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CHANGES IN THE POLISH AGRICULTURE IN THE LIGHT OF THE CAP IMPLEMENTATION

Abstract

Agricultural policy in Poland supports the functioning of numerous types of agricultural models, including the following models: traditional, industrial, environmental, induced development and sustainable growth. The CAP objectives and mechanisms, as well as individual characteristics of the Polish agriculture indicate that in the long run the development pattern should be based on a dual model. Certain farms, while maintaining the basic requirements of environmental protection, should implement production methods ensuring high economic viability (industrial agriculture); other farms should base their development on more eco-friendly methods, which enable the use of environmental, social and cultural assets at hand (sustainable agriculture). This paper defines the most important development stages of global agriculture, indicates the connection between the necessity of state's intervention policy and sustainable development, presents selected characteristics of the Polish agriculture with an analysis of the most important effects of implementing the CAP and illustrates the conclusions concerning the shape of the future long-term agricultural policy in Poland.

Model of development of world agriculture

Over the centuries, the most important task of agriculture was the production of food. This goal marked the development strategies of the whole food economy, which evolved from a peasant to farm-enterprise model (Fig. 1). Agriculture was the primary source of income and the most important work place in the rural areas. Industrialisation, mechanisation of production and the market mechanism transformed this situation. In highly developed countries, because of the explosion of growth in agricultural productivity, together with the parallel development of other sectors of national economy, agriculture has been gradually pushed to the margins

of economic life. Expansion of agriculture was *"[...] encouraged by the development of the entire economy, and particularly rapid growth in demand for food produced on a large scale. None of the earlier models of economic development changed agriculture more than industrialism. It not only switched agriculture to new technologies, but also raised the scale of economically viable production, changed the structure of the factors of production and hence the agrarian structure, introduced new organisation factors. It changed the relationship of man to the environment* [...] *that was not a brake for the industrialisation of agriculture* [...]*"* (Woś A., Zegar J.St. 2002). Rising incomes in agriculture, despite the high productivity growth and labour productivity, could not keep up with the growth of income in non-agricultural sectors, which stimulated further pursuit of higher yields, and resulted in an increase in surplus of food production.

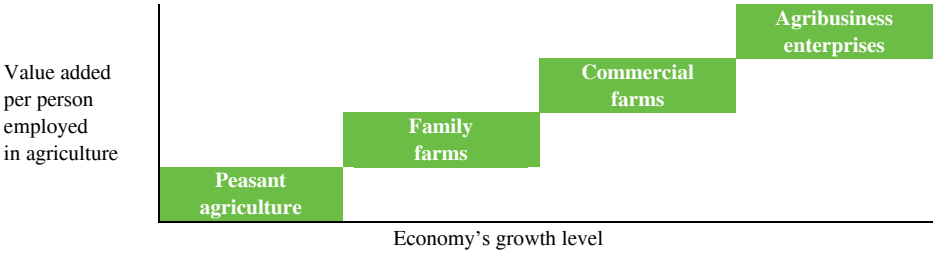

Fig. 1. Development model of world agriculture
Source: Based on (Tomczak F. 2004).

The system of industrial agriculture, responding to the needs of the industrialisation period in the development of civilisation, subordinated manufacturing activities on the farm to the principle of optimum utilisation of the factors of production (capital, labour and land). This principle is derived from the laws of production, which explain the conditions to maximise the size of economic variables (profit, physical product or national income), or minimise others (expenses or capital expenditures), while these criteria are limited solely to the economic sphere. *"[...] Skipped are the natural and the social and health consequences for consumers* [...]*"* (Zegar J.St. 2009). Agriculture entering the stage of permanent overproduction and the resulting problems are associated with *"[...] breaking the traditional farm's objectives of economic and social nature* [...]*"* (Tomczak F. 2003). The rules that governed agriculture of the twentieth century (i.e. "Produce more and cheaper") are increasingly being replaced by "produce the same quantity as you do or less, but more effectively". In today's Europe, this principle is realised through the transfer of farmers to precision farming. Precision agriculture technologies are grounded in economic (reduction in operating costs), environmental (reducing the concentration of pesticides) and demographic factors (need to increase production with population growth). Precision agriculture *"[...] abolishes the basic assumptions of the present organisation of crop production* [...]*"* (Józwiak W. 2002). New information technologies that

form the basis of precision farming and "cyber-farming" result in the initiation of a new phase of evolution and development of the agro-food sector.

