



INSTITUTE OF AGRICULTURAL  
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# Mechanisms and impulses influencing development of agriculture and rural areas (3)

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**Mechanisms and impulses  
influencing development  
of agriculture  
and rural areas  
(3)**





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# **Mechanisms and impulses influencing development of agriculture and rural areas (3)**

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**THE POLISH AND THE EU AGRICULTURES 2020+  
CHALLENGES, CHANCES, THREATS, PROPOSALS**

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The paper was prepared under the research subject **Financial and fiscal factors in the improvement of efficiency, sustainability and competitiveness of the Polish agriculture**, in the task: *Fiscal mechanisms and stimuli having their influence on the rural development, returnable financing and quasi-marketable instruments for internalization of external effects in agriculture, the provision of public goods.*

The monograph aims at presenting following issues:

1. Analysis of changes in the financial support system for rural development and agriculture from EU funds for 2014-2020.
2. Assessment of the possibility of using auctions as a tool for internalising externalities and providing public goods in agriculture.
3. Estimation of the level of fiscal multipliers in agriculture.

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## CONTENTS

Introduction	7
1. Analysis of changes in the financial support system for rural and agriculture development for 2014-2020 using EU funds	9
2. Conservation auctions as a tool for internalising externalities and supplying public goods by agriculture	82
3. Fiscal multipliers in agriculture	98
Summary of the monograph	112
Bibliography	115



## Introduction

This publication is the third monograph<sup>1</sup> presenting the results of work carried out as part of the task titled “Fiscal mechanisms and impulses influencing rural and agricultural development, repayable and quasi-market financing, instruments for internalising externalities in agriculture and providing public goods”, which is one of three tasks under the research topic “Financial and fiscal conditions for improving the efficiency, sustainability and competitiveness of Polish agriculture”, which is part of the multi-annual programme entitled “Polish agriculture and EU 2020+. Challenges, opportunities, threats, proposals” implemented in 2015-2019 by the Institute of Agricultural Economics and Food Economy – National Research Institute.

The monograph is multithreaded and presents the results of research carried out in 2017 as part of the task. The scope of publication results from the specific objectives envisaged for this year of the research task implementation. Based on these objectives, a study deals with the following issues:

1. Analysis of changes in the financial support system for rural and agricultural development for 2014-2020 using EU funds.
2. Conservation auctions as a tool for internalising externalities and supplying public goods by agriculture.
3. Fiscal multipliers in agriculture.

The first chapter focuses on the analysis in the financial support system for rural and agriculture development for 2014-2020 using EU funds. This chapter presents in detail the changes in the functioning of both pillars of the Common Agricultural Policy (CAP) introduced in the 2014-2020 programming period, and analysis of past experience in implementing these new solutions. Particular attention was paid to the evaluation of the so-called greening of direct payments as it is seen as the most important change introduced during the last CAP reform.

The second chapter of the paper presents the issue of using the conservation auctions as a tool for internalising externalities and supplying public goods by agriculture. This chapter reviews the literature regarding the use of the conservation auctions as an instrument of agri-environmental policy. This review includes both conclusions from research experiments as well as from the use of conservation auctions in the practice of agricultural policy.

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<sup>1</sup> B. Wieliczko (ed.), A. Kurdyś-Kujawska, J. Herda-Kopańska (2015), *Mechanisms and impulses influencing development of agriculture and rural areas (1)*, Monographs of Multi-annual Programme 2015-2019 no. 3.1, IAFE-NRI, Warsaw and B. Wieliczko (ed.), A. Kurdyś-Kujawska, J. Herda-Kopańska (2016), *Mechanisms and impulses influencing development of agriculture and rural areas (2)*, Monographs of Multi-annual Programme 2015-2019 no. 34.1, IAFE-NRI, Warsaw.



The third chapter of the monograph concerns the estimation of fiscal multipliers in agriculture. Despite the fact that they are a useful tool for determining fiscal policy impact on a given sector of the economy, they are not widely used by economists in their research studies. They have not been examined in the agricultural sector, therefore in this monograph an attempt was made to estimate them.

In this chapter based on data from the Polish Ministry of Finance (MF) and the Central Statistical Office (GUS), estimates were made of the multipliers of budget expenditure on agriculture and multipliers of budget revenues from agriculture in Poland in 2001-2015. The following explanatory variables were taken into account: value added in agriculture, value of agricultural production, UAA area, value of fixed assets and number of farm employees.

## **1. Analysis of changes in the financial support system for rural and agriculture development for 2014-2020 using EU funds**

On 26 June 2013, the European Parliament, the EU Council of Ministers and the European Commission reached an agreement on the yet another<sup>2</sup> reform of the Common Agricultural Policy (CAP), defining the directions of and mechanisms for financial support for rural and agriculture development for 2014-2020. The legal grounds regulating the new policy were accepted on 16 December 2013, which ended the legislative process. Due to delays in negotiations and the lack of implementing provisions, the reform was implemented from 1 January 2015. Member States had thus enough time to gradually introduce the new policy, inform farmers thereof and prepare them accordingly. The new CAP reform differs significantly from previous ones. It introduces far-reaching changes aimed at a greener, fairer and more effective policy. Its current shape is the result of a great deal of concessions made over the last 50 years.

### **Evolution of changes in the financial support system for rural and agriculture development – reforms of the EU Common Agricultural Policy**

The Common Agricultural Policy was established under the Treaty of Rome of 1957, but its practical implementation was launched only in 1962. In the initial period of its implementation, its main objective was to ensure food self-sufficiency and security, increase agricultural production efficiency, stabilize the market, significantly increase agricultural incomes and expand exports. The main support instruments were market-based. These were guaranteed prices and unlimited buying in guarantees (interventional buying in), production quotas and export subsidies, compensatory payments and custom duties<sup>3</sup>. Their use resulted in an increasing amount of food overproduction and an increase in budgetary costs related to the funding of agriculture.

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<sup>2</sup> Since 1962, the CAP has been subject to five major reforms (although changes were introduced earlier, in 1984 and 1988), in 1992 (major breakthrough), 2000 (Agenda 2000: a new stage complementing the 1992 reform), 2003 (mid-term review), 2009 (consolidation of the 2003 reform) and 2013 (financing period 2014-2020). The first debates concerning the CAP after 2020 were launched in 2016. An earlier implementation of the reforms of the CAP after 2020, although they were necessary due to numerous serious problems, was not possible. This was due to a strong opposition formed by Germany and France, which were not in favor of major changes. The Netherlands and the United Kingdom were the major advocates of the reforms (J. Thurson, *How to Reform the Common Agricultural Policy*, European Rural Communities Paper, The Foreign Policy Centre, London 2002).

<sup>3</sup> A. Stelmachowski, *Kierunki interwencjonizmu państwowego w rolnictwie* [in:] P. Czechowski, M. Korzycka-Iwanow, M. Prutis, A. Stelmachowski, *Polskie prawo rolne na tle ustawodawstwa Unii Europejskiej*, PWN, Warszawa 1997, p. 66.

Furthermore, countries started to see the unfair distribution of benefits between smaller and larger agricultural producers and the unfavourable impact of the policy on global markets<sup>4</sup>. To reduce the intensity of agricultural production to some extent, the price support was reduced by introducing the principle of automatic price reduction once the production ceiling was exceeded. Market-based instruments were supplemented with structural instruments. These measures initiated a policy focused on the development of rural areas. The key objective of this policy was to accelerate changes in agriculture, restore competitiveness of agricultural regions and facilitate the development and structural adaptation of rural areas with a high share of employment and farm income<sup>5</sup>. Support was launched for: (a) afforestation of agricultural land; (b) agricultural activity in less-favoured areas; (c) investments related to extensification of agricultural structures and environmental protection. Agri-environment programs and programs aimed at excluding agricultural land from production were introduced (exclusion from production of at least 20% of agricultural land for a minimum of 5 years – set-aside system or, alternatively, change of the produced goods for ones that were not overproduced). Farmers were also allowed to take early retirement in exchange for abandoning land cultivation<sup>6</sup>. Further changes in the shape of the CAP were introduced in 1992. This reform, called the MacSharry Plan, is considered to be a major breakthrough, as it changed the then prevailing direction of support for rural and agriculture development. Aid for farmers was no longer linked to the production volume. Measures aimed at non-agricultural functions related to rural development, environmental protection, improvement of safety and quality of life were extended<sup>7</sup>. The price protection scheme was replaced with the compensatory income support scheme. Direct payments were introduced to ensure that farmers' income was maintained despite reduced price support<sup>8</sup>. These payments were a continuation of support for farmers who had by then obtained aid through market intervention. This support was supposed to only partially compensate for the decline in revenues, resulting from the reduction of market intervention and the approximation of agricultural commodity prices in the EU to global ones. The entitlements and scale of support granted to

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<sup>4</sup> M. Adamowicz, *Wspólna Polityka Rolna Unii Europejskiej w kontekście zmian klimatu na świecie*, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Polityki Europejskie, Finanse i Marketing nr 8(57) 2012, pp. 9-25.

<sup>5</sup> J. Sozański, *Reformy Wspólnej Polityki Rolnej i Prawa Rolnego Unii Europejskiej po 1990 roku*, IUS NOVUM 1/2011, pp. 130-161.

<sup>6</sup> J. Sozański, *op. cit.*

<sup>7</sup> J. Bieluk, A. Doliwa, A. Malarewicz-Jakubów, T. Mróz (edit.), *Z zagadnień prawa rolnego, cywilnego i samorządu terytorialnego*, TEMIDA 2, Białystok 2012, p. 188.

<sup>8</sup> M. Pelucha, *Rozvoj Venkova V Programovacim Obdobi 2007-2013 V Kontextu Reforem SZP EU*, IREAS, 2006, p. 58.

individual farmers varied due to the production direction. Two clear pillars were identified in the CAP concept: Pillar I – direct payments and market measures, and Pillar II – measures for rural development. In order to strengthen the link between the agricultural policy and the rural development policy, a number of accompanying instruments were introduced under Pillar II. Support measures focused on issues determining the volume of agricultural production in line with environmental protection requirements and those aimed at supporting the Community aid scheme for farmers at pre-retirement age, discontinuation of agricultural production and aid addressed to forestry in the agricultural sector<sup>9</sup>. A co-financing system for accompanying instruments was introduced. The EU financed from 50% to 75% (depending on the region) of the costs of the various programs. In December 1995 in Madrid, the European Commission presented to the European Council a document on the Regional Strategy. This document underlines the importance of improved competitiveness of the European agricultural and agri-food sectors on the internal and international markets in the context of the liberalization of global trade and the expected increase in food demand throughout the world<sup>10</sup>. This was the beginning of further changes in the CAP. In 1997, the European Council set, at its meeting in Luxembourg, the strategic objective of the new reform (the so-called “Agenda 2000”), which provides that European agriculture should be multifunctional, sustainable, competitive and present throughout the EU<sup>11</sup>. The reform was introduced to: (a) approximate EU prices to global prices, which was partially compensated by direct aid addressed to producers; (b) introduce a requirement to comply with environmental conditions (cross-compliance in the area of environmental protection); (c) reduce (modulate) aid to finance rural development measures and reinforce structural measures under the rural development support policy; and (d) abandon the promotion of agricultural production only (production volume) to support the rural economy<sup>12</sup>. Despite changes introduced in the agricultural policy, funds for direct support of agricultural incomes continued to prevail. In 2003, the mid-term impact of the last CAP reform on agriculture was reviewed. Based on the results of this review, a package of changes was agreed on to strengthen the link between European agriculture and world markets, ensure more adequate fulfilment of social requirements in the field of environmental protection and product quality, and better adjustment of the agricultural policy to the requirements of

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<sup>9</sup> J. Bieluk, A. Doliwa, A. Malarewicz-Jakubów, T. Mróz (red.), *Z zagadnień prawa rolnego, cywilnego i samorządu terytorialnego*, TEMIDA 2, Białystok 2012, p. 189.

<sup>10</sup> AGENDA 2000, *Unia Europejska rozszerzona i silniejsza, Monitor Integracji Europejskiej*, Wyd. specjalne, Komitet Integracji Europejskiej 1997.

<sup>11</sup> [www.europarl.europa.eu](http://www.europarl.europa.eu)

<sup>12</sup> [www.europarl.europa.eu](http://www.europarl.europa.eu)

third countries<sup>13</sup>. There were major changes introducing new rules and mechanisms for the redistribution of funds under the CAP. The main objectives of this reform were as follows: (a) to decouple direct payments from the production volume (by introducing a single area payment scheme); (b) to introduce the cross-compliance principle under which the receipt of payments was subject to compliance with certain environmental standards, as well as those relating to food safety, health and animal welfare; (c) to introduce a modulation that would allow the transfer of funds between Pillar I and Pillar II to strengthen rural development; and (d) to revise part of the support for selected sectors. The introduction of the above changes was supposed to increase farmers' involvement in environmental protection and care for providing public goods, and above all, even further limit the scope of market intervention. According to Franz Fischler, the then Commissioner for Agriculture, this reform gave rise to a new era. It offered farmers a policy that would stabilize their income and enable them to target their farms' production to market needs and enhance their transparency. It was also a strong signal to the world that the assumptions of the new policy were trade-friendly, and that the old subsidy system – which significantly interfered with international trade and was detrimental to developing countries – was being abandoned<sup>14</sup>. Introduced changes undoubtedly strengthened the rural development policy by introducing numerous instruments to support farmers. These instruments can be divided into three groups. Within the first group, the so-called accompanying instruments, introduced as part of MacSharry reforms, can be found. These instruments included early retirement, agri-environment programs, afforestation and support programs for farms located in less favoured areas (with natural handicaps). The second group included instruments supporting the modernization of farms and their diversification, i.e. support for young farmers, investments in farms, vocational training, marketing of agricultural products, as well as promotion and conversion of agriculture. As regards the third group, these were instruments designed to support melioration, land consolidation, basic services for farms and rural population, diversification of economic activity in the countryside, development and improvement of rural infrastructure, development of tourism and crafts, as well as protection of the natural environment and landscape<sup>15</sup>. The latest changes in the policy (prior to the current reforms) were agreed under “Health Check” in 2008. The 2003 reform

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<sup>13</sup> [www.europarl.europa.eu](http://www.europarl.europa.eu)

<sup>14</sup> [www.euroactiv.fr/section/agriculture-alimentation/linksdossier/cap-mid-term-review-not-updated/31/](http://www.euroactiv.fr/section/agriculture-alimentation/linksdossier/cap-mid-term-review-not-updated/31/)

<sup>15</sup> A. Jurcewicz, *Wspólna Polityka Rolna Unii Europejskiej* [w:] A. Stelmachowski (ed.), *Prawo Rolne*, LexisNexis, Warszawa 2006, p. 84.

framework was consolidated. The total decoupling of aid from the production volume was adopted, and a partial transfer of funds from the first to the second pillar was made through an increase in direct payment modulation rates and more flexible rules of public intervention and supply control<sup>16</sup>. The “Health Check” resulted also in the inclusion in the national RDPs of new challenges relating to climate change, renewable energy, water management, biodiversity and accompanying activities in the dairy sector.

Until 2013, changes in the CAP focused on a shift from price support to income support, extension of the scope of impact from agriculture only to multi-functional development of rural areas and observing to an increasingly greater extent the principles of sustainable development<sup>17</sup>. Taking into account new trends on agricultural markets and, above all, the condition of rural areas in the perspective of multi-dimensional global changes, it became necessary to outline new directions which the CAP should follow. The 2013 CAP reform was related to the new financial framework for 2014-2020. The purpose of the undertaken reforms was, in particular, to introduce measures aimed at the definitive decoupling of area payments from agricultural production efficiency, create or maintain special financial support for specific elements of the agricultural sector, reduce area payments for their largest recipients and transfer them to the financing of rural development programs and to fully and unconditionally implement the principle of cross-compliance of agricultural production with the requirements of environmental protection and consumer safety<sup>18</sup>. The most important element of these changes was an increase in the flexibility of the direct payments system, i.e. giving the Member States greater freedom in shaping the direct support system for farmers. This resulted in enormous differences in the structure of payments received by farmers in the various countries and even regions.

