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# The Transformation of Polish Agriculture and Rural Areas Since EU Accession

**Abstract:** Based on publications and analyses of factual material in databases (GUS, RER, and FADN), the article presents the major changes in agriculture and rural areas in Poland following accession to the European Union (EU). Accession provided significant impulses to accelerate the transformation of Polish agriculture. These impulses include the supply of agricultural production resources, increased demand for agricultural products, transfers to agriculture resulting from the mechanisms of the Common Agricultural Policy (CAP), increased demand for agricultural labour, and the rising aspirations of farmers driven by cultural changes and higher education levels. At the same time, accession to the EU contributed to the implementation of the sustainable agricultural development paradigm – particularly through targeted or conditional financial transfers. The results in this area are significant in the economic sphere, while they remain modest and ambiguous in the environmental and social spheres. Agriculture in the 21st century must transform toward sustainability, as the development of industrial agriculture has reached a stage where the benefits of increasing production are outweighed by environmental drawbacks. This transformation requires replacing chemical inputs with organic matter, pointing the way toward agrobiotechnology and integrated technologies. A major challenge is balancing the development of family farms with the pressure created by globalisation and large-scale agricultural holdings. Rural areas have made significant progress in socio-economic development, especially in terms of technical infrastructure and income levels. Currently, the challenge lies in building technical infrastructure to ensure economic benefits primarily for rural residents. A deep revision of the CAP is desirable, or perhaps even its integration into the rural development management system.

**Keywords:** Common Agricultural Policy (CAP), agricultural transformation, sustainable development, rural change.

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## 1. Introduction

The paper aims to present the most important changes in Poland's agriculture and rural areas since the country joined the European Union (EU). However, it does not aspire to any quantification of these effects, since the changes were also affected by other factors, although the EU's role was fundamental. In particular, it is necessary to underline the impact of accession on Poland's overall socio-economic development, which translated into changed conditions of development for agriculture and rural areas, mainly in the form of demand for agrifood products and labour.

The 20th anniversary (in 2024) of Poland's EU accession created an opportunity for a broad presentation of the above changes at conferences and in scientific publications.[1] The present paper takes advantage of these materials, supplemented by the author's thoughts. Databases sourced for the paper (GUS, RER and FADN) enabled the changes in various periods to be analysed for the period 2002–2023.

The paper opens with some remarks on the potential impact of EU accession on agriculture and rural areas, followed by a synthetic presentation of progress in the industrial transformation of agriculture, together with some judgements offered in the context of the sustainable agricultural development paradigm. Next, the paper discusses the main changes in rural areas and addresses the prospects connected with the Common Agricultural Policy (CAP) in the context of family farming and new challenges and conditions. The text concludes with a synthetic summary.

The paper includes a short list of literature cited, omitting items from statistical publications.

## 2. The European Union's Impact on Agriculture and Rural Areas

Poland's systemic transformation at the turn of the 1980s and 1990s removed the political obstacles to Western European-style modernisation of agriculture and released market mechanisms, which initially – in the "shock therapy" period – drastically worsened the agricultural sector's economics. In particular, farmer incomes dropped dramatically, rural unemployment increased, agricultural price ratios deteriorated, and a new supply and demand balance in the agricultural market developed at a lower level than before. On the other hand, EU accession opened up the way to taking advantage of many opportunities created by the systemic transformation. The main element here was the removal or weakening of economic

[1] The following publications in particular: (Biskup [ed.] 2024; Chmieliński, Gorzelak [eds.] 2024; Poczta, Hałasiewicz [eds.] 2024; Wigier, Wrzaszcz [eds.] 2024).

barriers (the barriers of income, labour force, supply of industrial means of production, and demand).[2] This was made possible by money transfers under the CAP and the Cohesion Fund (CF)[3] as well as foreign direct investment (FDI),[4] migration (internal and international), the development of agrifood processing, the expanded offering of agricultural technology and industrial means of agricultural production, and a stable agricultural policy. Local communities also became more active in building social capital in rural areas, a process in which the LEADER programme played a major role.

