

# Subsidies from the Common Agricultural Policy of the EU versus Agricultural Incomes in the European Union Countries in 2005-2015

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**Abstract.** The purpose of the article was to determine whether there were significant differences in the size of agricultural incomes in farms belonging to the same economic classes between agricultural holdings in the EU-15 and EU-12 countries. The first part of the study discusses the peculiarities of the agricultural sector, especially the need to affect the amount of income earned by this sector. Then the instruments of the Common Agricultural Policy of the EU supporting the value of income in agricultural holdings were pointed out. In the next part of the study we compared the characteristics of average agricultural incomes per farm in EU countries after considering the value of subsidies from the CAP and without them in the years 2005-2015. The last part of the study presents the values of agricultural income per farm including subsidies from the CAP in the EU-12 and EU-15 countries in individual years of the period 2005-2015. For this purpose, EUFADN farm accountancy data were used. It has been shown that CAP subsidies contribute significantly to reducing the income deprivation of EU agriculture. The scale of this impact varies, however, depending on the country. It was also proved that farms with a standard output of up to EUR 25,000 from the EU-15 countries showed higher average income in 2005-2015 than from EU-12 countries. In larger farms in terms of turnover (EUR 25,000 and more) it was the opposite.

**Keywords:** Agriculture, EU, CAP UE, Agricultural Income.

## 1 Income Deprivation of the Agricultural Sector and Determinants of Supporting its Economic Situation

The basis for differences between agriculture and other branches of the national economy is the specific nature of agricultural production, closely related to the land factor. Czyżewski and Matuszczak [2] indicate that the essence of the problem lies in the fact that land is a non-competitive production factor in relation to the other two - labor and capital. Farmers who, in the conditions of coercion of food consumption, farm land to satisfy the food needs of others, are doomed to permanent disparity of income, resulting primarily from the lack of mobility and specific features of this factor, such

as incoherence, potential indecency or limited productivity. Agriculture, therefore, has specific characteristics that give it a certain degree of universal and lasting character. Regardless of the system and the level of economic development of the country, agriculture is considered a weaker partner as a branch of the national economy, which results from the imperfect ability to accumulate and conduct expanded production [3]. The natural impairment of reproduction processes in agriculture, resulting from the aforementioned lack of land mobility, manifests itself primarily in the inefficient allocation of production factors by the Pareto criterion [2]. The reasons for this are, inter alia, their seasonality, dispersion, scale of risk and uncertainty resulting from atmospheric conditions, variable intensity and pace of work, occurrence of production cycles, King and Giffen effects and the combined presence of producer and consumer functions [2]. This has a destabilizing effect both on agricultural income and on the profitability of agricultural turnover. The need to support agricultural income stems from the immovable income depreciation of agriculture, as well as the security of food security. The necessity of influencing the income situation of agriculture in the EU also stems from the strategic goal of this group, which is sustainable development. In 1997, sustainable development became a major challenge for the EU and was included in the Amsterdam Treaty as the overarching objective of EU policy [6]. This concept is focused on economic growth, solving social and environmental problems. The Amsterdam Treaty underlines that the long-term development of the European Union will only be possible with the joint participation of three factors: economic growth, social cohesion and environmental protection [6]. Defining sustainable agriculture, just like the concept of sustainable development, takes place through the prism of three basic orders: environmental, economic and social, with revenues being a priority when determining the level of sustainable development of agriculture in the economic dimension. A special set of indicators of socio-economic sustainability has been developed for the assessment of the functioning of agricultural holdings. The criterion of economic evaluation are usually production results (e.g. the amount of revenues, income and production costs) and the profitability, liquidity, stability and productivity indicators based on them [9]. The additional criterion of "autonomy" is proposed by Bossel [1]. This autonomy (freedom) can be seen as becoming independent from the purchase of external inputs, which means that farms are less susceptible to any fluctuations in the prices of the production factors. Autonomy can also be assessed in terms of the degree of indebtedness or the impact of subsidies on the economic outturn. Finally, autonomy may be associated with the possibility of income diversification - the higher it is, the more autonomy, while income can be diversified by this obtained from agricultural production or non-agricultural income. The economic dimension can also be equated with the concept of farm viability, i.e. the ability to stay in the long run in changing market conditions [10]. In connection with the above arguments, it is justified to support the economic situation of agriculture because it affects the reduction of deprivation of this sector and also promotes its sustainable development, especially in the economic dimension. These objectives also conceal the common agricultural policy of the EU.