The directions of action specified in the CAP reform of 2013 are a continuation of the trend of market orientation of agriculture initiated in 1992. This is also the implementation of the so-called European agricultural model whose main attributes include multifunctionality and sustainability<sup>19</sup>. This gives rise to various but also diverse expectations towards European agriculture, which are of an economic, environmental and territorial nature. These expectations translate into the main objectives of the new agricultural policy for 2014-2020. They are a response to concerns relating to food security, declining production efficiency,

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<sup>16</sup> [www.europarl.europa.eu](http://www.europarl.europa.eu)

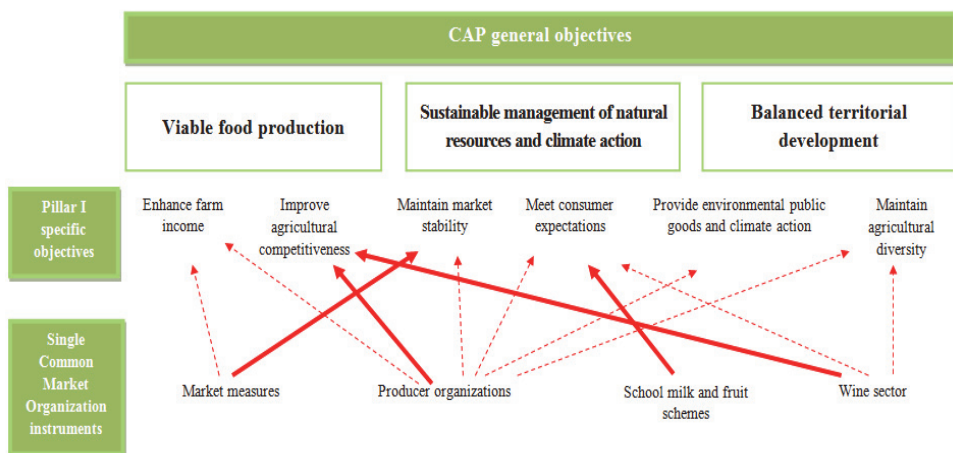
<sup>17</sup> [www.minrol.gov.pl](http://www.minrol.gov.pl)

<sup>18</sup> W. Kmieć, *Wspólna Polityka Rolna a zrównoważony rozwój obszarów wiejskich Polski: Analiza Socjologiczna*, Wyd. Naukowe UMK w Toruniu, Toruń 2012.

<sup>19</sup> J.S. Zegar, *Wspólna Polityka Rolna po 2013 roku*, *Więś i Rolnictwo* nr 3/2010.

price volatility, rising production costs and the deteriorating position of farmers in the food supply chain. They also relate to resource efficiency, soil and water quality, habitat and biodiversity risks, and depopulation and reallocation of businesses in rural areas<sup>20</sup>. Therefore, the main objectives faced currently by the CAP include increasing the profitability of food production, sustainable management of natural resources and actions in the area of climate change and balanced territorial development (Fig. 1.1). Higher profitability of production will ensure food security and increase the competitiveness of EU agriculture. It will also provide funds to meet the challenges facing the agricultural sector, which are related to market distortions and the operation of the food chain. Sustainable management of natural resources and action in the area of climate will ensure long-term stability and increased potential of EU agriculture, while balanced territorial development will contribute to the socio-economic development of rural areas<sup>21</sup>. It is worth noting that these objectives are linked to the strategic EU policy objectives set out in the Europe 2020 strategy for smart, sustainable and inclusive growth. The CAP objectives are implemented through instruments available both under Pillar I and Pillar II. Pillar I, and in particular market measures, ensure protection in times of disruption or crisis on the market, thus maintaining market stability and meeting consumers' expectations (Fig. 1.1).

Figure 1.1. Intervention logic Pillar I – market measures



Source: European Commission 2015. *Technical Handbook on the Monitoring and Evaluation Framework of the Common Agricultural Policy 2014-2020*, p. 12.

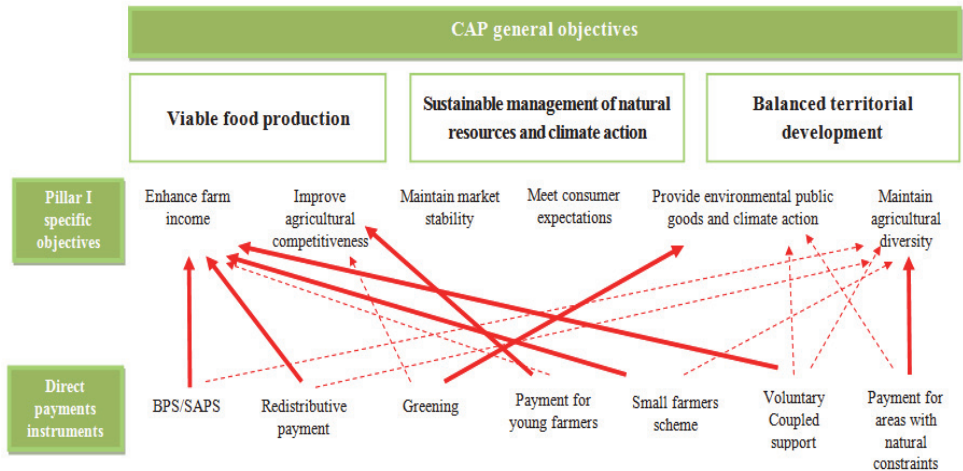
<sup>20</sup> European Commission 2013. *Overview of CAP Reform 2014-2020*.

<sup>21</sup> European Commission 2015. *Technical Handbook on the Monitoring and Evaluation Framework of the Common Agricultural Policy 2014-2020*, p. 10.



Direct payments, on the other hand, support and stabilize farmers' income, improve the competitiveness of agriculture and help provide environmental public goods as well as mitigate climate change and adapt to it (Fig. 1.2).

Figure 1.2. Intervention logic Pillar I – direct payments



Source: European Commission 2015. *Technical Handbook on the Monitoring and Evaluation Framework of the Common Agricultural Policy 2014-2020*, p. 12.

The implementation of the main objectives of the CAP under Pillar II is based on rural development programs (RDP) prepared by the Member States. These programs are to be developed based on six main priorities (Fig. 1.3).

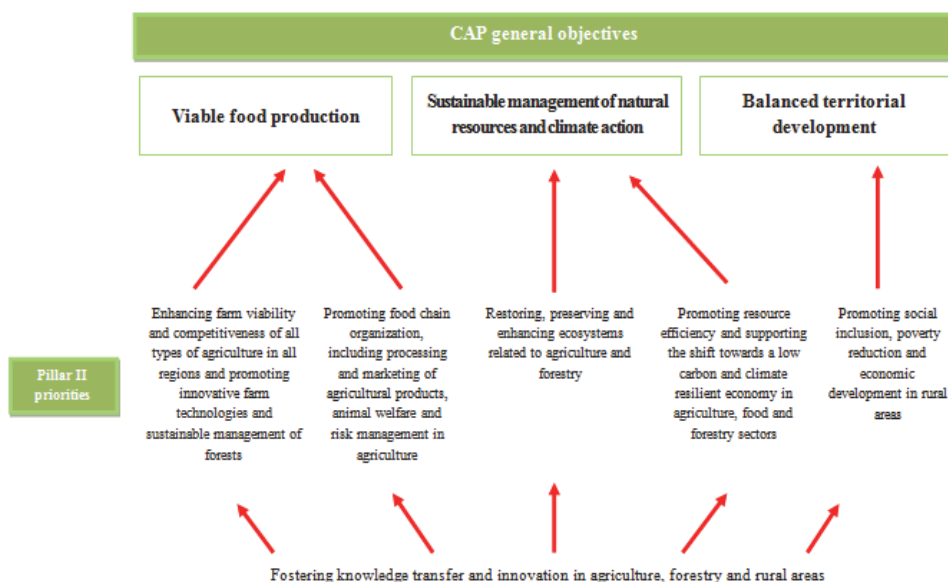
The CAP will continue to be based on the two-pillar structure in an unchanged shape. Pillar I consists of direct payments and the common market organization, while Pillar II is related to rural development. The maintenance of the two-pillar system should be assessed positively, which applies also to leaving the Member States the right to some flexibility in the allocation of resources and the right to support production in sensitive sectors or difficult mountain areas<sup>22</sup>. Strengthened links between the two pillars can be considered another positive change. It can be expected that all the measures will make the CAP more comprehensive and more strongly integrated with the objectives of other policies of the EU, especially those of the cohesion policy. According to M. Drygas, integration of various policies under which financial resources are allocated also to support rural development, and better coordination of the programming pro-

<sup>22</sup> M. Skulimowska, Sesja Plenarna Parlamentu Europejskiego. Sprawozdanie nr 48/2010, Kancelaria Senatu - Przedstawiciel Kancelarii Senatu przy Unii Europejskiej, Strasburg 2010, pp. 16-18.



cess than in the previous period will help strengthen synergy effects and increase the efficiency of public funds<sup>23</sup>. Greater value added from the point of view of the general public can be thus expected.

Figure 1.3. Intervention logic Pillar II – rural development



Source: European Commission 2015. *Technical Handbook on the Monitoring and Evaluation Framework of the Common Agricultural Policy 2014-2020*, p. 13.

## Changes in the financial support system for rural and agriculture development under Pillar I

Though changed compared to the previously applicable ones, direct payments remain the most important support instrument under the CAP for 2014-2020. At present, they account for 72% of the CAP budget<sup>24</sup>, and 93% of them are not linked to production. It should be noted that direct payments have been the main instrument supporting the agricultural sector from the early 1990s. They were introduced as sectoral compensatory support as a result of the reduction in guaranteed prices. Direct payments were to replace the market intervention system, which turned out to be wrong. At the same time, the introduction of payments entailed the need to comply with the WTO requirements regarding the

<sup>23</sup> M. Drygas, *Wsparcie rozwoju obszarów wiejskich w Polsce w ramach wspólnej polityki rolnej UE*, Studia BAS Nr 4(48) 2016, p. 113.

<sup>24</sup> A. Matthew, *The future of direct payments [w:] Research for AGRI Committee - CAP reform post 2020 - challenges in agriculture*, Brussels 2016, p. 17.

nature of farmers' support. The aim was to limit the use of instruments that have a direct impact on the functioning of the market, i.e. to break the direct dependence between the received support and agricultural production. Initially, the payments were only linked to production on the farm. They covered part of plant production, i.e. cereals, oil and high-protein crops, potato starch, hops, tobacco, flax and hemp, as well as part of animal production, i.e. beef, veal and mutton<sup>25</sup>. Their amount varied not only due to the type of production, but it was determined also based on the yield, crop area and livestock population in the reference period. In 2003, changes in the structure of direct payments were introduced, while remaining the support level. These changes were related to the decoupling of payments from the type of production. The payment was no longer a derivative of the production volume. Its amount depended on the area of the farm and on the fulfilment of certain environmental, veterinary and quality standards<sup>26</sup>. As noted by S. Kowalski, the farmer often produced not those goods that were demanded by consumers, but ones that entitled him to direct subsidies. This resulted in excessive supply of numerous agricultural products and had a negative impact on the environment<sup>27</sup>. The Member States were required to implement the Single Payment Scheme (SPS). At the same time, they were allowed to decide how to divide the total amount of direct payments. These payments could be divided equally among farmers at the regional level. Their nominal value was calculated as the quotient of the total amount of the regional ceiling and the number of eligible hectares specified at the regional level ("regional model"). The Member States could also adopt a "historical model", in which the number and value of entitlements to direct payments were determined based on the average level of support and the average number of hectares covered by support during the reference period of 2000-2002. It was also possible to combine the two above models. In the "hybrid model" (mixed), the eligible value is the sum of the historical amount (calculated individually for a given farmer based on reference data) and the lump sum (the same for the whole region). This model could be static (invariable) or dynamic (aimed at a single rate)<sup>28</sup>. Under the single area payment scheme, agricultural land and permanent grassland was eli-

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<sup>25</sup> A. Biernat-Jarka, *Ewolucja systemu płatności bezpośrednich w UE, ze szczególnym uwzględnieniem sytuacji w Polsce*, Studia BAS, Nr 4(48) 2016, pp. 37-54.

<sup>26</sup> F. Tomczak, *Ewolucja Wspólnej Polityki Rolnej UE i strategia rozwoju rolnictwa polskiego*, IERiGŻ PIB Program Wieloletni 2005-2009, nr 125, Warszawa 2009, p. 52.

<sup>27</sup> S. Kowalski, *Dopłaty bezpośrednie w nowej perspektywie finansowej Unii Europejskiej na lata 2014-2020* [w:] J. Grzywacz, S. Kowalski (red.), *Wybrane problemy gospodarki europejskiej*, Nauki Ekonomiczne, Tom XXI, Wyd. PWSZ w Płocku, Płock 2015, pp. 153-164.

<sup>28</sup> S. Kowalski, *Dopłaty bezpośrednie w nowej perspektywie finansowej Unii Europejskiej na lata 2014-2020* [w:] J. Grzywacz, S. Kowalski (ed.), *Wybrane problemy gospodarki europejskiej*, Nauki Ekonomiczne, Tom XXI, Wyd. PWSZ w Płocku, Płock 2015, pp. 153-164.

gible for payments. Exemptions from payments related to certain multi-annual crops, forests and land used for non-agricultural purposes. Furthermore, by 2009, farmers receiving payments were required to set land aside (in the case of farms with an area allowing for the production of at least 92 tons of cereals). Farmers were also required to keep their land in good agricultural condition in accordance with the rules adopted at the level of individual member states<sup>29</sup>. The above requirement can be interpreted as restoring a relationship between the payment and production factors (land management practices) and ultimately current production. It was, therefore, necessary to maintain some forms of land management<sup>30</sup>. The countries that joined the EU in 2004 and 2007 could choose to implement a simplified single area payment scheme (SAPS). In this case, the payment amount was determined just like in the case of the regional model.

The CAP reformed in 2013 introduced a completely new system of direct payments. The change in the shape of this system was due to the need to strive for their more targeted and equitable distribution between the Member States, regions and farmers, and to link them to the use of environmentally beneficial agricultural practices. As regards the direct support mechanism, there was a shift from the complete decoupling of payments from production to payment targeting. The new system entails abandoning the so-called “historical criteria” of direct support for farmers’ income. The most important change is the replacement of the single payment system with a new, more complex system of multi-functional payments. This system consists of compulsory and voluntary components implemented under individual decisions of the Member States. The compulsory components of this system are as follows: (a) basic payment “per hectare”; (b) payment for agricultural practices beneficial for the climate and the environment, the so-called “greening payment”; and (c) payment for young farmers. As to voluntary payments, these are: (a) redistributive payment; (b) payment for areas with natural constraints; (c) voluntary coupled support; and (d) small farmers’ scheme (Fig. 1.4). It should be noted that the components of the new direct payment system aim at, to a certain extent, rewarding specific farm behaviours (application of agricultural practices beneficial for the climate and the environment) or their status (young farmer, small and medium-sized farm, farming in areas with natural constraints). Their introduction is supposed to increase structural support for farms in those Member States where this support is most needed and to ensure better distribution of direct payments.

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<sup>29</sup> A. Biernat-Jarka, *Ewolucja systemu płatności bezpośrednich w UE, ze szczególnym uwzględnieniem sytuacji w Polsce*, Studia BAS, Nr 4(48) 2016, pp. 37-54.

<sup>30</sup> J. Helming, D. Oudendag, A. Zimmermann, *Literature review on modelling the farm payment scheme and decoupled payments in agricultural sector models*, Common Agricultural Policy Regionalized Impact-The Rural Development Dimension, Project No. 226195/2010.

Figure 1.4. New design of direct payments

Cross compliance Streamlined	<b>Coupled support (v)</b>	<b>Natural constraint support (v)</b>	<b>Small Farmer Scheme (v)</b>	
	- wide range of sectors - up to 8% (or to 13% depending on past level) of DP envelope, +2% for protein crops	- for areas with natural constraints - or part of them - up to 5% of the DP envelope		- simplification of claims and controls
	<b>Young Farmer Scheme (c)</b>			- lump sum payment to be determined by MS under conditions [500 to 1250 euro]
	- up to 2% of DP envelope - < 40 years commencing activity	+25% (payment entitlements) - for 5 years		- entrance in 2015
	<b>"Green" Payment (c)</b>			- up to 10% of the DP envelope
	- crop diversification - permanent grassland - ecological focus area	- 30% of the DP envelope - thresholds and exemptions - equivalence		
<b>Basic Payment Scheme (c)</b>				
- new BPS entitlements in 2015 - SAPS extended until 2020 (EU-10) - internal convergence/derogation with external convergence model	- voluntary redistributive payment - definition of "active farmer"			
v - voluntary scheme c - compulsory scheme		or		

Source: European Parliament 2016. Research for AGRI Committee - CAP Reform post-2020-challenges in agriculture.

Member States that have applied the simplified single area payment scheme have maintained this form of payment as the basic one until the end of 2020, except for Malta and Slovenia. The remaining 18 countries have adopted the basic payment scheme (BPS). Among them, six chose the option of its regionalization (Germany – by the States, Greece – 3 regions according to historical land use, Spain – 50 regions, France – 2 regions: Corsica and the rest of France, Finland – 2 regions and the United Kingdom (except for Northern Ireland). The main policy choices as regards the new direct payments system are presented in the table 1.1 below.