Interventionism and sustainable development

Discussions between supporters of the doctrine of neo-keynesian, assuming, *inter alia*, use of state intervention, and the followers of the neo-liberal doctrine, according to which management should be subject to the exclusive action of the market, boil down to the answer to the classic question "how much of the state should there be in the economy to ensure its sustainable and long-term development?". The classic *"*[...] *formula of the production function does not assume any restrictions of environmental and social nature* [...]*"* (Woś A., Zegar J.St. 2002). The producers can, therefore, freely (in accordance with applicable law) reach for further expenditures of production factors not caring about the environmental balance. In this way maximising their profit at the expense of society and its future development. As a consequence, however, *"*[...] *market forces lead rather to an increase than to a reduction in inequalities* [...]*"* (Kamiński W. 1998). Polarisation resulting from the nature of the market economy is a process, which can be consciously limited by implementing spatial policy because space conflicts become more frequent and increasingly severe. The struggle for access to space, its assets and resources intensifies.

Relationships agriculture–rural areas–environment give rise to active agricultural and spatial policies. According to many economists and politicians a farmer is not only a food producer, but also a host of nature and a steward of rural cultural heritage. *"The environment that he protects, can promote the production and economic equilibrium, but it can also act as its brake* [...]*"* (Woś A. 2003). *"*[...] *The status of the environment, not lack of resources or new technologies, will be, in the near future, the main limitation in functioning of societies* [...]*"* (Buckwell A. 1997). The concept of "socially sustainable agriculture" assumes achievement of harmony between material factors and social forces, creating development in the long-term. It is a new philosophy of management and life in a rural environment taking into account environmental sustainability, social welfare and a strong state. Analysing the contemporary changes in the socio-economic development of agriculture a clear distinction should be made between "agriculture" and "village and rural areas". *"*[...] *Development paths of agriculture and rural areas increasingly diverge*. [...] *It can be said that rural areas lose their agricultural character, but agriculture is far beyond the traditional, generally closed autarky system, which accounted for its development over the centuries. Currently, exogenous macroeconomic, regional and global factors have become decisive* [...]*"* (Zegar J.St. 2000).

R.E. Lucas and S.T. Sargent (creator of the theory of rational expectations in the 70s) demonstrated that businesses and people flexibly adapt their activities and expectations to state policy, using all its benefits. They also have the ability to draw conclusions from events in the past, which allows them to anticipate possible future scenarios. In their opinion, the effectiveness of economic policy to engage in stimulating the economic growth is, however, doubtful, since

the state has no lasting impact on employment or production growth. The state should, therefore, strive to maintain price stability and act on the supply side of the economy based on the stabilisation of the rules of its functioning. Basing economic policy on changes generated by the government is bad for the economy because it causes changes in the size of real variables, which lead to increased uncertainty in the economy.

Explaining the main reasons for intervention in the modern world agriculture J.E. Stiglitz (1987) and J. Wilkin (2003) indicate a high level of risk in farming and ineffectiveness in preventing this risk. The risk is a result of, for example, variable climatic conditions, lack of sufficient information and underdevelopment of agribusiness structures, including extension activities. The need for intervention in the agribusiness sector is also justified by: the phenomenon of costs and external effects, low price elasticity of supply, lower than in other sectors of the national economy level of labour productivity, low mobility of the workforce employed in agriculture, need to deliver public goods and implementation of the concept of sustainable development.

The decision to produce and allocation of market goods is made under the influence of market mechanisms. Public goods are defined in the area of public choice theory. Financing their provision by the state is a response to market failure. For this reason, the state intervenes in the market to reward entities for their creation. *"*[...] *Agriculture generates many types of goods. There are both market goods (cereals, meat, milk, etc.) and public goods (biodiversity, landscape, water quality) and substantive goods (soil quality, energy security, food safety). Public and substantive goods are produced on the occasion of the production of market goods (agricultural production)* [...]*"* (Niewęgłowska G. 2011). The public nature of goods produced means that the farmer does not receive (full) payment for the provision of positive externalities, but also does not bear (full) cost of providing negative externalities. The above-mentioned goods are interrelated, and thus the value of one of them (e.g. biodiversity) will depend on the quality and quantity of another good (system used in agricultural production). Sometimes these goods are mutually complementary and sometimes they are mutually exclusive.

