

# Financial Aspects of the Common Agricultural Policy for the Environmental Sustainability of Polish Agriculture



Karol Kociszewski

## 1 Introduction

Financial instruments of environment protection in agriculture generate an economic burden for polluters and/or positive incentives for agents delivering ecological services and public goods. Such actions have been introduced as a result of Poland's accession to the European Union (EU). Sustainable development integrates economic, social and environmental aspects, and the relations between these dimensions. This paper is focused on the latter one (environmental sustainability) under the influence of a meaningful part of economic policy. The impact of the Common Agricultural Policy (CAP) on sustainable development of agriculture has been assessed in many studies, some of which concern the economic aspects [1]. Another describes the evolution of the CAP towards sustainability thanks to increased funds for environmental protection [2]. That is why the purpose of the article is to characterise the implementation of financial instruments for environmental protection in Polish agriculture within the framework of the CAP. It concerns two essential parts of the CAP budget: the Pillar I (direct payments) and the Pillar II (rural development). One of the research studies showed that an increase in the share of Pillar II payments (especially the agri-environmental programmes—AEP) promoted environmental sustainability and that direct payments do not help to achieve it [3]. It was also mentioned by Osterburg et al. [4]. Consequently, they should be directed to support delivery of environmental public goods. That is why, in that paper, attention was paid to the greening of direct payments and their relation to standards of environment protection—in the Pillar I. In the framework of the Pillar II, pressure was put on pro-ecological operations: the AEP, aid for farms in Less Favourite Areas (LFAs)—presently called Areas Facing Natural or Other Specific Constraints

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K. Kociszewski (✉)

Wrocław University of Economics and Business, Wrocław, Poland

e-mail: [karol.kociszewski@ue.wroc.pl](mailto:karol.kociszewski@ue.wroc.pl)

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(ANCs)—and afforestation programmes for agricultural lands. Increased attention was paid to the most important measure—the AEP. From 2014, its name was changed into Agri-environment-climate Measures (AECM), which is the manifestation of the strengthened connection between the CAP and the climate policy of the EU. From the same year, the special measure aimed at support for organic agriculture was separated from the previous AEP. All the aforementioned instruments—based on subsidies—are positive incentives for pro-ecological operations.

## 2 Methodological Aspects

A characteristic of the implemented rural development operations enumerated in the introduction focuses on the effectiveness of allocation of the European Union's funds intended to protect the environment in Polish agriculture. The first part of the paper shows why they do contribute to environmental sustainability. More advanced characteristics of implementation of environmental second pillar measures would require further research referring to data on the area under the related financial support, the number of farms involved, institutional and other aspects. Some of the data was presented to show the change in the environmental dimension of sustainability after Poland's accession into the EU. On the one hand it concerned area under the AEP, on the other the changes in the agricultural impact on the environment in Poland compared to the EU. However, generally, the effectiveness of allocation was assessed on the basis of the extent to which the funds were used compared to the opportunities. These opportunities were determined on the basis of international comparisons concerning distribution of the CAP funds into the Pillar I and Pillar II, and the percentage the share of expenses into the described operations within the Pillar II in the entire EU and Poland. The higher the share of the second pillar in total CAP expenses, the higher the possibilities to finance the environment protection. This situation promotes the effectiveness of the operations. Finally, this effectiveness depends on internal decisions in member states where the CAP funds are definitely divided into both pillars and into particular instruments within the Pillar II. The result is the value of the funds contributing to environmental sustainability. In this case a comparative analysis was applied on an international scale on the basis of available statistical data.

The effectiveness of the allocation for environment protection was evaluated also in a dynamic approach—on the basis of changes of CAP environmental expenditures in consecutive periods after Poland joined the EU. In this case a descriptive analysis was conducted in the framework of subsequent financial perspectives (2004–2006, 2007–2013 and 2014–2020). Presently, the EU budget is being designed for the incoming period (2021–2027). For this reason a time frame was accepted—from joining the EU to the time in relation to which it is possible to predict the funds level for the discussed operations (2004–2027).