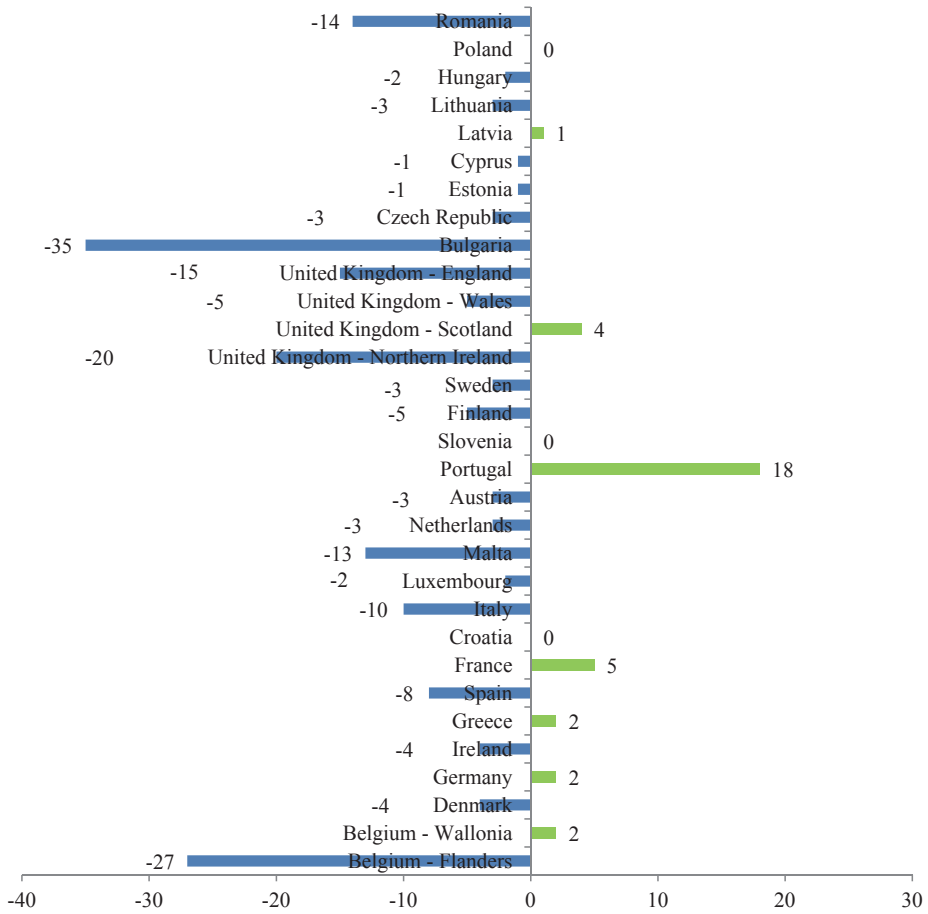
Support under the basic payment system is granted to farmers who are entitled to payments once the entitlements have been activated (Fig. 1.5). These entitlements were granted to farmers in the first year of the program’s implementation and may be transferred (through sale or lease) to other farmers in subsequent years. In 2015, there was a slight decrease in the total number of applicants for basic direct payments compared to 2014 (5%). The largest decrease was recorded in Bulgaria (35%), the United Kingdom – in Northern Ireland (20%) and England (15%) and Romania (14%). At the same time, an increase was recorded in some Member States. The largest increase in the number of applicants for basic direct payments was recorded in Portugal (18%), France (5%) and the United Kingdom – in Scotland (4%).

Table 1.1. Direct payment system implemented in EU Member States in 2015-2020

Member State	SAPS	BPS	No payment reduction	Payment			
				redistributive	for areas with natural constraints	voluntary coupled support	for small farmers
Belgium		+	+	+		+	
Bulgaria	+			+		+	+
Czech Republic	+					+	
Denmark		+			+	+	
Germany		+	+	+			+
Estonia	+					+	+
Ireland		+				+	
Greece		+				+	+
Spain		+				+	+
France		+	+	+		+	
Croatia		+	+	+		+	+
Italy		+				+	+
Cyprus	+					+	
Latvia	+					+	+
Lithuania	+		+	+		+	
Luxembourg		+				+	
Hungary	+					+	+
Malta		+				+	+
Netherlands		+				+	
Austria		+				+	+
Poland	+			+		+	+
Portugal		+				+	+
Romania	+		+	+		+	+
Slovenia		+				+	+
Slovakia	+					+	
Finland		+				+	
Sweden		+				+	
United Kingdom		+		+		+	
Number of states	<b>10</b>	<b>18</b>	<b>6</b>	<b>9</b>	<b>1</b>	<b>27</b>	<b>15</b>

Source: European Commission 2016. Direct payments 2015-2020. Decisions taken by Member States: State of play as at June 2016. Information note.

Figure 1.5. Changes in the number of applications for entitlements to direct payments in 2015 compared to 2014



Source: own study, based on: European Commission 2017. Report on the Implementation of direct payments [outside greening] Claim year 2015.

Activation of basic payment entitlements takes place every year by recognizing eligible hectares as the associated number of payment entitlements. The introduction of the basic payment system resulted in the expiration of entitlements allocated to farmers under the single payment scheme at the end of 2014. The Member States granted new payment entitlements in 2015. It was possible (under certain conditions) to allocate basic payments under existing entitlements. Four countries chose this option (Denmark, the United Kingdom, Sweden and Finland). The potential area eligible for direct payments (corresponding to the total area declared by beneficiaries and area potentially eligible for pay-

ments) accounts for about 90% of agricultural land in the EU (Fig. 1.6). In 2015, the potential area eligible for payments was 2% lower compared to the situation in 2013-2014, whereas the total area declared by beneficiaries, for which all eligibility conditions were met increased by 4.5%.

Figure 1.6. Changes in the size of areas eligible for direct payments in 2013-2015



Source: UAA-ESTAT and DG AGRI.PEA and Determined area - MS reports to CATS.

Member States may set a minimum farm size for which the farmer may apply for payment entitlements. As a rule, it cannot be greater than 1 eligible hectare. In 13 Member States, this threshold was adjusted taking into account the specific characteristics of the agricultural economy. The minimum size of the farm necessary to qualify for the first allocation was as follows: in Belgium – Flemish and Walloon Regions: 2 ha and 1 ha, respectively; in Germany, Croatia and Slovenia: 1 ha; in Estonia: 0.4 ha; in Spain: 0.2 ha; in Luxemburg, the Netherlands and Malta: 0.3 ha; 1.5 ha; in Austria and in the United Kingdom – Scotland and Northern Ireland: 3 ha; in Italy and in Portugal: 0.5 ha<sup>31</sup>.

Concentration of support on natural or legal persons for whom agricultural activity is not marginal is an important change in the direct payments system. This was supposed to ensure that payments are provided only to active farmers. A definition of an active farmer was introduced. A person or group of people is considered to be economically active if the annual amount of direct payments constitutes at least 5% of the total revenues generated by this person or group from non-

<sup>31</sup> European Commission 2016. *Direct Payments. Basic Payment Scheme.*

agricultural activities in the last financial year, or agricultural activity pursued by this person or group is not marginal or agricultural activity is the main economic activity pursued by this person or group. Farmers who do not qualify as “active farmers” may also be entitled to payments, provided that their amounts do not exceed EUR 5,000 (Member States are permitted to lower this threshold).

A new component relating to ecology – the so-called “greening” – has been incorporated in the direct payment system. The full name of this support system is “payment for agricultural practices beneficial for the climate and the environment”. This component is an attempt to link direct payments to remuneration for public goods and services produced by farms. Its introduction to the direct payment system is considered one of the most important changes in this system. This change results from the flagship initiative of the CAP after 2013, contained in the slogan “public money for public goods”, whose aim is to set and adhere to a more “ecological” budget and to achieve a more climate friendly farming<sup>32</sup>. Greening is one kind of direct payments which is focused mainly on ecological purposes. Their introduction is, therefore, supposed to translate into better results of the CAP in terms of environmental impact. Unfortunately, there is no clear definition of how greening is actually supposed to contribute to the achievement of EU objectives related to soil, climate and biodiversity<sup>33</sup>.

The greening conditions are similar to the cross-compliance principle, but are more demanding. Failure to comply with them may result in a reduction of greening payments by even up to 1.25 times. Greening payments should account for 30% of the national ceiling for direct payments, which corresponds to a maximum amount of EUR 89.3 billion (21.7% of the total EU budget for agriculture) (Tab. 1.2). This is EUR 12 billion per annum, which accounts for almost 8% of the total EU budget. This amount translates into an average rate of approx. EUR 80 per hectare per annum, though there are some differences between Member States, and in some cases also within the same country. This cost was estimated at around EUR 30 per hectare on average<sup>34</sup>.

As in the previous programming period (2007-2013), 30% of the total contribution under Pillar II should be used within each national and regional rural development program to mitigate climate change and adapt to it, and on environmental issues. This corresponds to 7.2% of the total EU public spending on agriculture, earmarked for public environmental goods in the form of remunera-

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<sup>32</sup> M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016.

<sup>33</sup> European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective*. Special Report No. 21.

<sup>34</sup> European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective*. Special Report No. 21, p. 15.



tion for undertaking individual agricultural practices and transforming or maintaining sustainable agricultural systems. Thus, the 2013 reform provides that around 28.9% of the total EU budget for agriculture is to be spent on direct greening measures and action under rural development<sup>35</sup>, whereas investments in sustainable agricultural systems account for only 1.5% of that budget<sup>36</sup>. Most of the EU spending on agriculture is, therefore, intended for other purposes that are not actually related to agricultural practices beneficial for the climate and the environment and the sustainable agriculture system. Unfortunately, this is not a clear signal to farmers that such an approach is an EU priority.

Table 1.2. Amount of aid for measures aimed at adopting agricultural practices beneficial for the climate and the environment and promoting organic farming under CAP for 2014-2020

Item	Aid amount (in EUR billion)	Share in the total EU budget for agriculture (%)
<b>Pillar I</b> - market related expenditure and direct payments	312.7	76
Total national direct payments ceilings for 2014-2020	297.6	72.3
Greening component (maximum 30% of direct payments)	89.3	21.7
<b>Pillar II</b> – rural development	99	24
Contribution to environment and climate issues – including organic farming (minimum 30% of EAFRD)	29.7	7.2
Organic farming support (conversion and maintenance payments)		
EAFRD organic farming support (Measure 11)	6.3	1.5
Total public expenditure (the EU and Member States) for organic farming support (Measure 11)	9.9	
Total environment and climate change spending for agriculture (Pillar I and Pillar II)	119	28.9
<b>Total EU budget for agriculture (Pillar I – Pillar II)</b>	<b>411.7</b>	<b>100</b>

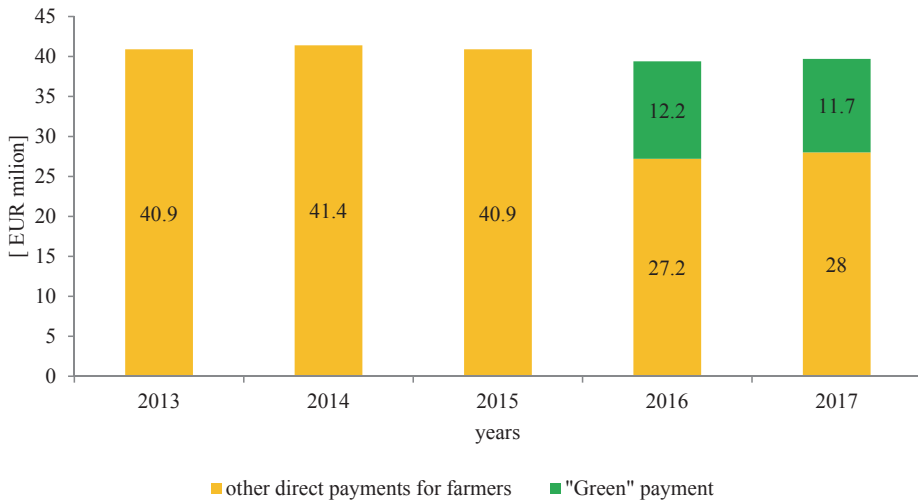
Source: M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016, p. 3.

At the time of the introduction of greening, the European Parliament and the Council transferred funds from the pool for other direct payments. Despite these transfers, the total budget for direct payments under the CAP did not change significantly (Fig. 1.7).

<sup>35</sup> M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016.

<sup>36</sup> *A Cap for healthy farms, healthy people, healthy planet. Public money must deliver public goods*, IFOAM EU, Brussels 2016.

Figure 1.7. Budget for direct payments under CAP in 2013-2017



Source: European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective. Special Report No. 21, p. 15.*

In 2015, 24% of farms in the EU were subject to at least one greening obligation. However, these farms account for as much as 73% of agricultural land in the EU. In 2016, the percentage of agricultural land held by farms subject to at least one greening obligation increased to 77%<sup>37</sup>. In 2015, 76% of EU farms, accounting for 27% of all agricultural land in the EU, were not subject to any greening obligations. These data relate to farmers that do not apply for direct payments under the CAP. Among beneficiaries of greening payments, a total of 65% of farms cultivating around 16% of agricultural land in the EU, declared for the purposes of direct payments, were fully exempt from all greening obligations<sup>38</sup>.

As a general rule, a greening payment should be granted as a lump sum payment per eligible hectare declared under a single direct payment or for entitlements activated under a basic direct payment. All Member States, except for Luxembourg and the Scottish region, chose to apply a derogation to grant payments for environmental protection, as a percentage of the value of activated entitlements. Finland and the Scottish region distribute these payments on a flat-rate basis among the regions designated for the purposes of basic direct payments. Three standard agricultural practices related to greening have been adopted.

<sup>37</sup> European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective.* Special Report No. 21, p. 29.

<sup>38</sup> European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective.* Special Report No. 21, p. 35.

Diversification of crops is the first standard greening practice. It replaced the optional standards for good agricultural and environmental condition regarding crop rotation, valid until 2014. Diversification of crops applies only to farms with an area of over 10 ha. Access to the “green payment” is restricted to farms in which:(a) at least two different crops are grown and the area of arable land does not exceed 30 ha; (b) up to three crops are grown, provided that the area of arable land exceeds 30 ha, whereby the main crop does not cover more than 75% of arable land and two main crops do not cover more than 95% of such land.

At the EU level, areas subject to crop diversification account for 75% of the total arable land area. This is less than the percentage of farms required to comply with at least one greening obligation (77%). In Hungary and the Czech Republic, the percentage of agricultural land subject to diversification is around 98%. In Belgium, Bulgaria, Germany, Denmark, Spain, Cyprus, Lithuania and Slovakia, it is in the range from 80% to 90%. The lowest percentage of crop diversification is recorded in those Member States where exemptions are used to a greater extent (e.g. Malta, Portugal) or where there is a high proportion of permanent grassland (e.g. Ireland and Austria). At the EU level, 25% of the total arable land area is not diversified, 13% is subject to the requirement of growing two different crops, and 62% is subject to the three-crop requirement. The relative percentage of land subject to the three-crop requirement is higher in Member States with the lowest percentage of farms not covered by the crop diversification requirement (Bulgaria, the Czech Republic, Germany, Denmark, Slovakia and Hungary). The result of the obligation to diversify crops, the application of which depends on the number of hectares, is related to the structure of agriculture in the various Member States. In Member States with the largest farms on average, there are fewer farms that are exempt from tax, hence the major part of the land is subject to the three-crop requirement<sup>39</sup>.

The second greening practice involves maintaining existing permanent grassland. As part of this practice, farms cannot transform permanent grassland located in Natura 2000 areas, as this is permanent grassland with valuable natural characteristics. This payment requires that the ratio of grassland to the total area of agricultural land does not fall by more than 5% from a reference level.

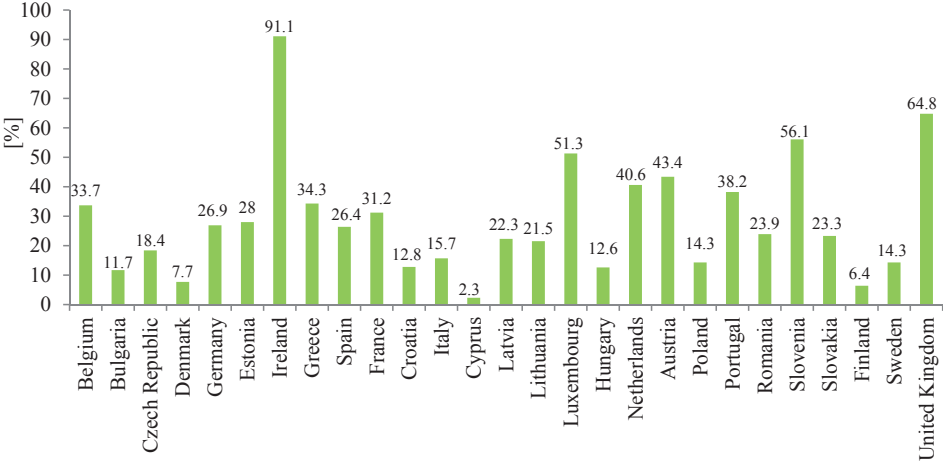
At the EU level, permanent grassland accounts for 30.23% of the total agricultural land. The greatest area of declared grasslands is recorded in France (26 million ha), Spain (17 million ha), Germany (15 million ha) and Poland (11 million ha) as well as in the United Kingdom (13 million ha). The highest share of permanent grassland in the total declared area of grassland is recorded in Ireland

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<sup>39</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year.*

(91.1%) and the United Kingdom (64.8%) (Fig. 1.8). The lowest share of permanent grassland in the total agricultural land area is recorded in Cyprus (2.3%), Finland (6.4%) and Denmark (7.7%). Malta has no permanent grassland<sup>40</sup>.