The Polish agriculture is undergoing a significant transformation in the pursuit of more developed countries, adapting to market requirements. In the context of the European integration and globalisation, it is exposed to international competition. A holistic approach, guided by social competitiveness and, therefore, taking into account the external effects can significantly change the path of agricultural development, which in common understanding is delineated by the more developed countries. Given a social calculation (using the production potential and lost profits/ opportunity costs), the choice may be not so obvious. *"*[...] *Targeting the social competitiveness, ergo recognition of agriculture as part of the host system (higher-order system), changes the relationship in the competitiveness between the basic models of agriculture: industrial (conventional) and sustainable. Coping with economic competitiveness, without prejudice to the interests of society, is a major challenge facing the Polish agribusinesses* [...]*"* (Zegar J.St. 2011).

The CAP is an example of state intervention with market and non-market policy instruments. Market instruments associated with price support, favour the largest producers, particularly the most productive ones. Therefore, they do not fulfil the criterion of fairness and support for weaker units as a condition for intervention (Rembisz W. 2010). Rural development programmes are examples of non-market instruments. As policy instruments of state intervention, they provide possibility of stabilisation of policy over several production cycles. They stimulate changes in structures of production, improve competitiveness, environmental protection and multifunctional development of rural areas. Thus, they are an essential tool in supporting the modernisation process of the food economy and rural areas, both in terms of improving its competitiveness and sustainability.

Impact of the CAP on the Polish agriculture

Integration with the EU created in Poland new conditions for the development of food economy. Rural development programmes introduced on the accession to the EU are an example of non-market instruments. As a policy instrument of state intervention, they give a possibility of stabilisation of structural policy conditions during several cycles of production, stimulating the desired changes in the structures of farm area size, improving the competitiveness of production, environmental protection and multifunctional development of rural areas. Thus, they are an essential tool for enhancing the process of modernisation of the Polish rural areas and agriculture.

From the beginning of 2002 to the end of 2013, the cumulative value of financial assistance programmes (including direct payments) for the agro-food sector and rural areas in Poland exceeded PLN 171 billion[1]. These included: SAPARD payments – approx. PLN 4.5 billion[2], SOP "Agriculture" – approx. PLN 6.5 billion, RDP 2004-2006 – approx. PLN 10.9 billion[3], RDP 2007-2013 – PLN 52.7 billion[4], and more than PLN 93.0 billion in the form of direct payments. Implemented programmes are characterised by a certain continuity of general objectives, at the same time, showing a systematic extension of forms of aid and the variation of the scope and value of support. The SAPARD programme was preparing the Polish agro-food sector for the accession, especially in terms of adjustment to the EU requirements of sanitation, hygiene and environmental protection. After 2004, the strategic objectives of agricultural policy included: improving the competitiveness of the agro-food sector, sustainable rural development, improving the environment, improving the quality of life and diversification of rural economy. Most of the activities carried out in 2007-2013 were a continuation of the measures implemented in previous periods. This proves the continuity of the policy in achieving its goals, but it does not mean that the same agricultural policy in the

[1] EUR 1 = PLN 4.

[2] This amount includes PLN 486 million of payments made from RDP 2004-2006 budget.

[3] It does not include payments concerning SAPARD and payments moved to RDP 2007-2013.

[4] With liabilities from RDP 2004-2006 – approx. PLN 9.2 billion.

long-term is internally consistent. A multitude of activities and objectives results in some of them being mutually exclusive.

Changes taking place in the Polish agriculture are of generational character and are closely linked to the pace of economic development and public funding opportunities for structural transformation (Józwiak W. 2011). The agrarian structure is subject to transformation (Table 1), which for several decades has been showing two trends, namely the absolute decline in the number of farms, and polarisation of the area structure (Zegar J.St. 2009). Invariably, however, the characteristics of agriculture are: relatively (compared to Western Europe) high level of employment, low level of labour and land efficiency, unfavourable agrarian structure and low agricultural incomes. These problems have a direct impact on the living conditions in the rural areas (Sikorska A. 2011).

Table 1

Farms with an area of more than 1 ha by area groups

Area group	Number of farms ('000)			Structure (%)	
	2002	2012	2012/2002	2002	2012
1-5	1,147	759	0.66	39.1	37.9
5-10	427	349	0.82	21.8	23.6
10-15	183	144	0.79	9.4	9.7
15-20	84	74	0.88	4.3	5.0
20-50	96	101	1.05	4.9	6.8
> 50 ha	20	29	1.45	1.0	2.0
Total	**1,956**	**1,478**	**0.76**	**100.0**	**100.0**
Average UAA	**5.8**	**9.3**	**1.18**	**×**	**×**

Source: Own elaboration based on Agricultural Census 2010, CSO and Statistical Yearbook of Agriculture 2013.