Money transfers to rural areas and agriculture are most noteworthy, estimated at almost PLN 400 bn. In the post-accession period, farms received support worth about PLN 350 bn, of which direct payments transferred from 2004 to 2022 campaigns (up to June 2023) amounted to almost PLN 240 bn (in current prices) (Pawlak, Poczta 2024, p. 182). The average total direct payments per farm grew from PLN 4,500 in 2004 to PLN 13,500 in 2022 – while the number of farms receiving support dropped by about 200,000 (Chmieliński, Czubak 2024, p. 26). Direct payments increased from PLN 6.3 bn in 2004 to PLN 15.2 bn in 2020 and had a major impact on farm incomes, accounting for about 40%. EU funding under rural development programmes from 2004 to 2020 (programming periods) totalled EUR 30.7 bn (Chmieliński, Czubak 2024, p. 24, Table 1). An important role was played by CAP funds supporting rural entrepreneurship, which totalled about PLN 15 bn and were transferred to 50,000 beneficiaries (Drygas 2024, p. 114). EU funding was accompanied by increasing amounts from the national budget. In all, support from the state budget, i.e. domestic funds and CAP transfers, in 2004 totalled PLN 26.7 bn (including PLN 15.6 bn for the Agricultural Social Insurance Fund – KRUS, and PLN 5.4 bn from the CAP), in 2022 – PLN 59.9 bn (PLN 19.2 bn and PLN 24.4 bn respectively), and the amount planned for 2023 was PLN 63.3 bn (PLN 20.1 bn and PLN 24.7 bn respectively) (GUS data).

These subsidies supporting agriculture contributed to an increase in output, gross value added (GVA) and factor income of production that was higher than

[2] In this area, the role of agrifood exports needs to be underlined, whose value grew in the years 2004–2023 from EUR 5.2 bn to EUR 51.8 bn (with a positive balance of trade reaching EUR 16 bn), where almost 75% of Polish food was exported to EU markets.

[3] The Cohesion Policy and transfers from the CF to rural areas have been discussed extensively by Monika Stanny and Agata Mróz (2024).

[4] The level of accumulated FDI in the agrifood sector in Poland was (status at year's end): 2004 – approx. EUR 4 bn, 2022 – approx. EUR 13 bn; based on (Ambroziak 2024, p. 36). In the whole economy this was approx. EUR 50 bn and EUR 250 bn respectively (Biskup 2024, p. 31). Foreign direct investment brought not only financial capital to the Polish economy, but also know-how, experience, new technologies and innovations.

in the EU-27 countries.[5] The transfers alleviated income fluctuations, while at the same time becoming more and more separated from production and increasingly connected with the environment.

## 3. Industrial Transformation of Agriculture

Polish agriculture included in the CAP mechanisms provided a significant stimulus for its industrial transformation, as evidenced by increased spending on industrial means, the concentration of production, and specialisation (but also dependence on external financial resources).

The industrial transformation of agriculture was aimed at increasing output by increasing outlays on industrial means of production, especially mineral fertilisers, industrial feed, plant protection chemicals, certified seed, and veterinary resources, and freeing up labour for the needs of non-agricultural sectors. This enabled agricultural productivity to grow, thus increasing the supply of produce as well as farm incomes. Labour could be freed thanks to the application of agricultural technology, which – with positive effects for final production as well – reduced the amount of live draft power needed.

From 2005 to 2020, the consumption of mineral or chemical fertilisers (NPK/ha) increased by 27% (from 102 to 130 kg). The amount of technical equipment in agriculture grew, in some cases even excessively. The number of farming tractors increased from 1.437 m to 1.448 m, with an increase in their power (from 39 to 47 kW/tractor), a decrease in the number of farms, and a slight increase in the arable land area (GUS data).

Data from the agricultural census (PSR) from 2002 and 2020 indicate a drop in the number of farms from 1.952 m to 1.317 m (by 34%), and a simultaneous increase in the number of farms at least 30 hectares in area, from 55,000 to 85,000 (by 55%). This was accompanied by a drop in labour input expressed in annual work units (AWU),[6] from 2.284 m to 1.428 m (by 37%). Labour input on family farms changed as follows: the number of family members working only on the farm decreased from 2.576 m to 1.520 m (by 41%), the number working mainly outside the farm increased from 745,000 to 1.016 m (by 36%), while the number working

[5] In the years 2005–2023 the agricultural sector's output (base prices, EUR million) grew by 71% in the EU-27 and by 140% in Poland, GVA increased by 54% and 128% respectively, and factor income by 62% and 176% (determined based on RER – https://ec.europa.eu/eurostat/web/agriculture/data/database [access: 20th November 2024]).