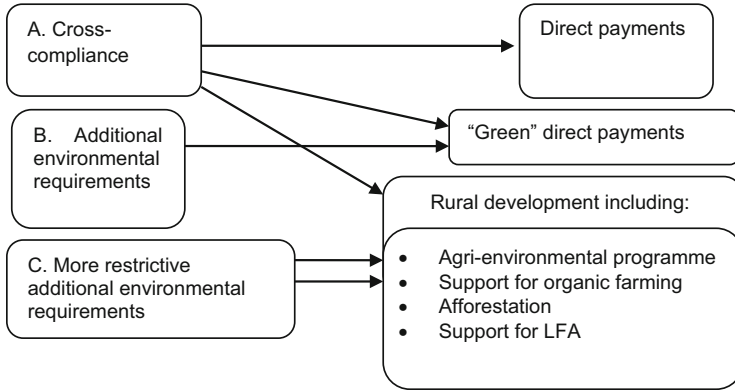
The elaboration was based on the results of a study of the subject-matter literature and analysis of secondary sources, due to which the theoretical part was developed.

Factual material and statistical data were collected to describe the manner, direction and extent of implementation of the agricultural policy instruments with their connections to environmental requirements. This analysis were accomplished with results from an empirical survey conducted with Polish farmers, and helped to show their willingness to take part in the AEP.

### **3 Specificity of Implementation of Financial Instruments in the Light of Environmental Sustainability**

Sustainable development is the process referring to an entire economy, society and environment. However, according to the author, besides such a holistic approach, it is also a concept referring to particular sectors of the economy (among others, to agriculture). Taking into consideration the literature connected with sustainable development [5–7], and with sustainable development of rural areas [8], it is possible to define sustainable development of agriculture. It is a process based on agricultural production ensuring a safe and secure food supply, meeting satisfactory ecological, economic and socio-cultural standards for all people in rural areas and outside of them (nowadays and for future generations) [9]. Together with economic and social aspects of welfare, such a process is based on stability within ecosystems whose status depends on agricultural production, so it is desirable to take into account its positive and negative environmental external effects [10]. They are under influence of measures used within the CAP. If these instruments have an influence on the reduction of negative and/or enhance positive externalities, it is desirable to increase the funds for such measures. The consequences and effectiveness of the implementation of financing instruments for agriculture environmental sustainability depend on decisions made at the EU level and in member states.

- In the first case, they concern the shape of the main groups of instruments and the value of the potential funds divided into the Pillar I and Pillar II (and in the case of certain instruments—their required allocation share in the second pillar). At this level there are also being shaped environmental requirements and other principles binding for beneficiaries of agricultural subsidies.
- In the second case, the authorities and domestic organisations (including Polish ones) decide on the final share of the Pillar II in domestic envelopes (the values of the funds granted to a particular state) and on the share of pro-ecological subsidies in the Pillar II. This is dependent on the current operations of the Ministry of Agriculture and Rural Development (MARD) and the Agency for Restructuring and Modernisation of Agriculture (ARMA).



**Fig. 1** The Scheme of dependency between environmental standards and economic instruments supporting agriculture in the EU (Source: Author's own elaboration)

### 3.1 *Economic Aspects of Environmental Requirements and Measures*

A part of the subsidies stimulates the delivery of environmental services from agriculture (Fig. 1b, c). On the other hand, the risk of reduction or withdrawal of the CAP subsidies in case of failure to meet these standards (Fig. 1a) is the only financial sanction against the negative agricultural impact on the environment.

- A. According to the *cross-compliance* (Fig. 1a) principle, farmers who receive direct payments from the Pillar I and subsidies from the Pillar II must meet basic environmental requirements. They limit the negative external effects of farming caused by emissions to water, air pollution, degradation of soils and losses in biodiversity. Due to this, conventional agriculture is closer to the standard which could be the sustainable development of agriculture.
- B. Since 2014, as a result of CAP reform, direct payments for additional obligatory pro-eco activities (Fig. 1b) have been implemented. They must constitute 30% of the funds from the Pillar I in every member state. Farms must meet, among others, requirement of diversification of crops in order to enhance the quality of soils and ecosystems; they must also establish Ecological Focus Areas (EFAs) in 5% of Utilised Agricultural Areas (UAA) in each farm.