Structural changes that ooccurred in the period of 2002-2012 took place mostly at the smallest farms, i.e. with an area of 1-5 hectares (number of such farms decreased by as much as approx. 34%) and the largest, i.e. with an area of over 50 hectares (number of farms in this group increased by approx. 45%). The smallest holdings diminished mainly due to lack of successors. This applies to both entities located on largely agricultural areas as well as suburban areas. In the first group, agricultural production increasingly concentrates in the hands of owners of medium-sized and large commercial farms. In nearby metropolitan centres land is rapidly converted into land for non-agricultural purposes (housing, industry and services). A typical, in the 80s and 90s, model of a farmer-worker, i.e. working full-time outside their farm, also disappears. The increase in the size of the largest holdings, in turn, has a direct correlation with the increase in marketable agricultural production and improvement of its profitability while maintaining economies of scale.

Generally, in Poland, it is now possible to distinguish four fundamentally different groups of farms:

- commercial and developing, their number is estimated at approx. 250,000 entities of economic size generally larger than 8 ESU. This group consists of two subgroups, i.e.: large-area enterprises and large-scale farms with high economic viability. These farms are characterised by competitive ability, or can achieve this ability. It is estimated that they produce about 64% of national value of agricultural production. In each size group the situation is as follows: farms with up to 8 ESU produce about 27% of the value of agricultural production, farms sized 8-16 ESU – approx. 19%, and the ones sized 16 and more ESU – approx. 54% (Józwiak W. 2012) (Table 2);
- with development potential, which consists of approx. 100,000 farms with the size of 6-8 ESU. These farms are usually owned by a family of several members, of which at least one person is of mobile age and due to their education they see their future in agriculture. These farms are mainly in the provinces of fragmented agrarian structure (Podkarpackie, Małopolskie, Świętokrzyskie, Śląskie and Lubelskie);
- smallholder, with small agricultural production, mostly for their own use (small volume of sales on the market, mainly through local market places) or combining running a small farm with non-agricultural activities as part-time job;
- "descending", led mostly by the elderly farmers, based on agricultural production only for their own needs, benefiting from pensions or low direct payments, without successors.

Table 2

Characteristics of Polish individual farms by economic size

Farm size (ESU)	Number of farms[a] ('000)	Average size of UAA[a] (ha)	Average income[b] (PLN)	Income parity/ disparity[c] (%)	Net value of investment[d] (PLN)
Up to 2[e]	1,623.7	2.0	1,470	25.0	-1,842
2-8	520.9	8.4	14,862	56.6	-4,840
8-16	146.1	17.3	36,801	98.8	1,831
16 and more	96.5	41.6	94,431	164.0	31,039

[a] CSO concerning the year 2007.

[b] Figures taken from the Polish FADN and Economic Accounts of Agriculture (*Polish: Rachunki Ekonomiczne Rolnictwa, RER*) covering the 2006-2009 period.

[c] Part of income from the farm allocated to the farmer's households expenditure per one family member employed full-time on possessed farm in relation to the national average wage for an employed person.

[d] Gross investment value (including the purchase of land) less depreciation.

[e] Estimates determined on the basis of: RER, monitoring results and the Polish FADN. Research results on agricultural production of cooperatives and farms arising from the assets of the former state farms.

Source: (Józwiak W. 2012) – elaborated primarily on the basis of CSO statistics, the results of the Polish FADN and RER.

A specific feature of the Polish agriculture is its dualism. On the one hand, it is dominated by farms with low economic potential and limited opportunities for development, on the other, there are commercial and economically strong farms delivering to the market approx. 80% of food production. The former are an important element of multiculturalism of rural areas, fulfilling important functions in the field of sustainable development and biodiversity conservation. The latter are a sign of modernity and competitiveness. Statistically speaking, about 1.2 million of agricultural holdings (i.e. approx. 80% of all farms with an area of more than 1 ha) do not have the ability to replace and modernise their production potential. In the Polish conditions the ability to replace production potential is on average achieved by farms of an economic size of 8 or more ESU. Relatively sustainable ability to replace their production potential is reached only with an economic size of about 12 or more ESU (Józwiak W., Michna W. 2011). Taking into account the above statements, it should be noted that in Poland today there are many villages where there are no farms able to replace their production potential.