## **2 Common Agricultural Policy in Shaping Agricultural Incomes**

There are two sub-periods in the functioning of the common EU agricultural policy. The first (since its inception to Mac Sharry's reform) was a time of supply policy aimed at ensuring the EU's food self-sufficiency. The second, formally initiated in 1992, is the time of policy for demand. As Poczta et al. [7] say all subsequent reforms and changes in the CAP, introduced after 1992 were a continuation of the ideas contained in the assumptions of the Mac Sharry reform [7]. Regardless of the period of operation, the instruments of the common agricultural policy influenced the size of agricultural income in the European Union, limiting the income deprivation of this sector to others. Since the inception of this policy to the reform in 1992, such role was played, for example, by minimum price levels, compensatory payments, direct payments for production, as well as lump sum aid per hectare or animal unit, for more details see Czyżewski A., Matuszczak [2], Judzińska, Łopaciuk [5]. In the final analysis, by affecting the supply of agricultural products, the instruments influenced agricultural income. Since the Mac Sharry reform, new CAP instruments have been introduced. These instruments include direct payments, agri-environmental payments and support for less-favored areas. For more details see: Stępień, Guth, Smędzik-Ambroży [10]. This caused a change in the CAP slope towards the impact on agricultural incomes, however, without the dependence of these revenues on the volume of agricultural production. This at the same time resulted in the reduction of the adverse impact of agricultural production on the natural environment. It has been noticed that intensive agriculture, to which the primary shape of the CAP contributed significantly, results in negative externalities, such as biodiversity loss, contamination of naturally valuable areas of agricultural production, etc. Moreover, it was noticed that the disproportion in European agriculture was deeper, especially in development and resource-production structures between and within regions, which was caused by the concentration of retained income in the strongest and largest farms. In addition, it intensified social and environmental diversification [4].

This was an impulse to start the process of reforming the CAP towards sustainable development. At the same time, it should be added that the intensive farming model has not solved the problem of agricultural income, despite the over-exploitation of natural resources. Therefore, it did not meet the criteria of microeconomic efficiency and was not rational in the context of general social requirements. Therefore, its reform towards greater sustainability was necessary and justified, also in the aspect of the EU's strategic objectives. In connection with the above, it can be concluded that countries with a longer membership in the EU were subject to a greater extent of the influence of institutional conditions aimed at increasing the profitability of European agriculture. Therefore, the question is whether, after considering the support for income from the common agricultural policy between the EU-15 and EU-12 countries, there were significant differences in the value of agricultural income in farms belonging to the same economic classes.

### **3 Research Methodology**

In the analyze, the accounting data of representative farms belonging to the unified agricultural farm accounting data network (FADN) was used. In the first stage of study, a comparison was made between the average income per farm in 2005-2015 in EU countries with subsidies from the CAP and without them. The purpose of this analysis was to determine the impact of CAP subsidies on agricultural incomes in EU countries. In the next stage of study, the values of income per farm, including subsidies from the CAP, were presented in groups of farms belonging to the same economic classes, applying the division into EU-12 and EU-15 countries, in individual years of the period 2005-2015. These classes are expressed in turnover values expressed in EUR. The subsidies from the CAP included:

- single area payments (SAPS),
- the sum of set-aside and agri-environment payments,
- support for less-favored areas,
- other subsidies under rural support programs,
- payments for crop and animal production (sum of other subsidies for crop and animal production, balance of subsidies and penalties for milk producers, subsidies to other cattle and subsidies to sheep and goats),
- investment subsidies.

The analyzes did not take into account the year 2004, because in the accession countries in May 2004 agricultural subsidies covered only a period of several months and thus the income from agriculture in these countries could be understated compared to the following years. Malta and Cyprus were excluded from the analyzes due to outstanding observations of agricultural income from farms from these countries. Consequently, the impact of the CAP on the value of farm incomes in the EU, divided into EU-15 countries (Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom) and EU-12 countries (Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia, Slovakia) was summarized.