Figure 1.8. Share of declared permanent grassland in the total grassland area in the various Member States in 2015-2020



Source: European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective. Special Report No. 21.*

In 2015, payments for grassland amounted from EUR 85 per hectare (the Czech Republic) to EUR 548 per hectare (Estonia), whereas payments in the conversion period ranged from EUR 43 per hectare (Sweden) to EUR 545 per hectare (Estonia). Sweden has not introduced payments for grassland. Austria, Cyprus, Estonia, Finland, Hungary, Latvia, Poland, Slovakia, the Czech Republic and Estonia maintained the same level of payments related to grassland both during the conversion period and the maintenance one. In the other Member States and regions, these payments amounted from EUR 13 per hectare (Romania) to EUR 161 per hectare (Denmark). Compared to 2011, most Member States increased payments related to conversion and maintenance of grassland. The largest increase in grassland, compared to 2011, was recorded in Estonia

<sup>40</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year.*

(471 EUR per hectare), while the greatest decreases were recorded in Portugal (-280 EUR per hectare) and Slovenia (-102 EUR per hectare)<sup>41</sup>.

The third standard greening practice involves the maintenance of an ecological focus area on agricultural land. Payments under this practice are granted to farms with an area of more than 15 ha, so that they can allocate at least 5% of the eligible farm area (excluding area intended for grassland) to ecological focus area, with an option to increase it to 7%. Throughout the EU, farmers who were obliged to allocate 5% of their area to ecological focus areas declared twice as much such an area than required<sup>42</sup>.

There are exemptions from the obligation to maintain ecological focus areas by farms. These include: (a) exemptions for farms with an area of less than 15 ha of arable land or ones in which more than 75% of agricultural land area is grassland or is covered with legumes; and (b) exemptions permitted in Member States in which more than 50% of the total area is covered by forests. Five Member States are entitled to the latter exemption. At present, four states (Estonia, Finland, Sweden and Latvia) take advantage of this exemption. It needs to be noted, however, that forests are used extensively in Estonia and Finland, which corresponds to nearly 100% of arable land eligible for this exemption. In Lithuania and Sweden, such an area accounts for 36% and 45%, respectively. The most widespread exemption applied in the Member States is the exemption relating to the area of arable land (less than 15 ha). This type of exemption represents around 70% of the total area of land exempted in all Member States, and about 100% in Denmark, Ireland, Greece, Croatia, Lithuania, Cyprus, Malta, the Netherlands, Austria and Romania<sup>43</sup>. The percentage of the total area of arable land belonging to farms subject to the EFA requirement is 68% of the total arable land area. The highest percentage of such farms is recorded in Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Hungary and Slovakia (around 90%). In most Member States, this percentage ranges from 40 to 80% (Estonia, Spain, Croatia, Italy, Cyprus, Lithuania, Latvia, the Netherlands, Poland, Romania, Sweden and the United Kingdom). Member States with the lowest share of arable land on farms subject to the EFA requirement include those that take advantage of exemptions (e.g. Malta 1%, and Greece 33%) and those with a high proportion of permanent grassland (e.g. Ireland 30%, and Austria

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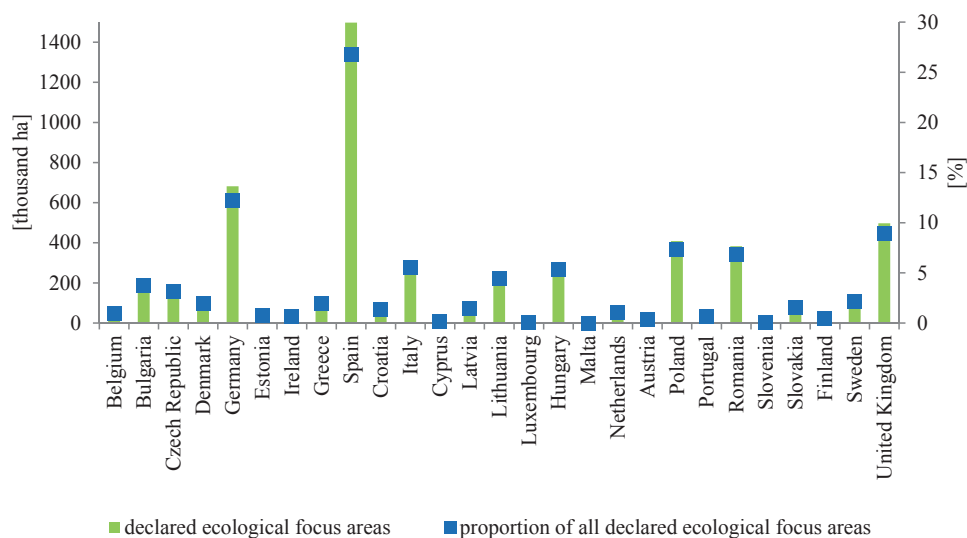
<sup>41</sup> M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016.

<sup>42</sup> European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective*. Special Report No. 21, p. 35.

<sup>43</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year*.

24%) or those that enjoy the forest exemption (Finland 18%)<sup>44</sup>. In 2016, the total absolute declared ecological focus area in all Member States was 5.59 million ha. The largest declared ecological focus area is recorded in Spain (1.49 million ha), and accounts for 26.77% of all declared ecological focus areas, in Germany (681 thousand ha) and in the United Kingdom (497 thousand ha), where these areas account for, respectively, 12.18% and 8.89% of all declared ecological focus areas. The smallest declared ecological focus area is recorded in Malta (17 ha) and Luxembourg (3.6 thousand ha), Slovenia (5.7 thousand ha) and Cyprus (9.1 thousand ha). The proportion of declared ecological focus areas in all areas was less than 1% (Fig. 1.9).

Figure 1.9. The size and proportion of declared ecological focus areas in the various Member States in 2016



Source: own study, based on: European Court of Auditors 2017. *Greening: a more complex income support scheme, not yet environmentally effective. Special Report No. 21.*

\*France is not included in the figure due to incomplete data.

The level of payments relating to organic agriculture ranged from 160 EUR per hectare (Sweden) to 800 EUR per hectare (Slovenia), and in the case of conversion – from 90 EUR per hectare (the United Kingdom) to 600 EUR per hectare (Slovenia). As regards maintenance benefits, Austria, Finland, Latvia and Slovakia maintained the same levels of conversion and maintenance pay-

<sup>44</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year.*

ments for arable land. In the other Member States, conversion payments range from 25 EUR per hectare (Estonia and Lithuania) to 296 EUR per hectare (the United Kingdom). They are higher than maintenance payments for arable land. In 2015, compared to 2011, most Member States (16) increased payments related to the conversion and maintenance of arable land. The largest increase in payments for arable land was recorded in Slovenia (an increase in conversion and maintenance payments by 502 EUR and 302 EUR per hectare, respectively), in Luxembourg and Latvia (an increase by more than 200 EUR per hectare). Austria, Cyprus, Finland, Sweden and some Italian regions have reduced these payments. Sweden has reduced the maximum conversion and maintenance payments by 393 EUR and 370 EUR per hectare, respectively<sup>45</sup>.

Among the standard greening practices, the latter is the most flexible when it comes to the method in which the Member States may introduce it. Nineteen different types of land management are allowed, which can be made available to farmers so that they can meet ecological obligations, five out of which must be compatible with agricultural production (i.e. intercrop/green cover, nitrogen-binding crops, belts along forest edges used for production, short rotation coppice and the agro-forestry system). The choice of areas that farmers could use to meet the ecological focus area obligation varies between the Member States. The Member States have chosen these areas based on the situation and conditions prevailing in their countries, so as to ensure the effectiveness of the system and take into account both the biodiversity objective with respect to ecological focus areas and their environmental needs. Analyses show that the Member States' choices as regards the types of green practices did not significantly affect the conditions of equal treatment or conditions of equal competition. The most commonly chosen ecological focus areas include ones with nitrogen-binding crops (selected by 27 Member States, except for Denmark) – the total of the declared area with these crops constitutes 39% of all declared ecological focus areas – and fallow land (26 countries), also representing 39% of all declared ecological focus areas. The above areas are followed by landscape features (26 countries, except for Spain, Cyprus, Lithuania and Slovenia), which account for 5% of all declared ecological focus areas, and catch crops (20 countries, except for Greece, Spain, Cyprus, Latvia, Lithuania, Malta, Portugal, Slovenia and England and Scotland in the United Kingdom), accounting for 16% of all declared ecological focus areas.

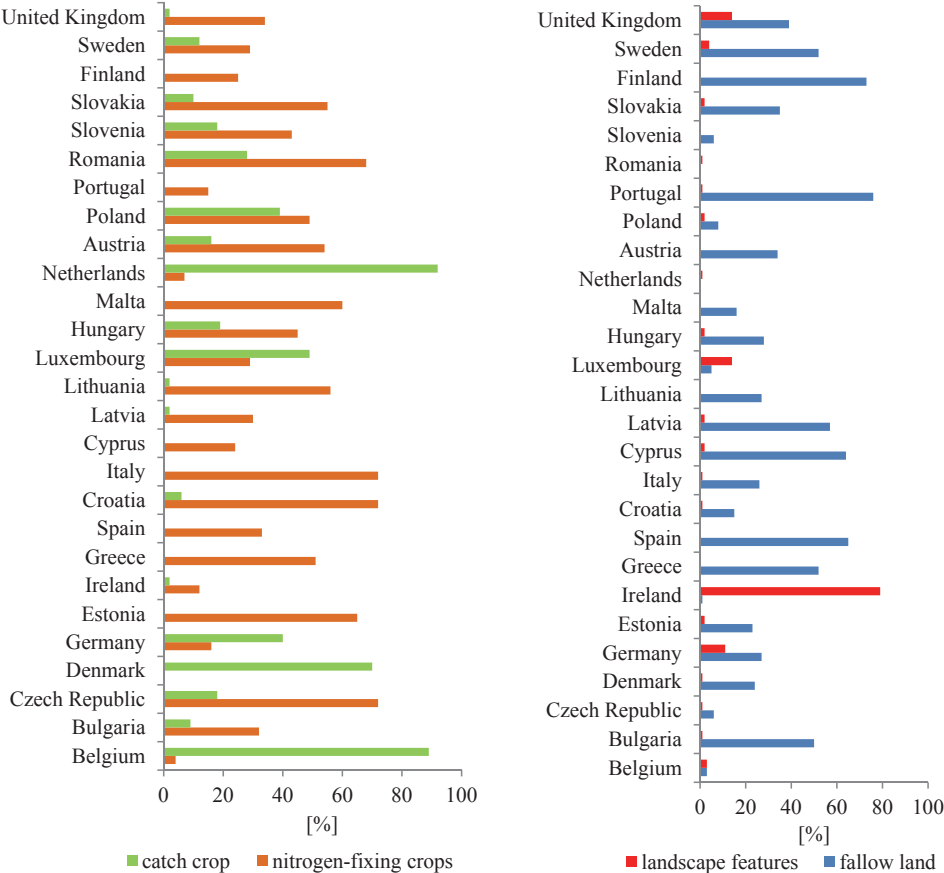
In 2016, the total absolute area allocated for catch crops in all Member States was 887 thousand ha (16% of all ecological focus areas). The highest proportions of areas with catch crops in the total ecological focus area were recorded in the Netherlands (92%), Belgium (89%) and Denmark (70%), while the

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<sup>45</sup> M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016.

lowest ones (2%) were recorded in Ireland, Lithuania, Latvia and the United Kingdom (Fig. 1.10). The area with nitrogen-binding crops accounted for 58% of ecological focus areas (2.3 million ha). The highest proportions of these crops accounting for over 70% of all ecological focus areas were recorded in the Czech Republic, Croatia and Italy. Belgium and the Netherlands, where the highest proportions of catch crops were reported, used areas with nitrogen-binding crops to the smallest extent. The proportion of these crops in all ecological focus areas was 4% and 7%, respectively.

Figure 1.10. Proportions of particular types of ecological focus areas in the total ecological focus area in the Member States in 2016



Source: own study, based on: European Court of Auditors 2017. Greening: a more complex income support scheme, not yet environmentally effective. Special Report No. 21.

\*France is not included in the figure due to incomplete data.



Fallow land covered an area of over 2 million ha. The highest proportions of fallow land in the total ecological focus area were recorded in Portugal (76%) and Finland (73%) as well as Spain (65%) and Cyprus (64%). The lowest proportions of maintained fallow land were recorded in Ireland (1%) and Belgium (3%). Ecological focus areas used as landscape features covered an area of 217 thousand ha. This practice was applied mainly in Ireland. In this country, 30 thousand ha were covered with landscape features (79% of all ecological focus areas). In Germany, Luxembourg and the United Kingdom, the share of landscape features in the total ecological focus area was 14%. In the other Member States, this proportion was in the range from 1% to 2%. Research conducted by E. Underwood and G. Tucker in 2016 shows that the two main types of productive ecological focus areas – intercrops and nitrogen-fixing crops – do not bring significant biodiversity benefits, but can contribute to the improvement of water and soil quality, e.g. by increasing the organic carbon content in soil on arable land<sup>46</sup>.

The first assessments of the introduction of the greening component to direct payments indicate positive changes in agricultural practices, that have occurred as a result of the introduction of this system, especially as regards ecological focus areas. In the case of farms in which the introduction of greening resulted in a positive change in agricultural practices, the share of arable land on which such changes occurred is about 15% for crop diversification and about 4% for ecological focus areas. Taking into account farms where no change in agricultural practices was required, and the fact that arable land accounts for about 60% of all agricultural land in the EU, this means that following the introduction of greening, about 1% of agricultural land in the EU required enhanced crop diversification, and about 1% required the establishment of new ecological focus areas<sup>47</sup>. It was estimated that due to new greening requirements, changes in the intended use (i.e. changes in agricultural practices) required a total of 4.5% of agricultural land in the EU, including 1.8% due to crop diversification, 2.4% due to ecological focus areas and 1.5% due to permanent grassland.

Most Member States (23) use the most flexible method of maintaining the permanent grassland ratio by applying it at the national level. The others (Belgium, France, Germany and the United Kingdom) implement this principle at the regional level<sup>48</sup>. Besides standard practices, there is also an alternative approach to meeting greening obligations, namely an option to introduce “equiva-

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<sup>46</sup> E. Underwood, G. Tucker, *Ecological Focus Area choices and their potential impacts on biodiversity* Instytut Europejskiej Polityki Ochrony Środowiska Naturalnego, November 2016.

<sup>47</sup> European Court of Auditors 2017. **Greening: a more complex income support scheme, not yet environmentally effective**. Special Report No. 21, pp. 31-32.

<sup>48</sup> K. Hart, *Green direct payments: implementation choice of nine Member States and their environmental implications*, Institute for European Environmental Policy. London 2015.

lent practices” that ensure equivalent or even greater environmental and climate benefits than standard practices. In 2015, five Member States notified their intention to implement equivalent practices. Three of them (Ireland, Austria and Poland) introduced them using agri-environmental and climate measures as part of rural development programs. As regards equivalent practices, crop diversification was the most popular choice, but the various countries have adopted different types of these practices. In Ireland, equivalence was achieved through catch crops. Catch crops are sown in accordance with the requirements of the Green, Low-Carbon, Agri-Environment Scheme (GLAS). In Austria, a more demanding crop diversification practice than the standard one has been adopted. It provides for minimum requirements for three plants, a maximum of 75% for cereals and corn, a maximum of 66% for the main crop and no requirement for land to lie fallow. Poland has also proposed a more demanding crop diversification method: a minimum of four plants, a maximum of 65% for the main crop and all cereals and a minimum of 10% for all crops. France and the Netherlands chose certification systems. The French national system relates to winter soil cover as part of crop diversification and is targeted at farms specializing in corn production. In the Netherlands, a more comprehensive approach has been adopted, accounting for all standard greening practices, of which the maintenance of ecological focus areas was the most widespread one. Three separate national programs were implemented. Two programs (Akkerbouw-strokenpakket, including Vogelakker and Skylark foundation) were available to farmers in 2015, while the third one (Biodiversity-plus) was postponed<sup>49</sup>. Existing data indicate that in Member States applying equivalent practices, these practices have been chosen by fewer than 15 thousand farms. The area covered by this program was 750 thousand ha of arable land and 12 thousand ha of ecological focus area. Most of these farms were reported in Austria (81%) and Poland (17%). Equivalent practices were implemented by 2% of farmers under at least one greening obligation, accounting for 6% of the total arable land area. The largest numbers of applications for implementation of equivalent practices were submitted in Austria (11.831; 19% of all organic farms) and in Poland (2.486; less than 1% of the total number of organic farms). The size of arable land covered by these practices was 597 410 ha and 120 845 ha, respectively, which accounted for 53% and 1% of the total arable land. In the Netherlands, 320 farmers (1% of the total number of organic farms) have applied equivalent practices on the area of 28 400 ha (3% of all land area). The smallest number of applications for equiva-

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<sup>49</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year.*

lent practices was submitted in Ireland (18; 0.01% of the total number of organic farms). These applications covered the area of 585 ha (0.13% of all land)<sup>50</sup>.