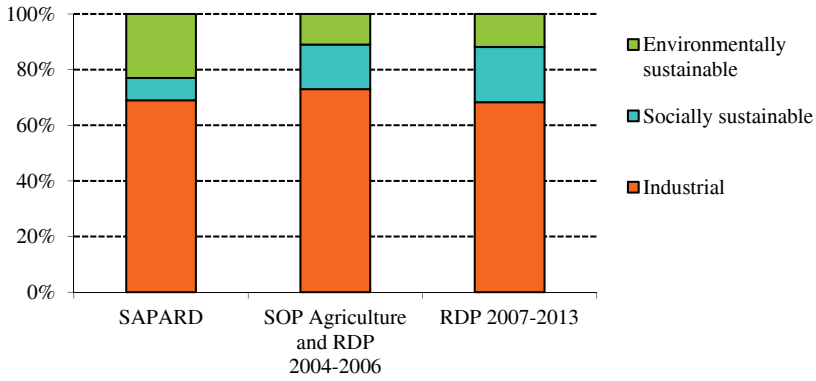

Fig. 2. Financing agricultural models

Source: Own elaboration based on ARMA monitoring data.

Given this specificity of the Polish agriculture, it is extremely important to prepare a long-term strategy for its development, which would be based on the need to maintain its international competitiveness, contribute to maintaining production potential, and sustainable and multifunctional rural development and environmental protection. The CAP instruments, among others, offer a chance to achieve these goals. Taking into account the value of cash flows transferred to the Polish economy, food and rural areas (including direct payments) in the period of 2002-2010, we can conclude that the majority of the public funds (approx. 70%) co-fund activities related to the creation of the industrial sector (Fig. 2). Generally, this indicates that the top priority of agricultural policy was to raise the competitiveness of the sector. A number of actions under this priority was also indirectly associated with the income support for the agricultural population.

The most common type of support for agriculture in Poland are direct payments (Wigier M. 2013; Fogarasi J. et al. 2014). About 1.4 million farmers apply for them every year. The value of subsidies received by farmers in the 2004-2012 period was steadily increasing from approx. PLN 6 billion to PLN 14 billion per year. Per farm it reaches on average approx. PLN 10,000 and 92% of farms with an area of more than 1 ha receive this form of public support (Fig. 3). An equally important source of income (independent of production and dependent only on farm's location) are payments for conducting agricultural activity on unfavourable areas (LFA). Approximately 700,000 farmers, i.e. half of those receiving direct payments, receives also these subsidies. The area of land covered by the LFA payments is approx. 6.9 million ha.

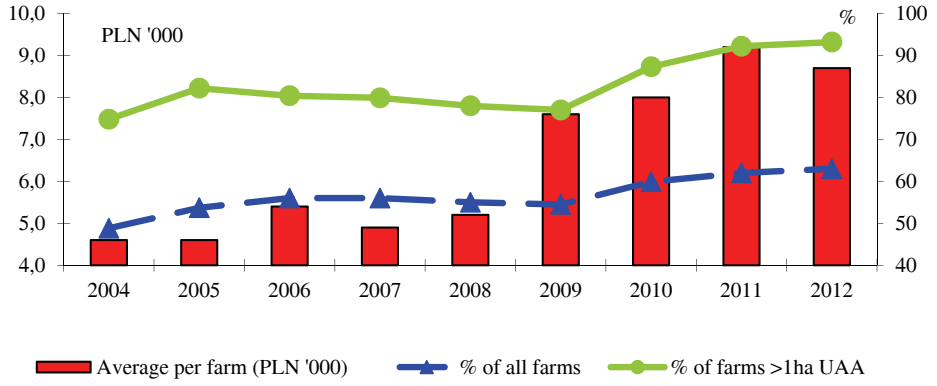

Fig. 3. Direct payments – payment amount and share in the number of farms
Source: Own elaboration based on ARMA and CSO data.

The share of direct payments in farm income is about 30%. If other types of direct payments, such as payments for animals or LFA (annually approx. 730,000 farmers benefit from these subsidies) are also taken into account, this share will be even larger. Farmers receive these payments every year. Spending of these funds is not subject to any rules. Smaller farms spend most of the received payments on current needs and the means of production (fuel, fertiliser), and the larger on investment. "[...] *In relation to the pre-accession period the number of farms with competitive capacity increased about twelvefold. The rationale for this was the increase in incomes of agricultural businesses, an increase in the level of subsidization of agricultural holdings and improvement of productivity of agricultural production caused by advances in production technology* [...]" (Floriańczyk Z. 2011).