[6] Annual Work Unit (AWU) – full-time equivalent employment of 2,120 hours (in Polish statistics) or 2,200 hours in the case of Farm Accountancy Data Network (FADN) data.

mainly on the farm and additionally in remunerated jobs grew from 70,000 to 89,000.[7] The number of permanent hired labourers grew from 39,000 to 78,000. However, labour input by the whole family still exceeds nine tenths of total labour input. The concentration of land ownership and production, together with specialisation and growing costs of agricultural technology, encourage and sometimes even force farmers to use agricultural services, as indicated by the percentage of farms with contract employees, which increased to 25% in 2020.

The relatively slow concentration of land ownership was accompanied by a greater concentration of the economic size of farms (measured by standard output). From 2010 to 2020, the standard output of family farms increased from around EUR 17.2 bn to about EUR 24.6 bn i.e. by 43%, and per farm – from EUR 12,600 to EUR 20,300, i.e. by about 60%. The number of farms with standard output exceeding EUR 25,000 grew from 146,000 to 202,000 from 2010 to 2020, accounting for 9.7% and 15.6% of all family farms respectively.[8]

The specialisation of farms intensified with a noticeable prevalence of specialisation in field crops, the concentration of livestock numbers increased, with a growing percentage of farms without any livestock (from 39% to 57%). On family farms, as the number of cows decreased from 2.6 m in 2005 to 2.3 m in 2020, the percentage of farms with cows dropped from 30% to 15%; 47% of cows were in herds of at least 10 in 2005, while the figure for 2020 was 84%. As for pigs, whose number decreased from 16 m to 9.5 m, herds of at least 50 accounted for 58% of the headage in 2005 and over 90% in 2020; 74% of the headage was in herds of 200 or more (GUS data). The growing number of farms without livestock and the excessive concentration of livestock on large farms leads to well-known ecological consequences (soil fertility maintenance, gas emissions, odour) as well as economic ones (trade in solid and liquid manure, waste use in biogas plants).

The industrial transformation of agriculture led to the increased productivity of land and labour as well as greater overall outlays. The area of arable land decreased by 1.5 m ha (9%) in the years 2003–2020, i.e. dropping from 0.42 ha per capita in 2004 to 0.39 ha per capita in 2020,[9] whereas land productivity – measured by standard output – increased by about 60%, and work output grew by about

[7] This was a noticeable effect of the decreasing number of members in the average family working a farm.

[8] With the help of agriculture structure studies for the years 2005 and 2016 as well as PSR 2020 data, the structure of family farms based on economic size was determined to be as follows: the share of farms with an economic size of at least EUR 50,000 grew from 3.9% in 2005 to 6.6% in 2016 and 7.8% in 2020. The number of farms with this economic size grew from 68,000 to 93,000 and 102,000 respectively.

[9] This tendency has slowed (or was even reversed) in recent years as the decrease of arable land area halted and the population started declining.

120%, which was mainly due to the decrease in labour input. Work output measured by global output volume increased by 60%, and land productivity by 15%.[10] Work output measured by gross value added grew even faster, by 77% (GUS data).

The changes in Polish agriculture are more favourable compared with the whole EU. RER[11] data indicate that in the years 2005–2022 real-term income from means of production per AWU (in fixed prices from 2015) increased by 231% in Poland and 99% in the EU-27. Farmer-entrepreneur income per family work unit (FWU) increased by 258% in Poland and 148% in the EU-27, while net agricultural income per AWU grew by 114% in Poland and 34% in the EU-27.[12] Polish agriculture has diminished the distance to EU agriculture somewhat: for example, the ratio of farmer-entrepreneur income per AWU in Poland and the EU was 37% in 2005 and 57% in 2023. Given the comparable decrease in labour input (about 40%), this was mainly the effect of subsidies and improved production effectiveness.