Based on the above data, it can be assumed that the low percentage of farmers applying equivalent practices to diversify crops in Poland and Ireland in 2015, did not significantly affect the conditions of equal treatment. The same applies to the implementation of basic greening practices in the other Member States.

The first data concerning greening indicate that the introduction of this payment resulted in a change in agricultural practices on only approx. 5% of arable land in the EU. This is associated with a significant deadweight effect, which has an adverse effect on the policy in this respect. This effect with respect to greening is primarily due to the little ambitious nature of greening requirements that essentially reflect normal agricultural practices. This applies in particular crop diversification<sup>51</sup>. This means that the “public money for public goods” principle is not the focus of the CAP, but only an addition to it. Introduced greening measures do not convince farmers that a clear shift towards innovative agri-environment approaches and sustainable development is the CAP’s priority. The ecological sector cannot expect a significant acceleration of organic farming development. Implementation of the “public money for public goods” principle requires a robust budget. The existing mechanisms for supporting public goods are varied and inconsistent, thus they do not meet environmental and climate objectives. Investment in organic farming can contribute to the accomplishment of these objectives. More ambitious investments in sustainable food production and further agri-environmental innovations will determine farmers’ ability to meet citizens’ needs for high quality food and public goods<sup>52</sup>.

The effect of the introduction of the ecological component on structural changes in agriculture is the subject of numerous discussions. A. Gocht et al.<sup>53</sup> conducted simulations of economic (land use, production, price and income changes) and environmental effects of the introduction of the obligatory greening component into the direct payment system. The research shows that the economic effects of greening will be limited. In the case of land use (grassland, arable and agricultural land), it is estimated that changes will range from 0.5% to

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<sup>50</sup> European Commission 2016. *Commission Staff Working Document. Review of greening after one year.*

<sup>51</sup> European Court of Auditors 2017. ***Greening: a more complex income support scheme, not yet environmentally effective.*** Special Report No. 21, pp. 34-35.

<sup>52</sup> M. Stolze, J. Sanders, N. Kasperczyk, G. Madsen, S. Meredith, *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*, IFOAM EU, Brussels 2016.

<sup>53</sup> A. Gocht, P. Ciaian, M. Bielza, J.M. Terres, N. Roder, M. Himics, G. Salputra, *Economic and environmental impacts of CAP greening: CAPRI simulation results*, EUR 28037 EN, Joint Research Centre, European Commission 2016.

3.7% relative to the reference level, while changes in the use of main crops (e.g. cereals, oilseeds) will be in the range from -1.7% to 4.2%. Fallow land, which is affected by greening to a greater extent, is an exception. It is estimated that the area of fallow land will change by 23%. It was also shown that greening will lead to an increase in the utilized agricultural area (by 0.6%), which means that farmers will partially offset the impact of greening requirements by introducing new crops or ecological focus areas. The total change in land-use due to greening will cover mainly three types of farms. These are: (a) cereal, oilseed and field cropping farms; (b) livestock farms; and (c) mixed farms. The remaining types of farms will account for a small share in the total change in land-use. The same applies to greening effects on production. Area changes are very limited and range between -1% and 0.2%. The largest production changes will concern legumes (3.5%). This is mainly due to the fact that these plants are directly targeted for support under the maintenance of ecological focus areas, and they can be used as alternative plants to fulfil more extensive diversification obligations. Due to a strong link between the economic effects of greening and crops and land type, it is difficult to clearly specify which form of greening is the main determinant of the effects of space management. It can be assumed, however, that funds earmarked for maintaining ecological focus areas and grassland tend to produce greater effects in the form of land offshoring and production growth relative to funds spent on crop diversification. In terms of size, medium and large farms tend to account for a significant part of the total change in production caused by greening. The results of the conducted simulations indicate also that greening will lead to a slight increase in prices along with a decline in production. The greening impact on prices varies between -0.39% and 1.5% for main agricultural products whereas income will increase from 0.1% to 3.9%. Comparing the three greening programs, it can be stated that the income in most Member States will be affected to the greatest extent by funds spent the maintenance of ecological focus areas (less than 1%), while diversification will cause only minor (+/- 0.4%) changes in income. Increased income will be recorded mainly in: (a) farms specializing in cereals, oilseed and protein crops as well as general field cropping; (b) mixed farms and livestock farms (dairy farms, sheep, goats and other grazing livestock). The environmental impact of greening, just like its economic impact, will be limited. The effects per hectare at the EU level are positive, but increasing the agricultural land area can reverse the signs of the total impact of greening. The results indicate that greening will lead to reduced emissions of greenhouse gases and ammonia. But there will be a slight increase in the total N surplus and soil erosion, as well as increased use of biodiversity-friendly agricultural practices. The least significant effects, or lack thereof, re-

sult from crop diversification, while support measures within grassland maintenance practices bring mixed effects (positive – soil erosion, and negative – reduction of the ammonia level). The research results show that measures related to the maintenance of ecological focus areas will have a positive impact on most indicators, except for soil erosion. Greening will result in: (a) reduction in greenhouse gas emissions (by 0.2%, on average), whereby these changes vary depending on the Member State from -1.7% to + 2.4%; (b) increase in the total N (by 0.2%). The regional differences per one hectare range from -0.23% to + 3.4%; (c) decrease in ammonia emission (by 0.3%), with regional changes between -2% and +1.9%. Based on the above research, one may wonder whether the greening component will make EU agriculture more environment and climate friendly. It is difficult to make a clear-cut assessment in this regard, as the new greening instrument has been available only since 2015.

A young farmer payment is a compulsory component of the new direct payment system. Up to 2% of the national direct payment allocation can be used to finance this payment. Member States may also opt to change the percentage of the national allocation for this payment. Some of them reported a maximum of 2% of the national direct payment envelope (Croatia, Ireland, Greece, Spain, the Netherlands, Austria and Portugal), 12 countries reported from 1% to 2% (Belgium, Germany, France, Italy, Lithuania, Latvia, Luxembourg, Poland, Slovenia, Finland, Sweden and the United Kingdom), and 9 reported less than 1% (Belgium, Czech Republic, Denmark, Greece, Cyprus, Hungary, Malta, Romania and Slovakia). Young farmer payments are awarded to farmers who are not older than 40 in the first year of submitting an application in the basic payment scheme or in the single area payment scheme, or farmers who have set up for the first time a farm as head of the farm or who have already set up a farm during the five years preceding the first application for the scheme. These payments are granted for a maximum period of five years.

Member States/regions have adopted different approaches to payments to young farmers (Tab. 1.3). Most of them (17) have chosen the ceiling of 25% of the average direct payments per hectare, and Luxembourg is the only Member State that has chosen a lump sum payment (an annual payment of around EUR 5 thousand). In the other states, including three regions, payments to young farmers amount to 25% of the basic payment (a flat rate of the basic direct payment or the average value of the entitlement). Fifteen states and five regions (Belgium (the Flemish and Wallonia Regions), the Czech Republic, Germany, Denmark, Estonia, Italy, Cyprus, Lithuania, Latvia, Hungary, Malta, the Netherlands, Portugal, Slovenia, Finland, Slovakia and the United Kingdom (England, Scotland and Northern Ireland) have established a limit on payment entitlements or the

number of hectares at the maximum level of 90 ha per entitlement, whereas Greece, Croatia and the United Kingdom (Wales) have adopted a minimum level of support of 25 ha per entitlement. The other states have set limits between 25 ha and 90 ha<sup>54</sup>. Other eligibility criteria may also be applied to these payments, but they must be objective and non-discriminatory. Most Member States have not decided to implement such criteria. There are, however, nine Member States and three regions where such criteria are used. These criteria relate to skills and experience – Spain, Portugal or education Belgium, Ireland, Spain and the United Kingdom (Northern Ireland).

In 2015, around 4.1% of basic payment's applicants benefited from young farmer payments. This percentage is the highest in the Czech Republic (12%) and in the Netherlands and Finland (over 8%), while the lowest percentages (2% and less) are recorded in Cyprus, Slovakia, the United Kingdom (England), Spain, Portugal and Romania. The average young farmer payment is from 20 EUR per ha to over 80 EUR per ha<sup>55</sup>.

The new direct payment system introduced an option to use part of the ceilings for farmers operating in areas with specific natural constraints and voluntary coupled support.

To receive a payment for operating in areas with specific natural constraints, the farmer must qualify for the basic direct payment scheme or the single area payment scheme. Member States may introduce payments in all areas with natural constraints or restrict them only to a specific part of such areas. Member States may opt to choose a payment set at the regional level (i.e. differentiate payments per hectare) or to restrict the payment to the greatest possible number of hectares per farm. Direct payments to farmers operating in areas with specific natural constraints have been introduced only by Denmark.

Voluntary coupled support may be granted to specific sectors and production types, i.e. cereals, oilseeds, protein crops, grain legumes, flax, hemp, rice, nuts, starch potato, milk and milk products, seeds, sheep meat and goat meat, beef and veal, olive oil, silkworm, dried fodder, hops, sugar beet, cane, chicory, fruit and vegetables and short rotation coppice<sup>56</sup>. Member States may make discretionary choices as regards granting voluntary coupled support to specific sec-

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<sup>54</sup> European Commission 2016. *Direct Payments. The Young Farmer Payment under Pillar I of the Common Agricultural Policy.*

<sup>55</sup> European Commission 2017. *Report on the Implementation of direct payments [outside greening] Claim year 2015.*

<sup>56</sup> Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009, OJ L 347/608.

tors or regions in the particular situations where specific types of farming or specific agricultural sectors are particularly important for economic, social or socio-environmental reasons.

Table 1.3. Direct payment schemes for young farmers implemented in the EU Member States in 2015-2020

Member State	Percentage of the national ceiling (%)	Application of additional criteria	Method for calculating an annual payment			
			25% of the average national payment per ha (max 40)	25% of the average national basic payment per the number of ha (max 25)	25% of the average value of entitlements depending on the number of entitlements (max 25)	25% of the amount of the single payment * the number of ha (max 28)
Austria	2	yes	X			
Belgium (Flanders)	2	yes	X			
Belgium (Wallonia)	1.8	yes	X			
Croatia	1-2	yes		X		
Cyprus	1	no	X			
Finland	1-2	no	X			
France	1-2	yes	X			
Greece	2	no			X	
Hungary	0.62	no	X			
Italy	1-2	no			X	
Lithuania	1.75	no	X			
Luxembourg	1.5	yes				
Slovakia	1	yes	X			
Slovenia	1-2	no	X			
Spain	2	yes			X	
Sweden	1-2	no	X			
Netherlands	2	no	X			
United Kingdom (England)	1-2	no			X	
United Kingdom (Northern Ireland)	1-2	yes	X			
United Kingdom (Scotland)	1-2	-		X		
United Kingdom (Wales)	1-2	no		X		
Ireland	2	yes	X			
Latvia	1.5 (2015)- 0.96 (2019)	no	X			
Estonia	0.3	no				X
Romania	1	no				X
Denmark	2	no	X			
Bulgaria	0.47 (2015); 0.58 (2016)	yes				X
Germany	1	no		X		
Czech Republic	1	no				X
Malta	0.4	no			X	
Poland	1-2	-	X			
Portugal	2	yes		X		

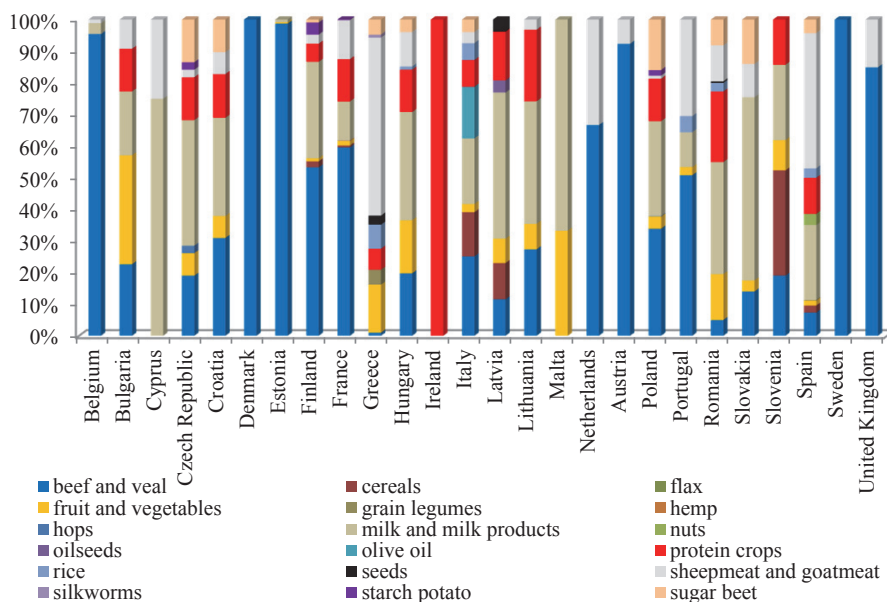
Source: European Commission 2016. Direct payments 2015-2020. Decisions taken by Member States: State of play as at June 2016. Information note.



All Member States (except for Germany) have adopted these payments. Their share in national ceilings varies and ranges from 0.2 to 57%. Most Member States in which voluntary coupled support has been activated grant payments at their maximum level of 13% (Belgium, the Czech Republic, France, Croatia, Hungary, Lithuania, Latvia, Poland, Sweden, Slovenia and Slovakia). Sweden and Slovakia also use up the total or part of additional 2% of their national ceilings, due to the allocation of at least 2% of their national envelope for supporting the protein crop sector. For 2015-2016, nine Member States allocated 8% of their national envelopes for these payments (Cyprus, Denmark, Greece, Estonia, Ireland, Luxembourg, the Netherlands, Austria and the United Kingdom). Spain, Italy and Romania allocated from 8 to 13%. Spain and Romania used up the additional part of 2% of their national envelopes, similarly to Sweden and Slovakia, these countries allocated this support for the protein crop sector. The production range and amounts of payments in the various Member States vary. A total of EUR 4.129 million is planned to be allocated for this type of support. The largest amounts of voluntary coupled support are provided for in France (EUR 1.094 million), Italy (EUR 429 million) and Poland (EUR 508 million). It should be noted that most of voluntary coupled support is targeted at the production of beef and veal (EUR 1.706 million; 41% of the total support), milk and dairy products (EUR 829 million; 20% of the total support), sheep meat and goat meat (EUR 503 million; 12% of the total support) and protein crops (EUR 443 million; 11% of the total support). Most Member States allocate these payments for the production of beef and veal (23), fruit and vegetables (18), milk and dairy products (19), sheep meat and goat meat (19) and protein crops (15). Denmark and Sweden grant this support only for the production of beef and veal. The same applies to Ireland, where this support is granted only for the production of protein crops. The highest shares of support for beef and veal production in the structure of direct payments under voluntary coupled support were recorded also in Estonia (98.70%), Belgium (95.40%) and Austria (92.31%), while the smallest one was recorded in Greece (0.95%) (Fig. 1.11).



Figure 1.11. Share of voluntary coupled support in the direct payment scheme by Member State in 2015 (%)



Source: European Commission 2015. DG Agriculture and Rural Development, *Voluntary Coupled Support, Decisions notified to the Commission by 1 August 2014*, published 29 July 2015.

