriculture is mainly reflected in higher agricultural producers' income, which is unquestionably due to covering the sector with direct support. However, its impact is twofold. On the one hand, direct payments increase farmers' income, ensure its stability and encourage agricultural producers to develop their holdings and, on the other hand, with limited land resources (especially of relatively good quality), they raise agricultural land prices, thus impeding this development. What is more, direct payments partially support the existing agrarian structure, as they are a safe source of income.

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