These areas are supposed to enhance water protection and protection of natural habitats and of wild fauna and flora. EFAs include such elements of the rural landscape as set-aside, woodlands, terraces and buffer zones. Apart from this, farmers must maintain grasslands promoting biological diversity and absorption of contaminants. Such a change to the Pillar I means that it promotes external ecological benefits.

- C. The AEP generate external benefits and, at the same time, reduce environmental external costs. It results from the essence of the instrument—a farmer must meet

**Table 1** The division of CAP funds into Pillar I and Pillar II in Poland and the EU

Time period		2004–2006 (%)	2007–2013 (%)	2014–2020 (%)	2021–2027 (%)	
Poland	Pillar I	51.8	52.9	73.2	70	74.3 <sup>a</sup>
	Pillar II	48.2	47.1	26.8	30	25.7 <sup>a</sup>
EU	Pillar I	79.3	76.5	76.6	78.5	
	Pillar II	20.7	23.5	23.4	21.5	

Source: Author's own elaboration based on Council regulation [11] and documents from the European Commission (EC) [12–14] and MARD [15–17]

<sup>a</sup>The shares calculated in the scenario according to which 15% of Pillar II was reallocated to Pillar I

essential environmental standards (*cross-compliance*) and, next, he/she is paid for additional environmental services. In an economic dimension it affects growth of the farmers' incomes and it increases the availability of higher quality foodstuffs (in terms of the support for organic farming). Similar impacts related to the maintenance of extensive farming along with eco-system services arise from the application of subsidies for LFA. However, this impact is much weaker because farmers do not have to render additional environmental services. Afforestation of agricultural land contributes to increased external benefits and lower external costs, but to an extent limited to the functions of forests.

### 3.2 *Implications from Decisions Made at the Community Level*

In the first period of Poland's membership in the EU (2004–2006), the structure of CAP expenses in Poland was more advantageous for the Pillar II (than for the first one) compared to the entire EU level (Table 1). The share of the Pillar II in total value of CAP equalled 56%.<sup>1</sup> These solutions were the effects of the pre-accession negotiations in the framework of which the "old" member states (EU 15) had not agreed to grant new members (EU 10) the same direct payments as they had. As a compromise, the value of the funds for rural development has been relatively increased in the EU 10. At the same time reallocation of 20% of value of the Pillar II into the Pillar I was enabled. Polish institutions dealing with agricultural policy (MARD and ARMA) were not prepared for the implementation of environmental operations in the Pillar II, and for this reason they made full use of the opportunity of the reallocation (direct payments are much easier in implementation). As a result, according to calculations made by the author, the total allocation into the rural development (4.05 billion euros) was reduced by 14% to 3.49 billion euros. As such, the advantageous possibilities to finance environment protection operations made by the EU were reduced as an effect of the domestic decisions (Polish ones).

<sup>1</sup> Author's own calculation based on sources presented above in Table 1.

From 2007 to 2013, the share of CAP Pillar II in new member states was still more advantageous for environmental sustainability than in the entire EU. The overall EU funds for agricultural policy in Poland went up from 7.23 billion euros in the years 2004–2006 to 28.5 billion euros in the years 2007–2013 (by 50.3% in a year scale<sup>2</sup>), and from 3.49 to 13.4 billion euros in the CAP Pillar II in the same time period (by 46.5% per year). The growth was less dynamic compared to the first pillar (where it equalled 54.1%), and consequently the share of rural development in total CAP allocation for Polish agriculture decreased slightly (from 48.2 to 47.1%).

Formally, the structure of expenses for 2014–2020 have been changed a little (Table 1). However, the member states may transfer 15% of Pillar II value into the first one, and states—where the rate of direct payments per hectare is lower than 90% of the average rate in the EU (for example Poland)—may allocate an additional 10 percentage points of value of the Pillar II for this goal. Member states may also transfer funds reversely and, in consequence, most of the member states decided to move a part of the direct payments for rural development. A projection of the financial flows shows that across the EU around 4 billion euros will be transferred from Pillar I to Pillar II over 6 years—from 2014 to 2019 [18]. Poland (together with Hungary, Malta, Slovakia and Croatia) made an inverse decision and reallocation from rural development to direct payments had impact on limited possibilities for pro-ecological measures. The value of CAP financial support for Polish agriculture has not been reduced in relation to the period 2007–2013. It equals 28.5 billion euros in fixed prices from 2011.<sup>3</sup> However, the value of the Pillar II was reduced by 5.76 billion euros in real terms (by 43%) compared to the period 2007–2013 because MARD [20] decided that 25% of CAP Pillar II funds be transferred into the Pillar I. As a result, the share of the second pillar in the total CAP value for Poland decreased from 47.1% in the previous period to 26.8% in the years 2014–2020.