### **4 Agricultural Income in the EU in the Years 2005-2015 with Division to EU-15 and EU-12 Countries**

The average farm income in the EU-15 countries in the years 2005-2015 without subsidies from the CAP amounted to EUR 1710 and was definitely higher than in the analyzed EU-12 countries, where agricultural production costs were higher than revenues. In the EU-12 countries, the average loss in the years 2005-2015 was as high as EUR 27,779 per farm. In both groups subsidies to agriculture from the CAP significantly increased the profitability of agricultural production. In the EU-15 countries, they increased the incomes per farm by as much as 679%. Thanks to the support from the CAP, the average agricultural income in the EU-15 countries in the

analyzed period amounted to as much as 28707 EUR per farm. In the EU-12 countries, this increase was even higher, as the average agricultural income in 2005-2015, after considering the value of subsidies from the CAP, amounted to as much as 10860 EUR. In particular, this was caused by CAP support of agricultural income in countries such as Czech Republic, Estonia, Latvia, Hungary, Slovenia and Slovakia. Without subsidies from the EU agricultural policy farmers from these EU-12 countries achieved, on average over the period considered, losses. Only farmers from Poland and Lithuania from EU-12 countries achieved a positive average income per farm in 2005-2015 (see Table 1).

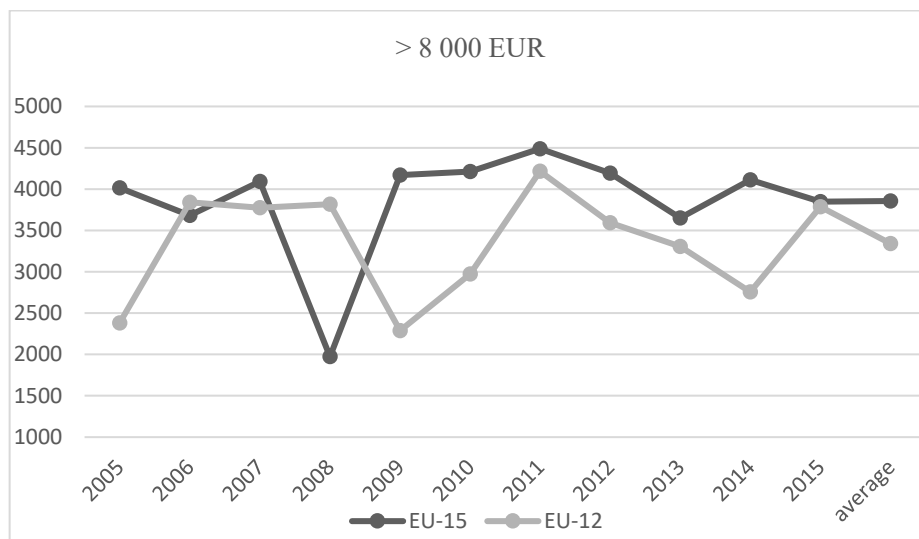
**Table 1.** Average farm net income in EU countries in the years 2005-2015 in EUR.

EU country	Average farm net income in EUR	
	Without CAP subsidies	With CAP subsidies
Belgium	27905.55	53285.45
Czech Republic	-42041.8	34629.55
Denmark	-23602.3	12252.36
Germany	1976.455	36607.55
Estonia	-7792.55	16537.00
Ireland	399.1818	20999.18
Greece	6141	12909.91
Spain	14053	23522.64
France	4781.455	36377.64
Italy	17872.64	24638.00
Latvia	-3357.91	11653.64
Lithuania	2633.636	12961.36
Luxembourg	-15592.7	43317.73
Hungary	-728.636	14503.91
Netherlands	30714.55	49195.45
Austria	5513.273	25618.27
Poland	3542.091	8769.273
Portugal	4886.545	12174.45
Slovenia	-148949	5566.182
Slovakia	-25536.8	-17742.5
Finland	-29132.7	20204.36