The share of direct support for the production of fruit and vegetables is 9.46% on average. This share varies in the Member States from 34.45% (Bulgaria) to 0.43% (Estonia). The share of support for the production of milk and dairy products is 31.65% on average. The highest shares in the structure of subsidies for the production of milk and milk products were recorded in Cyprus (75%) and Malta (66.67%). The average share of support for the production of protein crops is 19.17%, while that for the production of sheep meat and goat meat is 15.04%. The share of payments allocated for other types of production in the structure of voluntary coupled support within the direct payment scheme in the various Member States was marginal. It should also be noted that support for certain types of production is reported only in single Member States, and this support's share in the structure of voluntary coupled support is insignificant. Italy is an exception in this respect, as this country has introduced support for one type of such productions, namely the production of olive oil (16.32% of the total voluntary coupled support). For example, support for the production of flax has been introduced only in Poland (0.20% of the total voluntary coupled support), the production of hemp is supported only in France (0.18% of the total voluntary

coupled support), the production of nuts is supported only in Spain (3.54% of the total voluntary coupled support), the production of oilseeds is supported only in Latvia (3.85% of the total voluntary coupled support), while the production of silkworms is supported only in Greece (0.95% of the total voluntary coupled support). In 2015, the demand for voluntary coupled support in the EU amounted on average to 1.33% of the national direct payment envelope. It is estimated that in 2016, the average demand for voluntary coupled support will decrease to 1.23%. The total amount of voluntary coupled support that Member States plan to spend on these payments is EUR 4.1 billion per annum.

In order to redistribute support for smaller farmers, Member States may allocate up to 30% of the national ceiling for direct payments for an additional payment called redistributive payment. To receive direct payments, the farmer must qualify for the basic direct payment scheme or the single area payment scheme. The amount of support per hectare may not exceed 65% of the average amount of direct payments per hectare. Each hectare of land, ranging from 3.01 ha to 30 ha, is eligible for this payment. It should be noted that farmers receive this payment only up to a certain number of hectares. This means that only part of the BPS/SAPS area benefits from this payment, which results in a redistributive effect. Due to significant differences in the average sizes of farms, Member States may allocate payments taking into account the average farm size.

Nine Member States have chosen to implement the redistributive payment (including Portugal implementing it since 2017). So have two regions: Wallonia in Belgium and Wales in the United Kingdom (Tab. 1.4). Belgium, Germany and Lithuania effected redistributive payments in 2014. No Member State decided to regionalize the system. The funds allocated for the redistributive payment are much smaller than those potentially available (30%). The allocation of funds to the scheme ranges from 0.5% (United Kingdom) to 15% (Lithuania) of the national ceiling for direct payments. Most Member States have granted a lump sum payment (France) or a multi-level degressive payment (Germany). In Poland, farms with an area of less than 3 ha do not qualify for redistributive recapitalization, which was restricted to areas of 3.01-30 ha. In Romania, farmers holding an area of less than 5 ha will receive a subsidy of EUR 5 per ha, while farmers with an eligible area of 5.01-30 ha will receive EUR 45 per ha. The adopted methods of making these payments will undoubtedly have different effects on the structural evolution of farms. Member States may change the decision to implement the redistributive payment and its terms and conditions in any year. So far, France has announced its intention to gradually increase the share of redistributive payments.

Table 1.4. Redistributive payment schemes implemented by Member States in 2015-2020 (%)

Member State	Years						Allocation threshold (ha)	Average farm size (ha)	Average payment amount per ha (in EUR)
	2015	2016	2017	2018	2019	2020			
Belgium (Wallonia)	17	17	17	17	17	17	30	54	115
Bulgaria	7.1	7.1	7.1	7	7	7	30	6	76.69
Croatia	10	10	10	10	10	10	20	5.9	77 (2015)
France	5.0	10	10	20	20	20	52	52	25 (2015) 98 (2018)
Germany	7	7	7	7	7	7	first tranche of up to 30	46	50
							second tranche of 30.01-46		30
Lithuania	15	15	15	15	15	15	30	12	50
Poland	8.3	8.3	8.5	8.6	8.6	8	first tranche of up to 3	6	0
							second tranche of 3.01-30		41
Portugal	-	-	2.8	2.7	2.7	2.7	5	2.7	-
Romania	5.2	5.3	5.4	5.3	5.3	5.5	first tranche of up to 5	3	5
							second tranche of 5.01-30		45
United Kingdom (Wales)	0.5	1.0	1.5	1.5	2.0	2.5	54	2.7	25.63

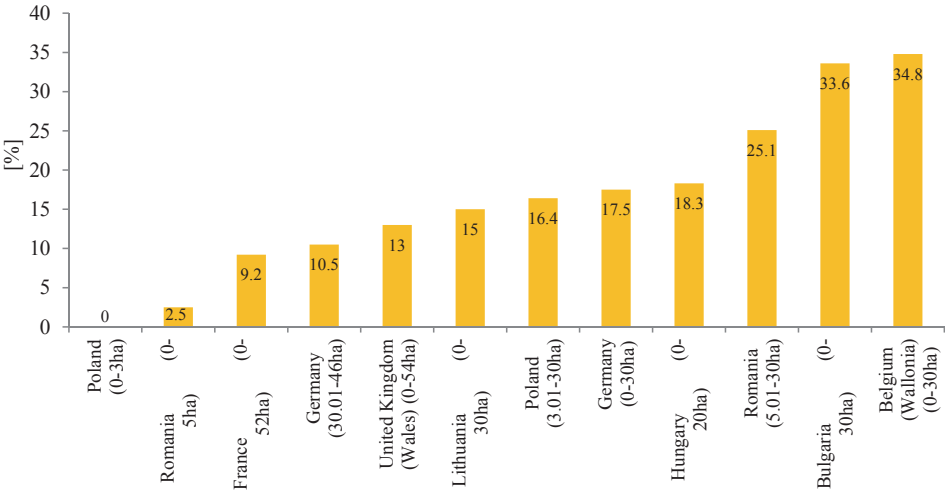
Source: European Commission 2015. *Implementation of The First Pillar of the CAP 2014-2020 in the EU Member States*. European Parliament Committee on Agriculture and Rural Development; European Commission 2016. *Direct payments 2015-2020. Decisions taken by Member States: State of play as at June 2016*. Information note.

In 2015, the percentage of the redistributive payment used up in the Member States varied. This payment was not used up in Poland, while in Wallonia in Belgium, the redistributive payment was used up in 35% (Fig. 1.12).

Member States also have the option to introduce the small farmer scheme. Payments under this scheme enable farmers to be exempted from greening obligations. These payments are introduced to enhance the competitiveness of small farms by promoting their integration with the market, reducing the administrative burden that inevitably hinders access to CAP assistance for small farms and increasing the vitality and dynamics of rural areas. This may be a lump sum payment replacing all direct payments, or a payment based on the amount payable to farmers each year. Access to this scheme has been restricted to existing EU farms. This is mainly due to the fact that this payment are supposed to support the existing agricultural structure of small farms, while not leading to any restrictions to their development and greater competitiveness. This payment has been introduced by 15 Member States (Bulgaria, Germany, Estonia, Greece, Spain, Hungary, Italy, Latvia, Croatia, Austria, Portugal, Poland, Romania and

Slovenia). In these countries, this payment is received by 48% of the total number of beneficiaries, which represents 7% of the agricultural land area. Where all Member States are taken into account, the percentage of farmers benefiting from the small farmer scheme accounts for 41% of the total number of farmers and 4% of the agricultural land area. The average agricultural land area covered by the small farmer payment is 2.6 ha EU-wide. The largest average agricultural land areas were recorded in Austria (7.3 ha) and Estonia (5.5 ha), while the smallest ones – in Malta (1.3 ha), Croatia (1.6 ha) and Bulgaria (1.7 ha)<sup>57</sup>. Member States that have implemented these payments can decide on the method of their allocation (Tab. 1.5).

Figure 1.12. Percentage levels of redistributive payments used up in 2015



Source: European Commission 2017. Report on the Implementation of direct payments [outside greening] Claim year 2015.

<sup>57</sup> European Commission 2016. Commission Staff Working Document. Review of greening after one year.

Table 1.5. Small farmer schemes implemented in Member States in 2015-2020

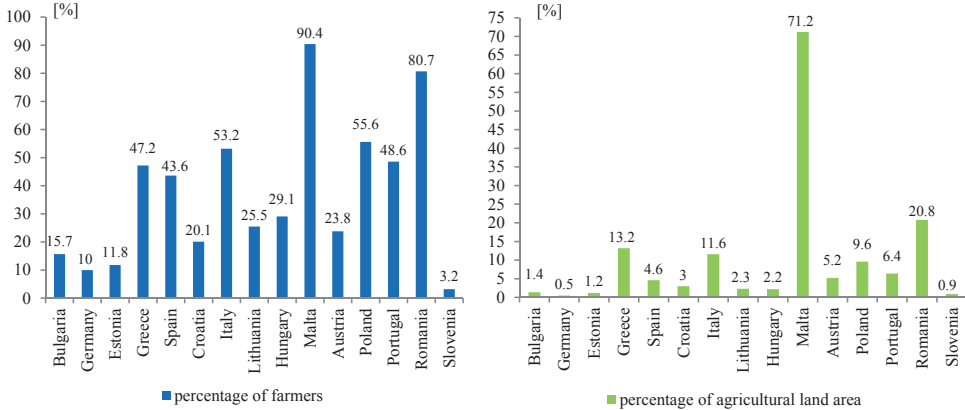
Member State	Number of farms	Area of agricultural land (ha)	Average farm size (ha)	Method of calculating			Maximum amount (in EUR)
				Amount equal to the total payments due each year	Average national payment per ha	Amount to be paid in 2015	
Bulgaria	9.612	16.352	1.7	X			1.250
Germany	32.853	83.501	2.5	X			1.250
Estonia	1.964	10.892	5.5			X	1.250
Greece	328.223	532.552	1.6	X			1.250
Spain	345.684	901.429	2.6			X	1.250
Croatia	18.238	28.622	1.6	X			657
Italy	532.450	1.240.392	2.3			X	1.250
Lithuania	15.853	41.335	2.6		X		500
Hungary	50.554	111.759	2.2			X	1.250
Malta	4.654	5.926	1.3	X			1.250
Austria	31.001	226.105	7.3	X			1.250
Poland	763.195	2.215.467	2.9	X			1.250
Portugal	76.785	217.146	2.8		X		500
Romania	722.587	2.137.655	3.0	X			1.250
Slovenia	1.885	4.390	2.3			X	1.050

Source: European Commission 2016. Direct payments 2015-2020. Decisions taken by Member States: State of play as at June 2016. Information note; European Commission 2016. Commission Staff Working Document. Review of greening after one year.

In 2015, over 80% of beneficiaries of direct payments in Malta and Romania were covered by the small farmer scheme, which accounted for, respectively, 71.2% and 20.8% of the agricultural land area. In Portugal, Poland, Greece, Italy and Spain, this scheme covers 40-60% of farmers and also about 10-20% of the total agricultural land area. In the other Member States, the percentage of farmers covered by the scheme is relatively higher (from 10% to 40%), but the area operated by them is smaller. In most Member States, this is less than 3% of the total agricultural land area (Fig. 1.13).

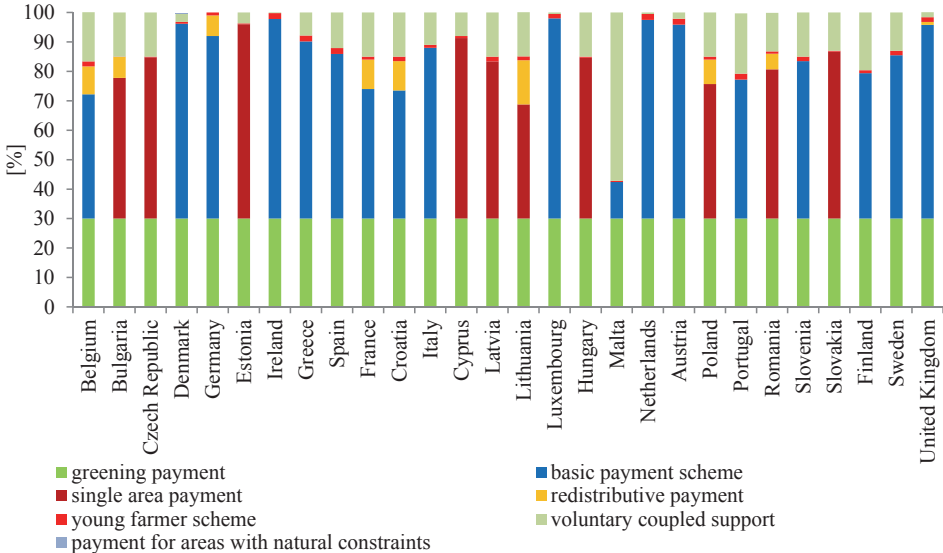
In 2015, the average direct payment per hectare of area declared by farmers was EUR 256, including special payments for the cultivation of cotton and any domestic top-ups (complementing national direct payments for Croatia). The average payment per ha ranges from EUR 115 (Lithuania) to EUR 610 (Malta). Differences in the amount of direct payments reflect to a greater or lesser extent the differences in the agricultural and economic situation of the Member States. In 2016, the basic payment (under the basic payment scheme or the single area payment scheme) accounted on average for 54.72% of total direct payments (Fig. 1.14).

Figure 1.13. The percentage of applicants representing small farms as well as the percentage of the agricultural land area covered by payments for small farmers in 2015



Source: own study, based on: European Commission 2016. Commission Staff Working Document. Review of greening after one year.

Figure 1.14. Financial allocations under the direct payment scheme in 2016



Source: own study, based on: European Commission 2016. Direct payments 2015-2020. Decisions taken by Member States: State of play as at June 2016. Information note.

Direct payments are not evenly distributed among beneficiaries in each country. This is mainly due to the fact that the structure of payments adopted by Member States and the methods of their calculation depend to a large extent on the farm structure. Furthermore, the distribution of funds for direct payments among Member States in 2014-2020 has been determined based on the existing budgets, which were prepared based on historical levels of agricultural production intensity. As a result of predefining national envelopes, disproportions in the level of payments between the states are maintained. In 2019, the average rate per ha may range from EUR 141 to EUR 699 (Fig. 1.15).

Figure 1.15. Average amount of direct payments per ha in 2019 (in EUR)



Source: *Wspólna Polityka Rolna 2013 plus - reforma na rozdrożu. Forum Inicjatyw Rozwojowych 2012. Materiały konferencyjne.*

Data for 2015 show that in that year 20% of the largest farmers (in terms of payment amounts) continued to receive about 80% of direct payments, and 20% of the largest farms (in terms of the size of utilized land) conducted agricultural activity on about 80% of the area. This means that if direct payments were granted as a European flat rate, they would be as concentrated as before<sup>58</sup>.

Reduction in support for the largest farms is a new element of the current direct payment system. This is due to the allocation of disproportionate payment amounts to a relatively small number of large beneficiaries. The payment reduction applies only to the basic payment. The minimum level of reduction is 5% if

<sup>58</sup> European Commission 2017. *Report on the Implementation of direct payments [outside greening] Claim year 2015.*

the amount of a payment granted to the farmer exceeds EUR 150 thousand<sup>59</sup>. Member States may choose to increase this percentage and apply progressive reduction tranches. Six Member States that have chosen to implement a redistributive payment will not apply the payment reduction mechanism (Wallonia in Belgium, Germany, France, Croatia, Lithuania and Romania). A significant part of countries/regions applies only at least a 5% reduction to amounts in excess of EUR 150 thousand (the Czech Republic, Denmark, Estonia, Spain, Cyprus, Latvia, Luxembourg, Malta, the Netherlands, Portugal, Slovenia, Slovakia, Finland, Sweden, England in the United Kingdom). In ten Member States/regions, the reduction represents 100% of the basic payment amounting from EUR 176 thousand to EUR 300 thousand. These are the Flemish Region in Belgium, Ireland, Greece, Austria, Poland, Northern Ireland in the United Kingdom (EUR 150 thousand), Hungary (EUR 176 thousand), Bulgaria and Wales in the United Kingdom, (EUR 300 thousand) and Italy (EUR 500 thousand) and Scotland in the United Kingdom (EUR 600 thousand). In Wales in the United Kingdom, reductions by 15% are also applied, while in Italy, reductions by 50% are applied where the basic direct payment exceeds EUR 150 thousand. In Wales, a 30% payment reduction is applied where the basic payment is in excess of EUR 200 thousand and a 55% reduction is applied where this payment is in excess of EUR 250 thousand. Thus, four countries apply progressive tranches (% reductions), i.e. Bulgaria, Italy, Hungary and Scotland and Wales in the United Kingdom<sup>60</sup>. Income generated through the reduction in payments will be used to support actions financed under Pillar II. It is estimated that the reduction in payments will amount to EUR 553 million (approximately EUR 112 million per annum) over 5 years. In 2015, the product of the reduction (including capping) was EUR 98 million, which represents only 0.44% of basic payment expenditures. This product remains small even in those Member States that implement the capping, except for Hungary, where the product of the reduction and capping (set at EUR 176 thousand) accounts for almost 7% of the envelope<sup>61</sup> (Fig. 1.16). Such small payment reductions indicate that degressivity and restrictions will not have a significant impact on the reduction of payments for very large farms.