In the years 2004–2022, agricultural income in fixed prices (2010) increased from PLN 23.6 bn to PLN 36 bn, while subsidies grew from PLN 9.2 bn to PLN 15.7 bn. The share of subsidies in agricultural income first grew from 39% to 60% in the years 2004–2009, then over the following years, with substantial annual variability, decreased to about 40% in 2022. This was reflected in the incomes of farm households,[13] which showed real-term growth of 96% in the years 2005–2022, whereas the figure for households overall was 65% (Chmielewska, Zegar 2024).

In Poland about 70% of households that include a farm user obtain the majority of their income from sources other than agriculture: remunerated jobs, self-employment outside agriculture, welfare benefits and other unearned sources. The percentage of farm households is decreasing, while the percentage of households that include a family farm user with remunerated jobs as their main source of income is growing. From 2002 to 2020, the share of households with remunerated jobs as their main source of income grew from 27% to 36%, while the share of farmer households dropped from 36% to 31%. The share of entrepreneur households also increased,[14] from 4% to 8%, while the share of households living on old-age

[10] Work output in Polish agriculture, measured by production output value per AWU, is still about two fifths of the average output in the EU, whereas the productivity of capital is higher by about a sixth (RER data).

[11] https://ec.europa.eu/eurostat/web/agriculture/data/database (access: 18th November 2024).

[12] Incomes saw a sudden drop in 2023: for example, income from means of production per AWU decreased by 5% in Poland and by 9% in the EU-27.

[13] Households that include a farm user and whose income from the farm is the predominant source of income.

[14] Farm users who obtain most of their income from non-agricultural self-employment.

and disability pensions decreased from 23% to 16%.[15] Farm households obtain a little over 30% of their income from sources other than income from their farm. The percentage of farm households increases with the growing amount of arable land per farm: according to PSR 2020 data, it was 7% in the 1–2 ha group and 85% in the 100 ha and over group (Chmielewska, Zegar 2024).

In the group of family farms, farms where agricultural income is the main source of income for the farmer's family and commercial production predominates, are a noteworthy case. This is the group with the most intensive industrialisation, affecting professional farms, which become similar to businesses outside agriculture and are increasingly strongly linked to the value chain in the food sector, and farms are condemned to closing. The number of such farms decreased from 2005 to 2020, from 526,000 to 398,000 (by 24%).

In the period 2004–2021, the output per FADN-represented farm grew by 105% in nominal terms (from PLN 86,000 to PLN 176,000), subsidies increased by 936% (from PLN 3,000 to PLN 31,000), family-farm income grew by 137% (from PLN 30,000 to PLN 67,000), and income per full-time family worker – by 259% (from PLN 13,000 to PLN 46,000). Real-term income on FADN farms increased by 70%, and per full-time family worker by 81%. However, problems are caused by the substantial diversity of income on farms of various economic sizes, and also concerning types of farming. For example, in 2021 the income for a farm in the "poultry" category was PLN 511,000 on average, for "field crops" it was PLN 96,000, and for the "mixed" type PLN 79,000.[16]

## 4. Aiming for Sustainability

Accession gave the green light for the industrialisation of agriculture, at the same time consolidating a pro-environmental approach that intensified as the CAP evolved. However, the picture of progress in sustainability[17] is not unequivocal in the various areas of development. Increased agricultural output (especially commercial output) achieved by increasing outlays of industrial means with the simultaneous improvement of effectiveness, together with increasingly advanced agri-food processing, has substantially improved the level of food security. Nevertheless, increasing output with the help of outlays of industrial means is now being questioned in favour of technologies that are not only

[15] The total of 100% is reached with the "other" group of households (9%), which also includes households living on unearned sources of income – 1.5% and 2.1% respectively in the years cited here.

[16] Based on data from (Wyniki Standardowe 2022).