Sweden	-21785.4	14983.55
United Kingdom	1518.455	44518.00

In the U-15 countries, losses from agricultural production per farm without subsidies from the CAP, in 2005-2015 were achieved by farmers from the Scandinavian countries, namely Denmark, Finland and Sweden as well as from Luxembourg (see Table 1). The lowest percentage increase in income from agricultural production per farm thanks to subsidies from the CAP, in the examined period occurred in the EU-15 countries, such as Italy (by 38%), the Netherlands (by 60%), Spain (by 67%), Belgium (by 91%), Greece (by 110%). In the EU-12 countries, except for countries recording surpluses of costs over agricultural production revenues, the increase in income from agricultural production after including subsidies amounted to 392% in Lithuania and 148% in Poland. Therefore, it should be said that subsidies from the CAP had a positive impact on the income situation of European agriculture, despite the fact that the scale of this impact varied in individual EU countries. The support from the CAP significantly limited the deprivation of the agricultural sector in the EU in relation to other sectors of the national economies.

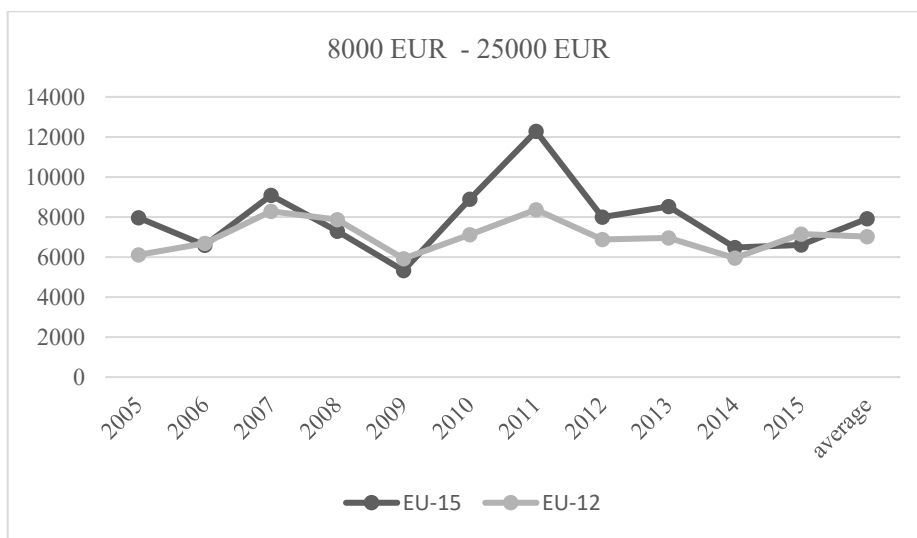
In the next step, the value of agricultural income per farm was analyzed, including subsidies from the CAP in the EU-12 and EU-15 countries studied, in particular years 2005-2015 in farms of identical economic classes.



**Fig. 1.** Agricultural income per farm with a turnover of less than EUR 8,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.

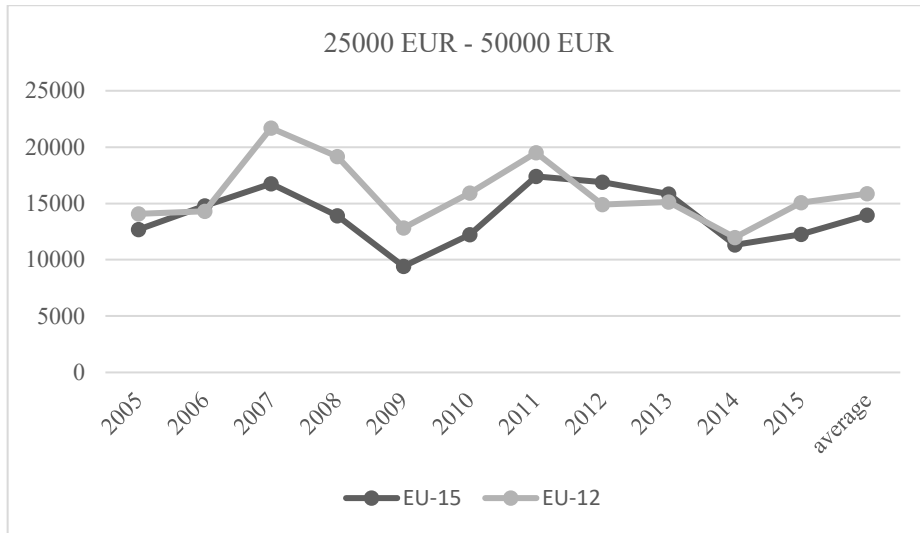
The lowest economic class of representative FADN farms (up to 8,000 EUR) occurred only in the EU-15 countries, such as Greece, Portugal and Slovenia, whereas in EU-12 it was in: Latvia, Lithuania, Hungary, Poland. However, in the years 2005-2015, farms