On the other hand, it is worth paying attention to the changes in the direct payments system. Since 2015, 30% of them are granted for greening (Fig. 1b). It results from the impact of the ecological policy of the EU on the CAP—20% of the total EU budget must be allocated for goals related to protection of climate [11]. Thanks to that, opportunities for funding environmental protection from the CAP were increased in the member states (as more specifically described in Sect. 4). However, it should be mentioned that changes in the Pillar I turned out to be less advantageous for making the agriculture more ecological than was originally planned.<sup>4</sup> At the time of negotiations related with CAP reform for 2014–2020, conditions for greening direct payments were reduced in relation to primary assumptions. Requirements of crops diversification apply only to farms exceeding 10 ha, instead of farms exceeding 3 ha as in the original version of the reform. Finally, it

<sup>2</sup>The value of the allocation from the years 2004–2006 should be divided by 2.67 (2 years and 8 months), and the value of the support in the years 2007–2013 by 7 (years).

<sup>3</sup>To calculate the real value (in 2011 prices), the European Commission (EC) applied the deflator 1.125 [19].

<sup>4</sup>Final solutions of the CAP reform for 2014–2020 were described by Kociszewski [21].

will concern only 15.4% of the total number of Polish farms.<sup>5</sup> Planned pro-ecological changes were also limited in the case of EFAs, which are to include 5% instead of the planned 7% UAA in every farm. It concerns farms exceeding 15 ha (previously more than 3 ha) i.e. only 8.6% of farms in Poland. Originally, it was to concern additional areas apart from existing permanent grasslands. At present, it is possible to include them into EFAs, and member states acquired a certain freedom when it comes to the criteria for these lands. Besides this, the rules of control of the maintenance of permanent pastures (the third element of the greening) are much weaker than was planned.

In 2021–2027 (mainly because of the projected Brexit) the EU budget for agriculture will be reduced by 5% nominally—to 365 billion euros in current prices [13]. In fixed prices (from 2014)<sup>6</sup> it will be 324 billion euros (20% less than in years 2014–2020). 285.2 billion euros (in current prices) is destined for Pillar I and 78.8 billion euros for rural development. It means that the allocation for Pillar II will be reduced by 21.2% in real terms. The value of financial support proposed for Polish agriculture is 30.4 billion euros in current prices (21.2 for Pillar I and 9.2 for Pillar II). In real terms, it is planned to be reduced by 16.5% (to 27 billion euros in prices from 2014) compared to the previous period. The value of the Polish Pillar II will be cut by 25% in real terms (8.17 billion euros). That change is unfavourable for environmental sustainability, but could be even worse if the Polish authorities decided to reallocate 15% of expenditures<sup>7</sup> from the Pillar II do Pillar I. The value of rural development would be 7.82 billion euros in current prices (6.95 in fixed prices), and its share in CAP funds for Poland would be decreased from 30% (according to the EC proposal) to 25.7%.

Irrespective of disappointing—in the light of environment protection—decisions regarding CAP reform for 2014–2020 (limitation of the second pillar, weakened requirements for greening) and the reduction of funds for rural development in 2021–2027, it must be stated that due to growing Pillar II expenditures in the previous periods and their relations with environmental requirements, the accession to the EU established advantageous conditions to implement instruments favourable for environment protection in agriculture. Unfortunately, the Polish authorities decided on a reduction of the Pillar II share in the total value of the CAP expenditures. Consequently, it limited the possibility to implement pro-ecological instruments in a wide range. One can refer here to the theory of cumulative conditioning of Myrdal [23]. Primary conversion (in this case a decrease of the second pillar funds) causes the consequences of cumulating changes into a direction caused by the initial change—the relative limitation of funds from this source at subsequent periods and the reduction of implementation of environmental measures. As a result of the first

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<sup>5</sup>Author's own calculations based on data published by Central Statistical Office [22]. As a reference point all farms have been included—2277 million.