[17] The concept of sustainable agriculture is not unequivocal (cf. Velten et al. 2015). In this case, it is understood as meeting certain threshold values in the environmental, economic and social spheres.

productive but also sustainable. This requires the stream of industrial means of agricultural production, especially those involving energy from fossil fuels, to be replaced with a stream of nutrients from microorganisms and plants to livestock and back again. The growth of agricultural output should thus be achieved through intensification that is sustainable,[18] especially organic intensification, which enables increased harvests, improved effectiveness of use of means of production, and diminished negative environmental impact of food production. In this case, hopes are pinned on new technologies based on endogenous biological processes and not external outlays, on taking advantage of the trophic chain of living organisms and solar energy in the process of photosynthesis (Feledyn-Szewczyk 2014). A key role in this is played by the soil (Ntsomboh-Ntsefong, Mbi, Seyum 2024; Telo da Gama 2023). Sustainability is also promoted by crop diversification, maintaining permanent grassland, establishing pro-ecological areas, and eco-schemes.

The situation regarding mineral fertiliser use is ambiguous: although lower than in Western European countries, it is increasing in Poland, whereas the opposite trend – already seen in Western European agriculture – would be desirable. The decrease in the number of farms using natural fertilisers should definitely be viewed as negative (in 2020 about 570,000, i.e. around 40% of farms). Liming of soil is still insufficient, while it is highly recommended due to soil acidification. The situation with antimicrobial agents – including antibiotics – also has to be viewed as unfavourable, as their use has grown, contrary to the overall trend in the EU. This is similar with greenhouse gas (GHG) emissions from agriculture (Plewa 2024; Prandecki 2024). Another worrying fact is the negligible number of organic farms (just 18,400 in 2020).

On the one hand, concentration and specialisation help achieve better economic results (effectiveness, competitive edge, income), but on the other, they can have a negative impact on sustainability due to monocultures or excessive concentration of livestock herds.

Concentration in the food industry and food trade (giant foreign retail chains) also has consequences for domestic farmers, short food chains, local markets and capital transfers abroad. Most of all, though, increasing added value in the industry drastically worsens food quality. In this case, the rule is a situation metaphorically described as privatisation of profits and socialisation of losses.

[18] The concept of sustainable intensification is understood as fewer outlays per output unit or basing farming on biodiversity and natural regulation – taking advantage of natural ecosystem relations to produce agricultural goods (cf. Mahon et al. 2017; Tittonell 2014).

In all, the effect of EU accession on sustainability should be viewed as positive in the economic aspect but ambiguous in the environmental and social aspects.

## 5. Changes in Rural Areas

EU accession unquestionably revitalised and beautified rural Poland in the period under consideration. The rural population increased by 700,000 (to 15.3 m), employment grew (the employment index rose from 45% to 57%), unemployment decreased substantially (the unemployment index dropped from 20% to 4%),[19] there was significant progress in technical and social infrastructure and the rural economy. Unfortunately, this was accompanied by greater chaos in spatial planning as well as the differentiation of rural localities depending on their location in relation to urban centres, transport routes, and areas of environmental and recreational value.

The historical process of rural deagrarianisation received new stimuli; its indicators mainly include a decreasing share of households that include a farm user in the overall group of rural households, and particularly of households in which farming income predominates in the structure of disposable income, a decrease in employment in agriculture, and changes in the incomes of rural residents.

The downward trend in the share of rural households using a farm in the total number of rural households is documented by data from population censuses, according to which this share was 45% in 2002 and 28% in 2021,[20] where the share of the population in these households dropped from 52% to 23%. The share of farmer households in the total number of rural households decreased from 13.4% in 2002 to 8.5% in 2021,[21] while the share of the population associated with family farms dropped from 52% to 23% (Stanny, Komorowski 2024, p. 67).

Rural deagrarianisation was accompanied by growing employment mainly in the Polish economy's non-agricultural businesses. In the years 2004–2022, the number of businesses in rural areas grew from 0.8 m to 1.6 m. At the end of 2020, the REGON register of national economy entities included 4.7 m businesses, of which 29%[22] (1.4 m) were located or simply registered in rural areas. This showed an upward trend that was faster than in urban areas. The predominant types were self-employed businesses (over 80%) and those employing up to nine people (over 90%). At the end of 2020, 1.9 m people (20% of all working people in Poland) worked in businesses in rural areas. Most of these businesses

[19] Data from: (Stanny, Komorowski 2024).

[20] Excluding – apart from a certain group – farms with up to 1 ha of arable land.

[21] Farm households currently account for about 2.7% of all households in Poland.