of this class, taking into account the value of subsidies from the CAP, from EU-15 countries showed only slightly higher average incomes in 2005-2015 than from EU-12 countries (by 16%). Characteristic was the year 2008, when the income of this class of farms was higher in the EU-12 countries than the EU-15 (as much as 93%) (see Fig. 1). Also in the next economic size class, agricultural farms from the EU-15 showed slightly higher incomes in 2005-2015 than farms from EU-12 countries. The difference was only 13% in the entire analyzed period of time in favor of the analyzed EU-15 countries. The much higher agricultural incomes in the EU-15 than the EU-12 can only be observed in 2011 (see Fig. 2).

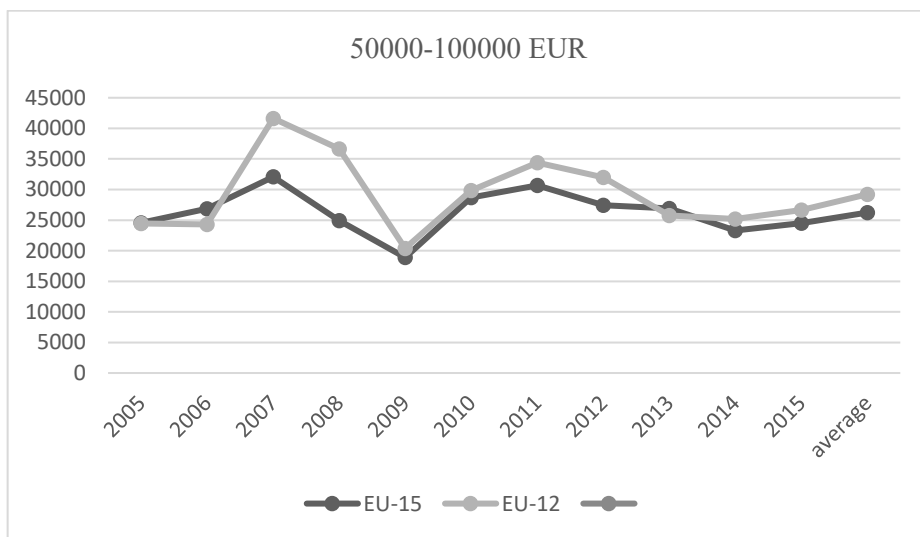


**Fig. 2.** Agricultural income per farm with a turnover of EUR 8,000 to EUR 25,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.

In subsequent economic sizes of farms by their turnover, this tendency was reversed, ie farms from EU-12 in average between 2005 and 2015 achieved higher income values than EU-15 countries (see Figures 3 to 6). These differences were 14%, 11%, 15% and 19% respectively in favor of EU-12 farms in relation to EU-15.

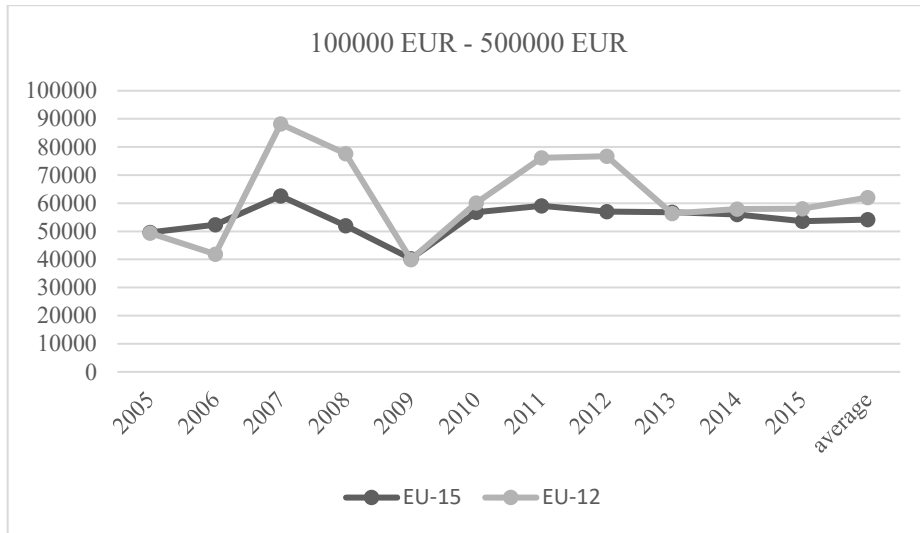


**Fig. 3.** Agricultural income per farm with a turnover of EUR 25,000 to EUR 50,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.