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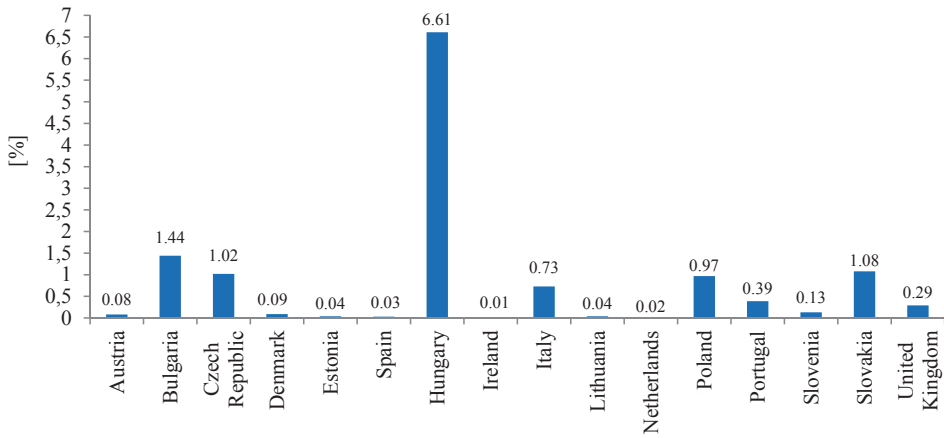
<sup>59</sup> Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009, OJ L 347/608.

<sup>60</sup> European Commission 2016. *Direct Payments: Financial mechanisms in the new system*.

<sup>61</sup> European Commission 2017. *Report on the Implementation of direct payments [outside greening] Claim year 2015*.



Figure 1.16. Share of the reduction in the basic payment by Member State in 2015



Source: European Commission 2017. Report on the Implementation of direct payments [outside greening] Claim year 2015.

Certain elements used in previous direct payment schemes have been preserved in the existing scheme. These are e.g. setting national ceilings (Tab. 1.6) and national or regional reserves (a regional reserve has been chosen only by France). All Member States set a national reserve by applying a linear reduction to the basic payment scheme ceiling (up to 3%). A national or regional reserve should be used primarily to facilitate access to the direct payment scheme for young farmers and those setting up farms.

Table 1.6. National ceilings set for 2015-2019 by Member State (in EUR)

Member State	Years				
	2015	2016	2017	2018	2019
Belgium	536.076	536.076	520.170	512.718	505.266
Bulgaria	721.251	792.449	793.226	794.759	796.292
Czech Republic	874.484	873.671	872.830	872.819	872.809
Denmark	916.580	907.108	897.625	888.904	880.384
Germany	5.144.264	5.110.446	5.076.522	5.047.458	5.018.395
Estonia	121.870	133.701	145.504	157.435	169.366
Ireland	1.215.003	1.213.470	1.211.899	1.211.482	1.211.066
Greece	2.039.122	2.015.116	1.991.083	1.969.129	1.947.177
Spain	4.842.658	4.851.682	4.866.665	4.880.049	4.893.433
France	7.553.677	7.521.123	7.488.380	7.462.790	7.437.200
Croatia	130.550	149.200	186.500	223.800	261.100
Italy	3.902.039	3.850.805	3.799.540	3.751.937	3.704.337
Cyprus	50.784	50.225	49.666	49.155	48.643
Latvia	195.649	222.363	249.020	275.887	302.754
Lithuania	417.890	442.510	467.070	492.049	517.028
Luxembourg	33.603	33.545	33.486	33.459	33.431
Hungary	1.271.593	1.270.410	1.269.187	1.269.172	1.269.158
Malta	5.127	5.015	4.904	4.797	4.689
Netherlands	780.815	768.340	755.862	744.116	732.370
Austria	693.065	692.421	691.754	691.746	691.738
Poland	2.987.267	3.004.501	3.021.602	3.041.560	3.061.518
Portugal	565.816	573.954	582.057	590.706	599.355
Romania	1.629.889	1.813.795	1.842.446	1.872.821	1.903.195
Slovenia	137.987	136.997	136.003	135.141	134.278
Slovakia	380.680	383.938	387.177	390.781	394.385
Finland	523.333	523.422	523.493	524.062	524.631
Sweden	696.890	697.295	697.678	698.723	699.768
United Kingdom	3.555.915	3.563.262	3.570.477	3.581.080	3.591.683

Source: Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009. OJ L 347/608.

Net ceilings have been defined for each Member State (Tab. 1.7). Where the total amount of direct payments exceeds the ceiling, the Member State shall linearly reduce the amounts of direct payments.

In order to avoid an excessive administrative burden resulting from having to manage the payment of numerous small amounts, the minimum direct payment requirement has been preserved in the current direct payment scheme. Member States should not award direct payments where their amount is less than EUR 100 and where the farm area is less than 1 hectare.

Table 1.7. Net ceilings set for 2015-2019 by Member State (in EUR)

Member State	Years				
	2015	2016	2017	2018	2019
Belgium	536.1	528.1	520.2	512.7	505.3
Bulgaria	723.6	795.1	795.8	797.4	798.9
Czech Republic	874.5	873.7	872.8	872.8	872.8
Denmark	9.166	907.1	897.6	889	880.4
Germany	5.144.3	5.110.4	5.076.5	5.047.5	5.018.4
Estonia	121.9	133.7	145.5	157.4	169.4
Ireland	1.215	1.213.5	1.211.9	1.211.5	1.211.1
Greece	2.227	2203	2.178.9	2.157	2.135
Spain	4.903.6	4.912.6	4.927.6	4.941	4.954.4
France	7.553.7	7.521.1	7.488.4	7.462.8	7.437.2
Croatia	130.6	149.2	186.5	223.8	261.1
Italy	3.902	3.850.8	3.799.5	3.751.9	3.704.3
Cyprus	50.8	50.2	49.7	49.2	48.6
Latvia	195.6	222.4	249	275.9	302.8
Lithuania	417.9	442.5	467.1	492	517
Luxembourg	33.6	33.5	33.5	33.5	33.4
Hungary	1.271.6	1.270.4	1.269.2	1.269.2	1.269.2
Malta	5.1	50	4.9	4.8	4.7
Netherlands	780.8	768.3	755.9	744.1	732.4
Austria	693.1	692.4	691.8	691.7	691.7
Poland	2.987.3	3.004.5	3.021.6	3.041.6	3.061.5
Portugal	566	5.741	582.2	590.9	599.5
Romania	1.629.9	1.813.8	1.842.4	1.872.8	1.903.2
Slovenia	138	137	136	135.1	134.3
Slovakia	380.7	383.9	387.2	390.8	394.4
Finland	523.3	523.4	523.5	524.1	524.6
Sweden	696.9	697.3	697.7	698.7	699.8
United Kingdom	3.555.9	3.563.3	3.570.5	3.581.1	3.591.7

Source: Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009. OJ L 347/608.

### Assessment of the implementation of direct payments

Direct payments are very differently assessed. They undoubtedly stabilize farmers' income, which is the reason why they happen to be considered as an element of a safety net. However, they are not designed to support primarily farms with the highest income volatility<sup>62</sup>. Furthermore, most of funds allocated

<sup>62</sup> A. Matthew, *The future of direct payments* [in:] Research for AGRI Committee - CAP reform post-2020 - challenges in agriculture, Brussels 2016, p. 33.

for direct payments go to farmers with incomes above the median. This is a natural effect of the nature of this support. The amount of received payments is linked to the farm size<sup>63</sup>.

The impact of payments on the effectiveness of farms being their beneficiaries may vary<sup>64</sup>. Positive effects result from an increase in the amount of funds at farmers' disposal, which translates directly and indirectly (through increasing their creditworthiness and loan availability) into investment potential. As noted by D.A. Hennessy<sup>65</sup>, direct payments are often supposed to serve more purposes than just supporting income. In fact, operating on the unstable world market, where prices and profitability of production change significantly from year to year, risk-averse producers can greatly benefit from income stabilization. This attribute of direct payments has a corresponding insurance effect that can help agricultural producers to make optimal decisions. Direct payments also help farmers to optimize their decisions concerning their assets. This is due to the fact that higher average income, which results from direct support, may influence decisions concerning the allocation of farmers' financial and material assets.

As regards a negative effect of direct payments, this is the lack of a stimulus to increase efficiency<sup>66</sup>. At the same time, their significant share in farmers' income happens to be considered as a factor that negatively affects the innovation of the EU agriculture.

“Leakage” of support, i.e. taking over part of support by other entities is a serious problem related to direct payments. It concerns both owners of land leased by farmers and the sector providing agriculture with production inputs – fertilizers, machinery and equipment. These entities raise prices of their products and services, taking advantage of the fact that farmers have funds from received payments. It is estimated that in the case of rents EUR 1 of direct payments translates into an increase in a rent from 6 to 90 cents, with a median of 20-25 cents<sup>67</sup>.

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<sup>63</sup> A. Matthew, *The future of direct payments* [in:] Research for AGRI Committee - CAP reform post-2020 - challenges in agriculture, Brussels 2016, p. 33.

<sup>64</sup> X. Zhu, Lansink A.O., *Impact of CAP Subsidies on Technical Efficiency of Crop Farms in Germany, the Netherlands and Sweden*, “Journal of Agricultural Economics” 2010, No. 61/3, pp. 545-564.

<sup>65</sup> D.A. Hennessy, *The production effects of agricultural income support policies under uncertainty*, American Journal of Agricultural Economics No. 80/1998, pp. 46-57.

<sup>66</sup> A. Kazukauskas, C. Newman, D. Clancy, J. Sauer, *Disinvestment, Farm Size, and Gradual Farm Exit: The Impact of Subsidy Decoupling in a European Context*, American Journal of Agricultural Economics No. 95(5)/2013, p. 1084.

<sup>67</sup> A. Matthews, L. Salvatici, M. Scoppola, *Trade Impacts of the Common Agricultural Policy*, IATRC Working Paper, Minneapolis 2017, p. 33.

The same phenomenon affects the price of agricultural land. Direct payments are capitalized in prices of agricultural land. On the one hand, this is a favourable phenomenon for farmers, as the higher value of their land and the certainty of financial inflows in the form of payments increase farmers' creditworthiness and they can get loans to develop their agricultural activity. Higher prices of agricultural land are, however, also an unfavourable phenomenon for those who want to take up agricultural activity or enlarge their farms.

"Leakage" of payments leads to lower effectiveness of this agricultural policy instrument. At the same time, payments have a negative impact on the rate of structural changes. This is directly related to the price of agricultural land and stabilization of farmers' income.

One of the reasons for the implementation of direct payments in the EU is to compensate farmers for the costs of ensuring compliance with more stringent production standards. After the 2013 reform, this justification has become even more important, as some payments necessitate the implementation of specific agricultural practices. Although farmers have been required since 2005 to meet cross-compliance rules it was only the reform of 2013 that introduced a wider direct link between payments and the implementation of specific tasks by distinguishing part of the support as so-called greening payments.

This solution was intended to be universal, therefore, in the course of work on the reform, the scope of commitments was limited to only three agricultural practices, which can be implemented and controlled throughout the EU, regardless of the climatic zone and the specific characteristics of agriculture in a given region. However, the adopted detailed solutions exempting the smallest farms from the crop differentiation obligation have led to a situation where only 36% of beneficiaries of payments are obliged to meet at least one of the three greening requirements<sup>68</sup>.

Such a small percentage of farmers actually covered by greening obligations is contrary to the rationale for implementing this solution, i.e. linking direct payments with the provision of public goods by farmers, understood as protection of natural resources and production potential of agricultural land.

The very dependence of farmers on direct payments is also considered as a disadvantage of this system. In 2004-2015, the share of payments in farm income throughout the EU was on average stable and fluctuated around 1/4<sup>69</sup> (Tab.

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<sup>68</sup>A. Matthews, L. Salvatici, M. Scoppola, *Trade Impacts of the Common Agricultural Policy*, IATRC Working Paper, Minneapolis 2017, p. 41.

<sup>69</sup> The percentage of payments was calculated based on FADN (Farm Accountancy Data Network) data, as a ratio of SE605 ratio (subsidies to operating activities) and SE420 one (income from a family farm). A detailed description of the calculation of both indicators and information on the operation of FADN can be found at [www.fadn.pl](http://www.fadn.pl).

1.8). However, this result is largely due to the fact that the farmers' population in the EU was enlarged in the analysed period by large numbers of farmers from new Member States required to gradually increase the level of payments to approximate the EU average. The share of subsidies in income in the various Member States is very diverse and depends to a large extent on the structure of agriculture in a given country. In some cases, the share of subsidies exceeds 100% of income, which means that income from agricultural activity is lower than the costs borne.

Table 1.8. Average share of payments in farm income by Member State in 2004-2015 (%)

Member State	Years											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Austria	41	43	42	40	41	45	40	40	40	40	38	36
Belgium	35	37	44	50	53	54	56	55	56	56	55	49
Bulgaria	0	0	0	4	7	13	14	12	15	22	22	23
Croatia	0	0	0	0	0	0	0	0	0	9	11	12
Cyprus	11	11	10	7	14	11	9	9	10	10	11	12
Czech Republic	77	99	132	134	168	166	168	178	160	182	182	183
Denmark	62	65	71	79	80	83	78	81	81	80	76	76
Estonia	22	24	28	36	41	45	51	54	57	59	51	53
Finland	90	95	91	100	105	104	111	108	111	110	112	113
France	62	63	66	66	66	67	69	69	68	65	64	64
Greece	11	12	15	14	16	15	15	15	15	14	14	13
Spain	15	16	16	15	20	20	22	22	21	21	23	25
Netherlands	22	28	36	37	38	41	44	46	49	40	36	42
Ireland	35	38	43	44	45	42	42	42	46	43	42	38
Lithuania	8	9	10	15	17	19	19	18	18	21	20	21
Luxembourg	75	78	84	86	86	93	93	112	112	102	101	127
Latvia	15	16	26	27	33	32	31	29	29	30	32	32
Malta	13	14	15	19	21	8	8	6	7	7	6	6
Germany	63	63	70	69	70	78	79	78	78	77	79	77
Poland	4	5	8	9	12	11	13	13	12	13	13	11
Portugal	12	12	12	12	13	14	15	14	16	16	15	21
Romania	0	0	0	5	3	4	3	4	4	4	3	2
Slovakia	129	219	256	305	337	369	334	345	280	329	345	332
Slovenia	11	12	10	13	16	17	18	15	15	16	14	13
Sweden	62	66	72	75	75	73	81	87	84	86	87	95
United Kingdom	88	94	97	100	90	95	94	91	89	89	87	82
Hungary	19	23	21	28	32	28	32	38	34	38	38	35
Italy	12	13	13	11	12	13	13	14	15	15	19	18
Average	23	25	27	21	22	24	25	25	24	24	25	24

Source: own study based on FADN data.

The decoupling of direct payments to farmers from production can have a negative impact, as farmers may choose to discontinue agricultural activity, which can lead to disruptions in supplies. It should be thus considered that the only rationale for this system's operation is that payments are a reward for the multifunctional role of agriculture<sup>70</sup>.

Payments decoupled from production can have a positive impact on the productivity of the agricultural sector because they generate a selection process in which less productive farms drop out. At the same time, they may have a negative impact on the productivity of farms, as they disrupt the structure of production in farms<sup>71</sup>. However, farms receive subsidies regardless of their decisions concerning production. It is, therefore, less likely that they can cause allocation and technical inefficiencies<sup>72</sup>. Kazukauskas et al., argue that the decoupling of direct payments from production has a significant positive impact on productivity, but it does not result in higher production switching costs<sup>73</sup>.

### **Changes in the common organization of agricultural product markets**

The first pillar of the CAP includes, besides direct payments, also an agricultural market management system. This system is aimed at taking action for particular sectors, taking into account their different needs and interrelations between them. Changes in the CAP that have occurred since 1992 were aimed at increasing the market orientation of the various sectors to ensure their greater competitiveness. This was possible due to the gradually reduced use of certain support instruments (including intervention prices, customs duties, export subsidies, production quotas), and enhanced financing under "green box". However, changes as regards intervention were introduced in such a way as to maintain the role of safety for farmers in the event of market distortions.

The common organization of agricultural product markets consists of various mechanisms involving the production of certain agricultural products and trade in these products within the EU. It includes an internal aspect (market intervention, rules concerning the marketing of products and producer organizations) and an external one regarding trade with third countries (import and ex-

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<sup>70</sup> D. Moro, P. Sekokai, *The impact of decoupled payments on farm choices: conceptual and methodological challenges*, Food Policy no 41/2013, pp. 28-38.

<sup>71</sup> A. Kazukauskas, C. Newman, F. Thore, *Analysing the effect of decoupling on agricultural production: evidence from Irish dairy farms using the Olley and Parks approach*, German Journal of Agricultural Economics No. 59/2010, pp. 144-157.

<sup>72</sup> M. Rizov, J. Pokrivcak, P. Caian, *CAP subsidies and productivity of the EU farms*, Journal of Agricultural Economics no 64/2013, pp. 537-557.