[22] In 2004 this share was 23%.

were involved in industry and construction as well as rural services in a broad sense – serving the rural population and rural entities (involved in trade, vehicle repairs, transport, warehousing, accommodation, restaurant services, information and communications) (Chmielewska, Zegar 2024).

The growing importance of work outside agriculture is compounded by migration from urban to rural areas.[23] More and more people working in well-paid jobs or receiving benefits from the non-agricultural social insurance system, which are about 80% higher than benefits received by self-employed farmers,[24] began choosing the countryside as their place of residence. This is also supported by widespread internet availability,[25] possibilities to work remotely, and the transition to an economy based more on knowledge. People migrating to rural areas not only "raise" the average income of rural residents, but also have an impact on the creation and propagation of innovation as well as cultural change.

Rural residents' nominal per capita income grew about 3.5 times in the years 2004–2022. The biggest increase was for self-employment outside agriculture (5.1 times) and income from remunerated jobs (4.9 times), while the smallest growth was for agricultural income (2.6 times) and social benefits (2.7 times).[26] This caused a shift in the structure of rural residents' incomes: the share of income from other jobs grew (from 37% to 51%), while a decrease was reported for income from social benefits (from 39% to 29%) and agricultural income (from 13% to 9%). The share of income from self-employment increased just slightly (from 6% to 8%) (Chmielewska, Zegar 2024).

## 6. Challenges

Further socio-economic development of rural areas and agriculture faces significant challenges – in particular climate-related, environmental, social and economic ones.

[23] In 2004 the positive balance of internal migration to permanent residence in rural areas stood at 42,000, whereas in 2021 it was 49,000 (GUS data).

[24] In 2021 the average gross monthly old-age pension from the non-agricultural social insurance system equalled PLN 2,623, while for self-employed farmers it was PLN 1,429 (GUS data).

[25] At the time that Poland joined the EU, 26% of households had internet access, while in 2023 this was already 93%, or practically 100% for households with children.

[26] The relatively slower increase in income from social benefits was due to the decreasing number of beneficiaries and the way that social benefits were indexed. The number of individual farmers covered by the social insurance system dropped from 1.709 m in 2004 to 995,000 in 2022. In this period, the average monthly pension for individual farmers increased more slowly than pensions from the non-agricultural social insurance system – by 91% compared to 130% (GUS data).

These have already been presented in the context of climate considerations,[27] decreasing labour resources,[28] and globalisation (Wigier, Wrzaszcz [eds.] 2024; Zegar 2023, 2021). One special challenge is the preservation of family farming under conditions of a global market and global agrifood chains controlled by giant corporations, in the face of which most countries seem helpless. Given the domination of capital (which de facto controls corporations), family farms could be eliminated from agriculture – which is compatible with the views of the classics of the agrarian question (Karl Marx, Karl Kautsky). Assuming that maintaining the position of family farms in the agricultural system is a political goal, the question arises as to the role of the CAP in reconciling family farms with agricultural businesses (corporate and capitalist)[29] and agricultural holding companies (Maurel, Lacquement 2020), and in protecting professional family farms from bankruptcy, taking into account food security, including the question of food sovereignty (Mielniczek 2024) and environmental safety as well as such farms' contribution to the vitality of rural areas.

The removal of the two main barriers to structural change in agriculture, i.e. the employment barrier and the financial barrier, creates conditions for the acceleration of changes in the agrarian structure and a transition to professional, i.e. modernised, family farms. This is a desirable process, as the agrarian structure in Poland still significantly differs from the structure in many countries that Poland has to compete with on the common European market as well as the global market, which is a major argument in favour of accelerating the concentration of land ownership in Polish agriculture.[30] One debatable issue is the socially effective area of a family farm, i.e. taking into account not only work output but also land productivity.[31] For obvious reasons, work output increases with the farm area, while, except for small farms of up to 5 ha (specialised farms, horticultural farms), land productivity is highest in the 20–30 ha group of farms, slightly lower in the 30–50

[27] Particularly important challenges are those connected with climate change, vegetation period, intensifying droughts and other weather phenomena, the increasing fresh water deficit, soil erosion, the necessity to reduce GHG emissions and halt the loss of biodiversity (see Wigier, Wrzaszcz [eds.] 2024).