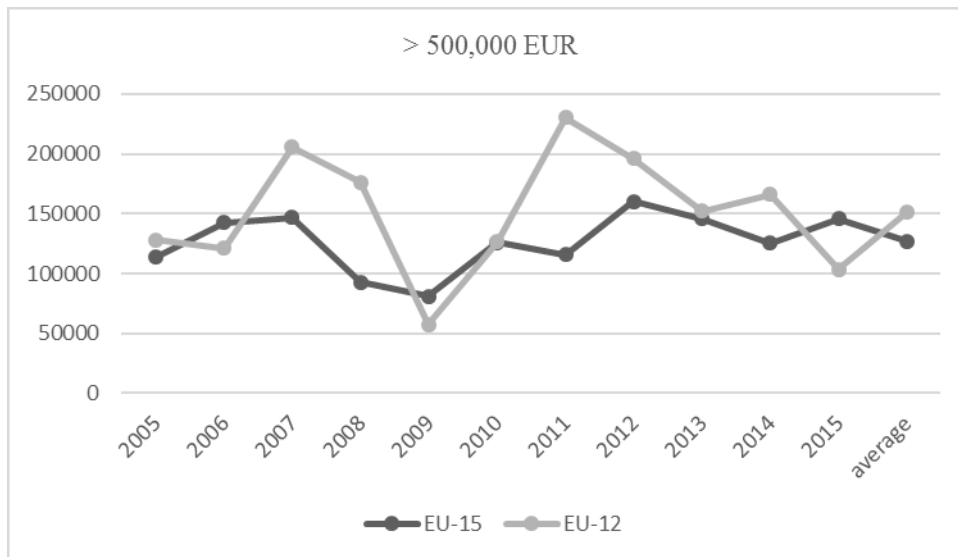


**Fig. 4.** Agricultural income per farm with a turnover of EUR 50,000 to EUR 100,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.





**Fig. 5.** Agricultural income per farm with a turnover of EUR 100,000 to EUR 500,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.



**Fig. 6.** Agricultural income per farm with a turnover of more than EUR 500,000 in the EU-15 and EU-12 countries, in the years 2005-2015 in EUR.

These differences were particularly evident in farms belonging to economic size classes from EUR 100,000 to EUR 500,000 and above EUR 500,000 (see Figures 5 and 6). At this point it is worth adding, that in these classes by far the highest and deviating from

others in the EU-12 were farms from Latvia and Hungary. In other economy classes, these were farms from Lithuania, Estonia, Hungary, and also in farms with turnover from EUR 25,000 to EUR 50,000 – these from Czech Republic.

## 5 Conclusions

The agricultural sector, due to its peculiarities, i.e. seasonality, immobility of the land factor, Giffen paradox, or King's effect, is characterized by lower incomes than other sectors of the national economy. Due to the strategic nature of this sector, as well as the paradigm of sustainable development, its income deprivation should, however, be limited. This function is performed in the EU by subsidies from the common agricultural policy, which support agricultural income. Studies have shown that irrespective of the length of a given country's membership in the EU, CAP subsidies constitute an important factor supporting agricultural income. It is surprising that farmers with a turnover of over EUR 25,000 from the EU-12 achieved even higher average incomes per farm in the years 2005-2015 than from the EU-15 countries. In the lower classes, the economic multiplicity of farms was the opposite. Regardless of the country, it should be stated that EU farmers thanks to the common agricultural policy achieve a political rent. This is evidenced by the income effects of this policy. As a result, it plays a significant role in the sustainable development of this sector. It should also be added that agricultural policy in the EU is also a substitute for microeconomic efficiency relations, contributing to limiting the pressure of agricultural production on the natural environment.

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