<sup>6</sup>The EC has used the deflator 1.126 to calculate budget for 2021–2027 [13].

<sup>7</sup>According to the new rules for CAP 2021–2027, the rate of reallocation cannot be higher than 15% (in the years 2014–2020 it could be 25%).

**Table 2** The shares of expenditures on environmental measures in overall allocation for the Pillar II in Poland

Time period	2004–2006 (%)	2007–2013 (%)	2014–2020 (%)	2021–2027 <sup>a</sup>
AEP	4.1	13.7	15.2	–
LFA	18.7	14.8	16	–
Afforestation	1.9	3	2.2	–
Overall	24.7	31.5	33.4	–

Source: Author's own elaboration based on available literature [24], strategic documents of the European Commission [12–14], European Union DG Agri [25] and MARD [15–17]

<sup>a</sup>There are neither plans nor allocations available yet

decision, the Polish government agendas did not effectively prepare for the implementation of rural development measures. When the procedures connected with them occurred to be too difficult (with special consideration of the AEP), they had to reduce CAP expenditures on that goal. In consequence, the possibilities to lead in the environmental second pillar programmes were limited once again.

## 4 The Implementation of Environmental Measures in Polish Agriculture

In the period before 2004, Polish institutions were not prepared for implementing the AEP and other environmental instruments of the CAP Pillar II. Consequently, after the accession, the value of funds for them was significantly reduced in relation to the possibilities established within the CAP. In 2004–2006, allocation of the AEP constituted the highest share in the CAP Pillar II value among all its instruments at the level of the entire EU (22.6%). In Poland, the programme came sixth in this respect—a mere 0.17 billion euros from the EU budget (4.1% of Pillar II value; Table 2). A similar situation took place in the case of the share of funds for afforestation of agricultural lands. The share of LFA subsidies in the Pillar II turned out to be relatively high because this instrument does not require difficult tasks from beneficiaries, and it is not related with complicated administrative procedures. Hence, it is more easily implemented by agricultural agencies.

In 2007–2013, the sum of values allocated for the AEP, LFA and afforestation increased by 322% in absolute value (from 1 to 4.22 billion euros), by 60% per year (from 0.375 to 0.602 billion euros) and in relation to the overall expenses from the Pillar II in Poland (from 24.7 to 31.5%). It mainly results from the increased allocation for the most important measure (the AEP). According to the author's own calculation based on data from MARD [15, 20], the EU funding for it was increased from 0.17 to 1.84 billion euros—by 310% per year. In terms of the share in the Polish rural development fund (13.7%), the AEP was third among other operations. It means that opportunities arising from the CAP were used to a larger extent.



However, the AEP allocation was still much lower compared to the entire Union (EU-27), where it stayed at the first position—23.1% of value of the Pillar II [25].

According to the author's own calculation based on data from European Union DG Agri [25], the programme was implemented there at 14.8% UAA. In Poland it covered a smaller area (9% UAA) and was implemented in a relatively small number of farms (4.5% of the total number) [16]. In this respect the activities of Polish institutions involved in the agricultural policy may be considered as ineffective, especially taking into account the results of the author's own survey, according to which 13% of Polish farmers declared that they had a willingness to take part in the AEP. It showed that there is a demand from agricultural producers concerning environmental issues, so there is potential to lead in the AEP in a wide range.

In 2014–2020, the total value of EU support for enumerated operations in Poland (similar to these from 2007–2013) equalled 2.77 billion euros in nominal terms [20], including AECM along with subsidies for organic farming 1.2 billion euros, afforestation 0.19 billion euros and LFA—1.38 billion euros. In real terms, that value equals 2.46 billion euros (annual average 0.35 billion euros) which is 1.8 billion euros less compared to the previous period. It means smaller dynamics of decrease in funds (−42.2%) than in the case of the aforementioned reduction of total value of the Pillar II for Poland (Sect. 3.2). Due to this, the share of operations in the area of the environment protection in Polish rural development allocation went up minimally (from 31.8 to 32.1%). It results from the EU requirement: 30% of the funds from the Pillar II must be allocated for actions related to the environment protection. It is the next (apart from previously indicated) symptom of the European Union's ecological policy impact on the CAP.