Direct support causes many, often contradictory, effects on farms and in their environment. On the one hand, direct payments lead to an increase in farm income, their stability and encourage the enlargement of farms. "[...] *On the other hand, their impact on structural changes in agriculture is limited because land*

availability (especially of a relatively good quality) is limited, they directly contribute to an increase in land prices, acting as a reliable source of income (especially for smaller farms), partially supporting the existing agrarian structure [...]*"* (Łopaciuk W. 2011). These are, among others, the causes of the agrarian structure in Poland still being very fragmented and highly polarised. In turn, impact on production (with the assumption of decoupling) is negligible, although the selection of crops produced to a certain extent reflects the list of crops, which are subject to additional payments. Direct payments indirectly influence the propensity to invest and the value of investment.

An important part of funds for support of agriculture is earmarked for investment. To obtain them, a farm must prepare a business plan and get it approved by the institution managing the programme. Funds for investments in agricultural holdings available under SAPARD, SOP "Agriculture", RDP 2004-2006 and RDP 2007-2013 were fully absorbed. The activities aimed at improving the competitiveness of agricultural holdings were implemented already in 2002. Up to now approx. 20% of farms benefited from such measures (Table 3). The largest share (nearly 7%) was allocated to "Modernisation of agricultural holdings", close to 5% to the measure "Compliance with the EU standards", 5% – "Early retirement", 2.5% – "Setting-up of young farmers", and 1.3% – "Diversification into non-agricultural activities". The average value of these subsidies exceeded PLN 83,000 (Table 1), and in the last programme – RDP 2007-2013 – it was even higher. In the case of the measure "Modernisation of agricultural holdings" it exceeded PLN 140,000 and for "Diversification of agricultural activities" it was PLN 84,000.

Table 3

Selected total results of the implementation of SAPARD, RDP 2004-2006, SOP "Agriculture" and RDP 2007-2013

Measure	Projects	Received support (PLN million)	% of the total number of farms	Amount of support per 1 project
Modernisation of agricultural holdings	97,218	10,459	6.57	107,583
Compliance with the EU standards	71,385	2,478	4.83	34,713
Setting up of young farmers	37,306	2,302	2.52	61,705
Early retirement	73,357	8,381	4.96	114,322
Diversification into non-agricultural activities	17,846	1,136	1.34	63,656
Total	297,112	24,756	20.10	83,322

Source: Own elaboration based on ARMA and CSO data; data for the end of 2013.

Implementation of the CAP mechanisms in Poland contributed to an improvement in the income of most farmers. In 2004 (the first year of the EU membership), there was a large increase in income. Subsidies (mainly in the form of direct payments) played a key role in the increase in farm incomes. In 2005-2012, in real terms (i.e. prices of 2005) the income from the factors

of production per full-time employee in the Polish agriculture increased by approx. 50%, and for the whole EU-27 agriculture – by 12%. The growth rate of household income of farmers was higher than in other socio-economic groups. Real disposable income of farmers increased by 65%, while for the whole population it was only 38%. The effect of subsidising agriculture in income was so large that it offset negative effects of climate change and adverse changes in relative prices of agricultural products and prices of inputs purchased by farmers.

Accession to the EU, the implementation of structural funds and direct payments led to a slow increase in the share of fixed assets in the structure of the means of production, but, at the same time, the process of its recapitalisation continues. Programmes co-financed from the EU funds and national sources contributed in 2002-2012 to nearly doubling the value of investment (Fig. 4). Thus, the value of net assets in agriculture increased from approx. 8 to 16%.