[28] This means greater competition on the labour market, which will translate into rising wages in agriculture and intensified replacement of labour input in agriculture with mechanical labour (including in the form of robots, digitisation, artificial intelligence) and services.

[29] Individual agricultural businesses that are capitalist in character, i.e. with a predominance of hired labour, account for a small percentage of family farms. According to data from a representative study of the agrarian structure (2016), such businesses accounted for about 1.6% of family farms with over 1 ha of arable land; they also accounted for 8.6% of arable land, 7.7% of AWU and 11.9% of SO (Standard Output), while family work made up a quarter of AWU.

[30] The arable land area of an average farm in Poland equals 66% of the EU average (11.4 ha versus 17.4 ha). In Poland, Western European agriculture is usually perceived as a model to be copied.

[31] In a more general approach, "social effectiveness" also includes external effects (ecosystem as well as social goods and services).

ha and 10–20 ha groups, and much lower in the 50–100 ha and over 100 ha groups. Compared to the productivity in the 20–30 ha group of farms, land productivity is 15% lower in the 50–100 ha group and 27% lower in the group of farms of 100 ha and above.[32] Improving the agrarian structure by supporting farms from the 20–50 ha group is more justified from the point of view of output volume than supporting large farms of at least 100 ha. Considering the upward trend in productivity, there should be a shift towards farms of about 50 ha within the perspective of a generation. This gains importance in a situation of the "going green" option in agricultural production. Another argument in favour is the trend towards achieving farm sustainability since farms best meeting the criteria of economic and environmental sustainability are larger ones – up to 100 ha (Wrzaszcz 2012). For obvious reasons, family farms have an advantage in supporting the vitality of rural areas (including preventing depopulation), social equality and protection of biodiversity (Woś, Zegar 2002). What poses a problem is the usually lower market (economic) competitiveness of family farms compared to large farms. For these reasons, support with taxpayer money under the CAP should be offered to family farms rather than agricultural businesses. The criteria for allocating these funds should go beyond competitiveness, which gives an advantage to agricultural businesses, especially corporate and large ones.

As the emphasis in support shifts from agriculture to rural areas, it would appear desirable to perform a deep revision of the CAP, to make it one of the tools of rural policy. Within that policy, the aim should be to solve the problems of agriculture and rural economics, especially the incomes of farmers and rural residents in general, with respect for environmental and social well-being. A revision of the CAP should restore freedom of decision-making to farmers, support collective forms of operation, support farm stakeholders in non-agricultural food economy entities, promote the technological transformation of agriculture from "chemical" to "biological", and eliminate unjustified individual support in favour of community support.

A revision of the CAP should support measures aimed at taking advantage of the multiple functionalities of agriculture and incorporating farms into the rural socio-economic system, including the circulation of money in rural areas, thus solving the problem of farm incomes by going beyond agricultural production. The point here is to intensify and expand activity connected with agricultural production as well as supplying public goods and ecosystem services related to the land and soil, and also the generation of renewable energy. In this respect, there is practically unlimited demand for agricultural products (organic-farming

[32] Based on data from (Borychowski et al. 2024, p. 37, Table 4).

economy) and energy. To this one should add the possibility of providing recreational and health-promoting services (social farms). Moving agriculture onto the agro-environmental path helps increase income by reducing spending on industrial means of production as well as expanding the labour market in rural areas. We should promote local food systems with truly healthy food, the development of programmes of rational nutrition in schools and other public institutions, support for low-cost eating places such as milk bars as well as reducing food wastage.[33]

A major role in propagating efficient socio-economic systems in rural areas might be played by agricultural advisory centres, which should expand their activity in terms of time (longer periods), agrotechnology (innovations), economic and organisational scope (non-production functions and joint projects) as well as services. It is also extremely important to support social capital in rural areas, including rural organisations, and the use of the natural environment – rural areas' great capital – by developing the multifunctionality of farms and other rural households.

It is of enormous importance to use public funding to support actions aimed at restoring spatial order, which is a process stretching over many years but necessary if we are to reduce the costs of building and operating technical and social infrastructure, eliminate conflicts caused by elements of infrastructure (waste treatment plants, biogas plants, battery farming, wind turbines), merging and accumulating farmland, and ensuring landscape protection.