Assuming that to the end of present financial perspective 30% of the value of direct payments (6.225 billion euros in real terms) is to be allocated for “greening”, the reduction of the real value of environment protection support (1.8 billion euros) will be compensated for even with a surplus. That surplus would be 4.425 billion euros, however it should be mentioned that three main requirements of the greening are less restrictive than in the AEP and, hence, factors stimulating environmental services are much weaker too. Apart from this, they will concern only larger conventional farms. For the rest of the farms the “green” direct payments are rather a kind of social aid, maintaining the dispersed structure of the farms.

As was mentioned above, the rural development funds were strongly reduced for the years 2021–2027. Assuming the same share of environmental measures in Pillar II as in the previous period (33.4%), the allocation calculated according to the initial proposal from the European Commission [13] would be 3.07 billion euros in current prices or 27.2 billion euros in fixed prices (from 2014). After probable reallocation of 15% of Pillar II to the Pillar I, the expenditures for these measures in Poland would be 2.22 billion euros in current prices or 1.97 billion euros in fixed prices. It means that the support for environmental sustainability within rural development would be cut by 20% (by 0.5 billion euros in real terms) in comparison to the previous period. The real value of the support would be 0.28 billion euros per year, which is the smallest one from the beginning of Poland's membership in the EU.

## 5 Conclusion

The change in the structure of the CAP budget shows the impact of the EU's environmental policy. It is expressed in the growing share of allocation for environment protection operations in overall CAP funds. It has established possibilities of support for environmental sustainability of Polish agriculture. Before accession to the EU, no financial instruments were applied to finance environment protection in this sector of the economy. The way of financing of domestic agricultural policy was assessed critically in the light of the use of these opportunities. It is proven by the effects of the Polish authorities' decisions on the structure of the CAP funds (especially in the years 2004–2006 and 2014–2020, as well as probably in the years 2021–2027). It concerns relatively low (compared to the European Union's average) financial value of the AEP/AECP and other pro-ecological operations, which is a derivative of relatively small amounts allocated for the Pillar II. It does not mean that the way of implementation of the CAP should be the same in all member states (the problems are different), but it is desirable to take into consideration changes in the relations between the three dimensions (economic, social and environmental) of sustainable development. They have changed in a direction which is disadvantageous for the environmental one. It effects from political will—the Polish authorities treat improvement of the economic farms situation as a priority and that is why they reallocated a part of CAP Pillar II to increase expenditures for direct payments. It was done to contribute to the modernisation of Polish agriculture.

We can observe positive economic consequences of direct payments; however, after the EU accession environmental pressure of Polish agriculture was increased [26]. Pillar I enabled increasing the external factors of production and influenced the general intensification of plant production. Following the accession, the fertilisation rate (NPK) went up by 50% per year, and emission of nitrogen—by 52% per year (pressure on water quality). In 2008, the consumption of nitrogen in Poland (70.7 kg/ha UAA) exceeded the average for the EU (64 kg/ha UAA). In 2015, in Poland (69 kg/ha UAA), it was 11.5% larger than in the entire EU (61.2 kg/ha). The annual greenhouse gases (GHG) emission from Polish agriculture went up by 2.4% and it was more dynamic compared to the changes in the entire EU (by 1% per year in the same period). In 2016, the share of agriculture in total emission of GHG from the economy was 10.3% in Poland and 9.8% in the EU. In the period 2003–2015, the consumption of pesticides increased three times per year over what is hazardous for biological diversity in rural areas. Growing environmental pressure was insufficiently mitigated by direct regulation instruments (cross compliance, greening) and rural development funds. It was also affected by the low effectiveness of institutions involved into domestic agricultural policy. In the period prior to accession they were not prepared for implementing the AEP, which resulted in limited funds allocated for this instrument in the subsequent periods of EU membership.

From a present and future financial perspective, environmental measures will grow in importance within direct payments, but they less effectively support environmental sustainability than the ones within the rural development fund. To

compensate for the decrease in its value, the environmental impact of the CAP should be strengthened in the aspect of more restrictive and better controlled requirements for farmers receiving subsidies from Pillar I. It refers to the projected CAP reform for the years 2021–2027.

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