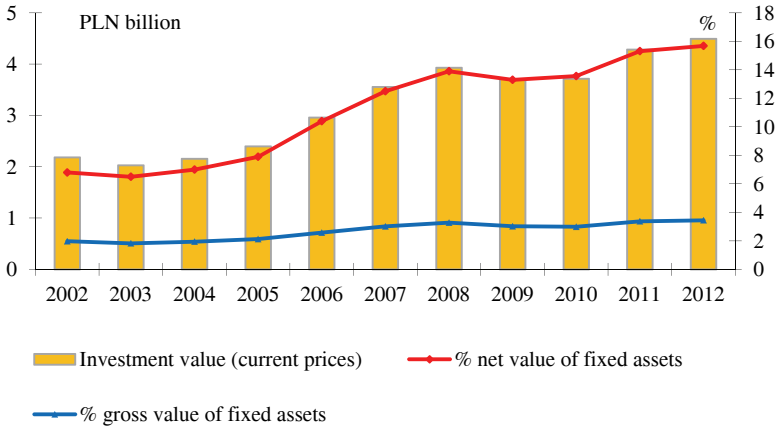

Fig. 4. Value of investment and change in value of fixed assets in the agricultural sector in 2002-2012

Source: Own elaboration based on CSO data, Statistical Yearbook of Agriculture 2007, 2010 and 2013.

Investment projects are mostly undertaken by big and economically strong farms. Most of them relate to purchase of machinery, not to constructing buildings used for agricultural production. The number of investing farms can be estimated at 200,000-250,000. Agricultural activities conducted at the rest of the farms do not allow for a replacement of assets, and therefore their rate of use increases. Investments in machinery contributed to a nearly 10% increase in the total number of tractors and to an increase of nearly a quarter in the number of combine harvesters (Table 4). In addition to increasing tractive power of new tractors, farms equipped themselves with additional modern machines. Thus, new technologies helped to improve the quality of conducted agro-technical procedures, and quality and safety.

Table 4

Farms' equipment with fixed assets

Fixed assets	2002	2012	2002=100
Tractors	1,339	1,471	109.9
Combine harvesters	123	152	123.6
	Per 1 farm		
Tractors	0.46	0.65	141.8
Combine harvesters	0.04	0.07	159.5

Source: Own elaboration based on CSO data.

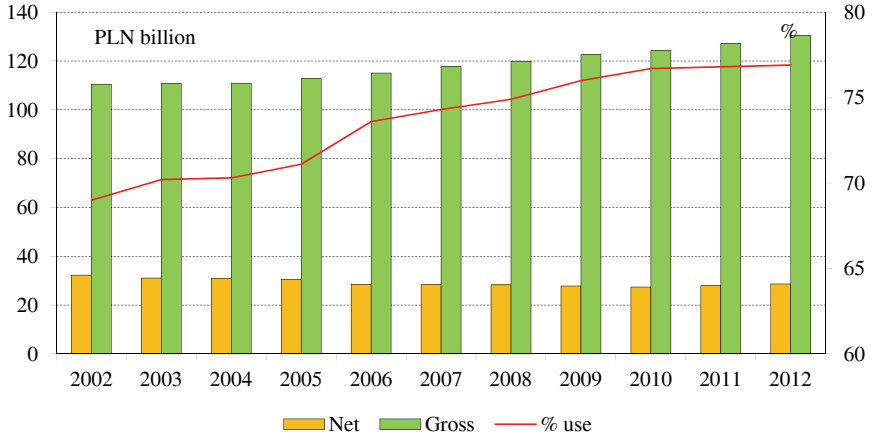

Fig. 5. Value of fixed assets in the agricultural sector and their degree of use in 2002-2012
Source: Own elaboration based on CSO data.

Despite the favourable investment trends, ease of access to aid and relatively large public funds intended for investment, net fixed assets systematically decreased. The rate of use of fixed capital also grew (Fig. 5). In 2012, it amounted to nearly 77%. This applies, first of all, to buildings. The rate of use in the case of machinery is much lower. This process applies mainly to small and medium-sized agricultural holdings. Large farms due to their potential and the possibility of obtaining grants and investment credits to a greater extent replace the owned assets.

Although the impact of the CAP programmes is significant, it is lower than what is needed for modernisation of the Polish agriculture. By the end of 2013, 60,000 farms benefitted from the measure "Modernisation of agricultural holdings", part of RDP 2007-2013 (in the case of SAPARD programme there were 13,000 agreements and in SOP "Agriculture" – 24,000). Moreover, in 2002-2013, more than 33,000 agreements were signed with young farmers and 153,000 contracts with the beneficiaries of the measure "Semi-subsistence farms". Due to the CAP

support, an increase in farmers' investment activity (increase in the value of investment and their share in the value of fixed assets) is clearly visible. However, only a very small group of farms undertakes investment. The vast majority of them are commercial and rather large farms. The other farms observe a steady depreciation of their fixed assets. While machinery is replaced, recapitalisation of buildings quickly progresses. The CAP investment programmes indirectly lead to changes in the agrarian structure and facilitate the concentration of production and specialisation of farms.