## 7. Conclusion

The transformation of agriculture in Poland – delayed, for many reasons, compared to Western European countries – has received significant impetus for acceleration (the green light) since EU accession. This has involved the supply of means for agricultural production, increased demand for agricultural products, transfers to agriculture stemming from CAP mechanisms, increased demand for an agricultural labour force (emigration, non-agricultural sectors) and farmers' growing aspirations due to cultural changes and improved education (especially of prospective successors).

At the same time, the CAP has contributed to the implementation of the sustainable agricultural development paradigm, in particular by channelled or conditional

[33] Measures promoting healthy eating are recommended: a balanced diet, organic products, eliminating promotion/advertising of unhealthy food in the mass media – we have queues at supermarkets on the one hand, and at pharmacies on the other.

payment transfers. The results in the economic sphere have been significant, but rather modest and ambiguous in the environmental and social spheres.

Agriculture in the 21st century has to be transformed towards sustainability, because the development of industrial agriculture has reached the point where the benefits of increased output are being outweighed by environmental changes for the worse. This requires replacing chemical agents with organic matter, which defines a trend towards agrobiotechnology and integrated technologies. The latest technological revolution thus means shifting from technology and chemicals to information and biology.

Rural areas have achieved commendable progress in socio-economic development, especially as regards technical infrastructure, the labour market and income. Today's challenges are connected with the construction of technical infrastructure, especially for renewable energy, water management and livestock-excreta management, but in a way ensuring that the economic benefits stay mainly with rural residents.

Another great challenge is reconciling the development of family farms with the pressure created by globalisation and large-scale agricultural companies. It is desirable for the CAP to be revised thoroughly, or maybe even "incorporated" into the system controlling rural development.

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## Przeobrażenia polskiego rolnictwa i wsi w okresie poakcesyjnym

**Streszczenie:** W artykule, bazując na publikacjach i analizach materiału faktograficznego zawartego w bazach danych (GUS, RER i FADN), przedstawiono ważniejsze zmiany w rolnictwie i na obszarach wiejskich w Polsce po akcesji do Unii Europejskiej (UE). Akcesja nadała znaczące impulsy do przyspieszenia transformacji rolnictwa w Polsce. Chodzi o podaż środków do produkcji rolnej, wzrost popytu na produkty rolnicze, transfery do rolnictwa wynikające z mechanizmów Wspólnej Polityki Rolnej (WPR), zwiększony popyt na rolniczą siłę roboczą oraz rosnące aspiracje rolników wynikające ze zmian kulturowych i wzrostu poziomu wykształcenia. Jednocześnie przystąpienie Polski do UE przyczyniło się do realizacji paradygmatu zrównoważonego rozwoju rolnictwa – w szczególności poprzez ukierunkowane bądź uwarunkowane transfery środków pieniężnych. Wyniki w tym zakresie są istotne pod względem ekonomicznym, natomiast raczej skromne i niejednoznaczne w sferach środowiskowej i społecznej. Rolnictwo XXI w. musi się przeobrażać w kierunku zrównoważenia, gdyż rozwój rolnictwa industrialnego doszedł do stadium, w którym korzyści ze zwiększania produkcji ustępują zagrożeniom środowiskowym. Wymaga to zastępowania środków chemicznych przez materię organiczną, co wyznacza kierunek ku agrobiotechnologii oraz technologii integrowanych. Wielkie wyzwanie stanowi też godzenie rozwoju gospodarstw rodzinnych z presją, jaką stwarza globalizacja oraz wielkoskalowe przedsiębiorstwa rolne. Obszary wiejskie osiągnęły znaczny postęp w rozwoju społeczno-gospodarczym – zwłaszcza w zakresie infrastruktury technicznej oraz dochodów. Obecnie wyzwaniem jest zaś budowa obiektów infrastruktury technicznej w taki sposób, aby korzyści ekonomiczne były udziałem głównie mieszkańców wsi. Pożądana jest głęboka rewizja WPR, a może nawet jej „wmontowanie" w system sterowania rozwojem obszarów wiejskich.

**Słowa kluczowe:** Wspólna Polityka Rolna (WPR), transformacja rolnictwa, rozwój zrównoważony, przemiany na wsi.