Improving the competitiveness of agriculture depends on changes of a structural nature (which determine the improvement in the efficiency of use of the factors of production) and the development of the national economy, particularly in the context of the ability to create new jobs outside agriculture. Rural development programmes, direct subsidies, and changes in the overall economy accelerated structural transformation in the agriculture, leading mainly to concentration of production. Evidenced by over 20% decline in the number of farms in the period of 2002-2012, the largest decrease (25%) concerned the smallest farms (1-5 ha of UAA) and the number of the largest holdings significantly increased. The average size of a farm (with UAA > 1 ha) increased by 13% to approx. 9.5 ha of arable land. Still, most of the resources of agricultural land are located at the small and medium-sized farms (with the area < 20 ha of arable land), and the gap between the Polish and the major producers of food in Europe is still huge.

The EU programmes failed to halt the large volatility in productivity of agriculture, in particular, in plant production. This volatility is primarily caused by lower technological advancement and relatively poor lands, which greatly increases the sensitivity of plants to weather conditions. After accession to the EU there has been some improvement in production technology, but not sufficient to reduce fluctuations in production. *"*[...] *Production fluctuations cause changes in the prices of plant products, which in turn cause fluctuations in animal production and changes in the level of production* [...]*"* (Łopaciuk W. 2011). In livestock production the largest changes concerned the decrease in the volume of pig production and an increase in the volume of production of poultry, eggs and beef. The volume of milk production did not change.

The impact of the remaining provisions of the CAP on agriculture is much smaller, at least in the current budget perspective. Production quotas and the requirement of cross-compliance have a positive impact on agrarian structure and processes of concentration of production, but the scale of their impact is very limited. Cross-compliance requirements, according to the farmers, make the production very difficult, mainly due to higher costs, while the quotas directly interfere on the market and administratively limit supply. *"*[...] *Among the most important consequences of the production quotas (for milk or sugar) are: deterioration of capacity utilisation, deficit in the balance of domestic, import growth and distortion of farmers' decision-making process* [...]*"* (Łopaciuk W. 2011). Environmental regulations also have a limited impact. Despite the relatively

high value of support per one beneficiary (an average of PLN 8,000-10,000), still a small number of farms benefits from these programmes, though each year this number grows rapidly, which undoubtedly contributes to the growth in environmental awareness. Despite this, the current impact of these regulations on the sector as a whole is negligible.

Summary

During the last decade more dynamic structural changes were observable in the Polish agriculture, food and rural areas. The following should be considered as the most important: 1) reduction in the number of farms, while increasing the share of the largest holdings, which has a direct impact on the increase in the average farm area; 2) decline in employment in agriculture; and 3) progressive concentration and specialisation of production. Structural changes, however, are slow and cannot be effectively accelerated due to circumstances present outside agriculture.

There is no doubt that the EU membership had a positive impact on both the macroeconomic environment surrounding agriculture and on agriculture itself. The Polish agriculture has a low share in GDP and added value, but, at the same time, its share in employment is disproportionately high, partly due to poor performance. A major problem is the increasing depreciation of fixed assets, despite significant investments incurred under the programmes co-financed from the EU budget expenditures. The accession into the EU did not have a major impact on the overall structure of agricultural production. There were no major changes in the proportions between livestock and crop production. It is clear that changes in agriculture arise not only from Polish participation in the implementation of the CAP instruments, but largely also from changes in market conditions, the common market and the elimination of trade barriers.

The future strategy should, therefore, take into account the process of polarisation of farms into agricultural and non-agricultural orientation. Polarisation refers to the population, households and business entities (including farms) active in rural areas. The trend of mutual penetration of various spheres of economic activity is growing. In Poland, support for the economic development of rural areas with public funds should be based on the objective of implementing the concept of shaping the internal balance of these areas. It involves maximising the net benefits of economic development, while protecting and ensuring the reproduction of a natural resource in a long-term – the concept of sustainable development.

However, in the future public support should play a declining role in shaping the pace and direction of investment. The state, taking over the role of a regulator, should enforce only the desired behaviour of economic agents. The beneficiaries benefiting from public funds, will be, by definition, in a privileged position compared to those who will not receive such subsidies. The resulting substitution and income effects can lead to lower efficiency and, consequently, to lower long-term competitiveness.

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