<sup>73</sup> A. Kazukauskas, C. Newman, J. Sauer, *The impact of decoupled subsidies on productivity in agriculture: a cross-country analysis using microdata*, Agricultural Economics No. 45, 2014, pp. 327-336.

port certification, import duties, tariff quota administration, export refunds)<sup>74</sup>. Market management measures introduced for 2014-2020 are available in the form of<sup>75</sup>:

- public intervention (in respect of common wheat, durum wheat, barley and maize, paddy rice, beef and veal, butter, skimmed milk powder). The intervention period for butter and skimmed milk powder has been extended by one month and an automatic tendering procedure for milk and skimmed milk powder has been provided above certain ceilings. As for butter, a quantitative limitation where buying-in is carried out at a fixed price has been set at 50 thousand tones. The intervention prices have been maintained at the current level, which entails their real decline;

- special intervention measures and special measures applied in the event of market disturbances related to animal diseases and loss of consumer confidence caused by threats to human, animal or plant health, or where prices on the EU market rise or fall significantly. Special instruments to support farmers in exceptional circumstances are a new element of the market policy. These instruments are to be used in circumstances related to the occurrence of market disturbances caused by “a significant increase or decrease in prices on the internal or external market or other factors affecting the market”<sup>76</sup>. The introduction of these instruments resulted from the fact that the CAP did not have tools to respond to such situations, which led to major disturbances on agricultural markets and instability of the economic and financial situation of farmers affected by these problems<sup>77</sup>;

- private storage aid (for white sugar, olive oil, flax fiber, cattle meat, butter, cheese, skimmed milk powder, pig meat and sheep meat and goat meat);

- production quotas (in the case of sugar, isoglucose and insulin syrup, wine, milk, industrial beets). Milk and sugar quotas are due to expire after the respective 2014/2015 quota year. The sugar quota system expired on 30 Sep-

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<sup>74</sup> Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organization of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007. OJ L 347/671.

<sup>75</sup> Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organization of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007. OJ L 347/671.

<sup>76</sup> Regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), COM(2011)627.

<sup>77</sup> B. Wieliczko, *Perspektywy rozwoju polskiego rolnictwa w świetle proponowanego kształtu WPR 2014-2020*, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Problemy Rolnictwa Światowego 13(28)/2013, p. 167.



tember 2017, while the quota system in the dairy sector expired on 31 March 2015. The vine-growing regime ceased to apply on 1 January 2016 (certain national restrictions shall apply until 2018). A system of permits for new vine plantings for 2016-2020 has been introduced. The increase in the number of permits for new plantings is to be limited to 1% per year. Liquidation of quotas on the sugar market and milk market should be considered the most important change in the EU market policy. It should be noted, however, that given a significant increase in price fluctuations on global agricultural markets, the abolition of the quota system causes uncertainty as to the direction of developments in these sectors and will force increased production efficiency<sup>78</sup>;

- instruments that are not aimed at supporting markets, but which may have an indirect impact on market stability. These include e.g. aid programs related to the distribution of fruit and vegetables, processed fruit and vegetables and bananas for children, and the distribution of milk and milk products among children. The annual budget for subsidies to the program promoting fruit consumption at school increased from EUR 90 million to EUR 150 million;

- marketing standards for sectors or products, i.e. olive oil and table olives, fruit and vegetables, processed fruit and vegetable products, bananas, live plants, eggs, poultry meat, spreadable fats, hops;

- regulations in foreign trade, including export licences and export refunds for EU products. In the new financing period, export refunds for certain products exported to third countries have been retained. The same applies where the conditions on the internal market meet the conditions required for emergency measures.

Furthermore, measures related to the functioning of the food chain, i.e. the activities of producer organizations operating in the fruit and vegetable, olive oil, hops, wine and tobacco sectors as well as inter-branch organizations, have been introduced in the framework of the common organization of agricultural markets. In the new period of the functioning of the CAP, the provisions on producer organizations, associations of producer organizations and inter-branch organizations have been extended to all sectors, which is intended to strengthen the farmers' negotiating position.

In 2015-2016, the European Commission adopted three packages of support measures in response to the crisis in the dairy sector, pork sector and the fruit and vegetable sector. The first package amounted to EUR 500 million. Its aim was to enhance farmers' financial liquidity and reduce imbalances on the

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<sup>78</sup> B. Wieliczko, *Perspektywy rozwoju polskiego rolnictwa w świetle proponowanego kształtu WPR 2014-2020*, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Problemy Rolnictwa Światowego 13(28)/2013, p. 167.

markets. To this end, a system of subsidies for private storage of pig meat was introduced and subsidies for private storage of butter and skimmed milk powder were increased. In 2016, an extraordinary measure was launched for the first time to enable producer organizations and inter-branch and cooperative organizations in the dairy sector to conclude voluntary agreements to limit production. 2016 saw also the introduction of a system to encourage producers to reduce milk production (EUR 150 million), ensure conditional adaptation assistance that Member States will have to define and implement, provide technical measures allowing for greater flexibility, support liquidity and reinforce the “safety net” mechanism<sup>79</sup>.

### **Changes in the financial support system for rural and agriculture development under Pillar II**

Pillar II consists of measures implemented under the rural development policy and has been complementing the system of direct payments to farmers and agricultural market management measures (Pillar I). It pursues a number of different objectives, including the promotion of greater competitiveness, effective use of public goods, food security, environmental protection and action against climate change, social and territorial balance, more inclusive rural development<sup>80</sup> and enhanced employment protection in rural areas. Pillar II uses instruments based on the current concept in accordance with which Member States or regions develop their own rural development programs adapted to the needs of the agricultural sector, and determine what resources will be allocated for these purposes.

In 2014-2020, the process of programming national agricultural support programs has been changed. Operational programs, including rural development programs, are developed in accordance with the Common Strategic Framework (CSF). Member States prepare partnership agreements accounting for the planned allocation of funds for the implementation of the Europe 2020 strategy in accordance with the CSF. The European Commission approved in 2014-2020 118 rural development programs developed under Pillar II by 28 Member States.

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<sup>79</sup> European Parliament 2007. *Fact Sheets on the European Union. First pillar of the CAP: Common organisation of the markets (CMO) in agricultural products.*

<sup>80</sup> C. Nazzaro, G. Marotta, *The Common Agricultural Policy 2014-2020: scenarios for the European agricultural and rural systems*, Agricultural and Food Economics 2016, pp. 4-16. (DOI 10.1186/s40100-016-0060-y).

Twenty countries have decided to introduce a single national program, and eight ones have adopted regional programs<sup>81</sup>.

The spending options under Pillar II in 2015-2020 do not differ significantly from those available in 2007-2013. However, these funds are no longer classified under axes but under priorities. In the previous financing period, four axes were introduced, along with a mandatory minimum ceiling for funds under each axis. The axes focused on three areas of action, i.e. the agricultural and food economy, environmental protection and the rural economy and population. Axis 1 - improving the competitiveness of the agricultural and forestry sector (focused on human and physical capital in the agri-food and forestry sectors (promotion of transfer of knowledge and innovation) and high-quality production); Axis 2 - improving the environment and the countryside (funds for the protection and strengthening of natural resources, as well as the conservation of agriculture and forestry systems with high natural values and traditional landscapes in European rural areas); Axis 3 - the quality of life in rural areas and diversification of the rural economy (support for the development of local infrastructure and human capital in rural areas to improve conditions for economic growth and employment in all sectors as well as diversification of economic activity) and Axis 4 - Leader (innovative management through a local bottom-up approach to rural development). Instead of pursuing actions under axes, Member States may choose the means to achieve at least four of the six common EU priorities, i.e.: (1) fostering knowledge transfer and innovation in agriculture, forestry, and rural areas; (2) enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and sustainable management of forests; (3) promoting food chain organization, including processing and marketing of agricultural products, animal welfare and risk management in agriculture; (4) restoring, preserving and enhancing ecosystems related to agriculture and forestry; (5) promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors; (6) promoting social inclusion, poverty reduction and economic development in rural areas.

Support under the second pillar is provided through the European Agricultural Fund for Rural Development (EAFRD), which co-finances rural development programs in the Member States. The maximum level of EAFRD funding is 85% in less-developed regions, outermost regions and the smaller Aegean islands; 75% in all regions where GDP per capita in 2007-2013 was lower than

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<sup>81</sup> More information in: B. Wieliczko, A. Kurdyś-Kujawska, J. Herda-Kopańska, *Mechanizmy i impulsy fiskalne oddziałujące na rozwój wsi i rolnictwa (2)*, IERiGŻ PIB, Program Wieloletni 2015-2019, Warszawa 2016.

75% of the EU-25 average, but above 75% of the EU-27 average; 63% for transition regions other than those mentioned above; 53% in other regions. In the 2007-2013 programming period, the maximum EAFRD contribution was set for each axis within a flexibility threshold (under Axis 1 – from 50% to 75%; under Axis 2 and Axis 4 (Leader) – from 55% to 80%)<sup>82</sup>. The minimum EAFRD contribution rate is 20% – this share has not changed compared to the previous period, whereby in 2007-2013, it referred to the axes. In the 2015-2020 programming period, the Leader funding contribution was 80%, just like in the previous period, but currently it may be increased to 90% for less developed regions, outermost regions, the smaller Aegean islands and transition regions. The financing of environmental action and action contributing to the mitigation of climate change is 75%<sup>83</sup>. Changes in the financial support system for rural development programs concerned also the directions as well as the amount and level of support. Member States are required to spend at least 30% of EAFRD funding on programs related to mitigation of climate change and adaptation to it, as well as environmental issues. Funds are expended through agri-environment and climate payments, payments for organic farming and for areas with natural constraints, through forestry payments, payments for Natura 2000 areas and support for investment for the environment and climate. At least 5% (2.5% for Croatia) of the EAFRD contribution should be allocated for the financing of the Leader program<sup>84</sup>.

Areas supported under the second pillar have not changed significantly. Activities which were effective in the previous period have been preserved and updated, some of them have been merged. New solutions have also been introduced. In 2015-2020, programs related to the restructuring and modernization of agriculture and investment in agriculture are continued, so are support programs for young farmers, for farmers participating in food quality schemes, for agricultural producer groups. Support continues to be provided for diversification towards non-agricultural activities and setting up of new farms, so is support for rural renewal and basic services. Payments to farmers operating in mountain areas or other areas with natural constraints as well as agri-environment payments have been preserved.

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<sup>82</sup> Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 277/1.

<sup>83</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 347/487.

<sup>84</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 347/487.

In 2015-2020, compared to the 2007-2013 period, support for young farmers has been enhanced so that it would allow for greater generational renewal in agriculture<sup>85</sup>. These measures are essential to ensure the long-term competitiveness and sustainability of European agriculture. Young farmers are the lifeblood and future of rural communities providing direct and indirect employment, raw materials for exports and further processing and environmental and countryside management<sup>86</sup>. Compared to the previous period, the number of measures targeted at young farmers has increased. Two measures targeted directly at young farmers have been introduced. “Structural pension”, which was to contribute to significant structural changes to transferred farms through a measure to support young farmers or by transferring farms to increase their size, has been abandoned. In fact, this measure turned out to be ineffective. It should be noted that so-far, support for young farmers was financed only under the second pillar. In 2014, for the first time in the 50-year history of the CAP, additional support for young farmers was introduced also under the first pillar, in the form of a 25% premium on top of direct payments (Fig. 1.17).

Business start-up aid granted based on a business plan is a key instrument for supporting young farmers. This aid may be an EU contribution of up to EUR 70 thousand and a higher rate of support for investments in physical assets (up to 20%). In 2015-2020, Member States plan to allocate EUR 5.2 billion for measures related to commencing agricultural activity by young farmers. This accounts for 76.96% of the total support allocated to this program. EUR 1.3 billion (18.96%) has been planned to expend to support investment in physical assets. Co-operation measures are to be supported to the least extent – EUR 37 million (0.54%) has been earmarked for this purpose. Due to the fact that young farmers need information and advice agricultural advisory services are required to provide specific advice to farmers starting up for the first time<sup>87</sup>. Member States intend to spend EUR 124 million (1.80%) on these measures.

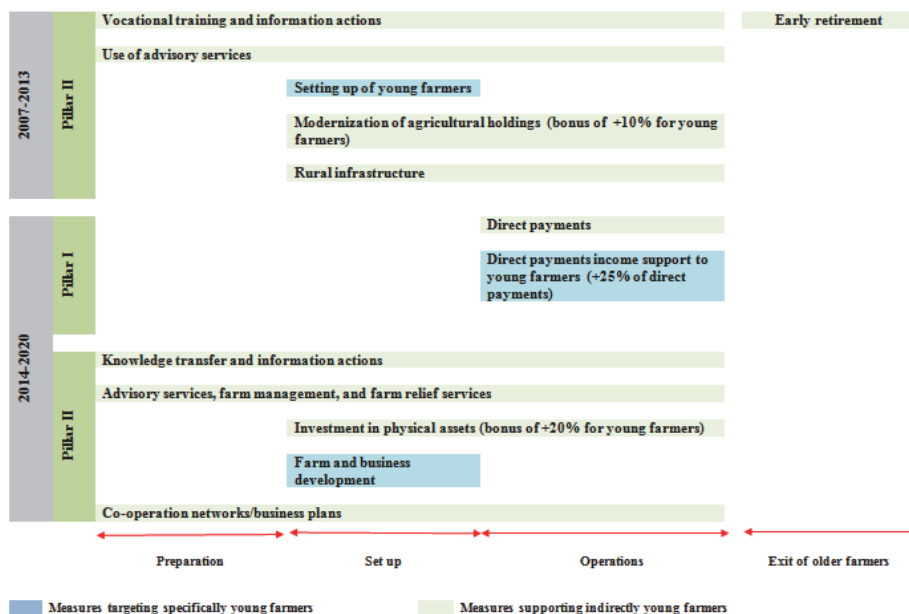
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<sup>85</sup> This is important because the population of the EU agricultural sector is aging. Approximately 7.5% of farmers are at the age of less than 35, 53% of them are older than 55, and 30% of them are older than 65.

<sup>86</sup> Macra and Feirme 2017. *Common Agricultural Policy 2020: Young Farmer Roadmap for Generational Renewal*.

<sup>87</sup> European Commission 2015. *Young farmers and the CAP, European Union 2015*.

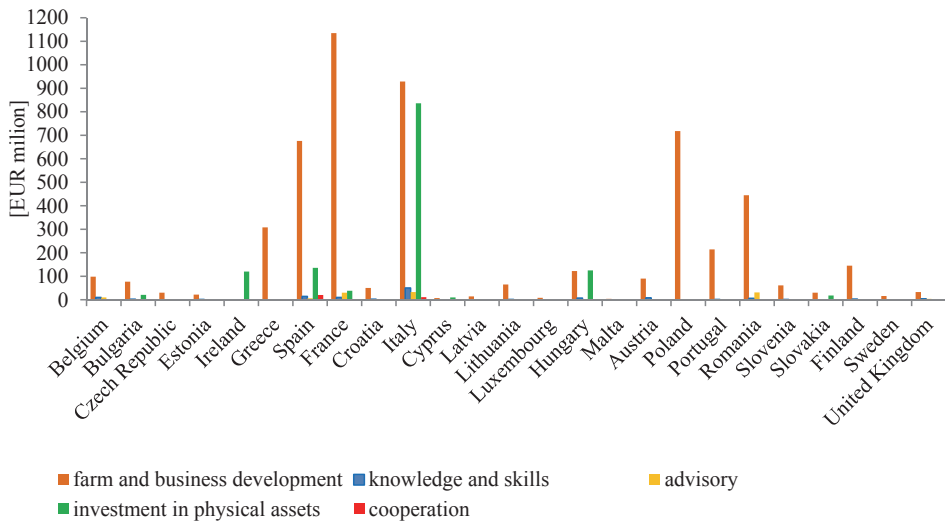
Figure 1.17. Measures supporting young farmers in the 2007-2013 and 2014-2020 programming periods



Source: European Court of Auditors 2017. EU support to young farmers should be better targeted to foster effective generational renewal. Special Report No. 10.

These programs have been implemented in most Member States, except for Germany, Denmark and the Netherlands. Measures taken under the support program for young farmers vary across Member States. Only one type of measure has been launched in Poland, the Czech Republic, Sweden and Latvia. All of them have been launched in Spain, France and Italy. The amounts of support for each measure vary as well (Fig. 1.18). The majority of Member States have implemented setting-up measures (24) and those relating to enhancing knowledge and skills (15). Member States that plan to support measures targeted at young farmers' farm and business development include France (EUR 1.1 billion), Italy (EUR 929 million), Poland (EUR 718 million) and Spain (EUR 676 million). These measures are supported to the least extent in Cyprus (EUR 7 million), Malta (EUR 4 million) and Luxembourg (EUR 8 million). The largest amount of funds to support investment in physical assets has been allocated by Italy (EUR 836 million).

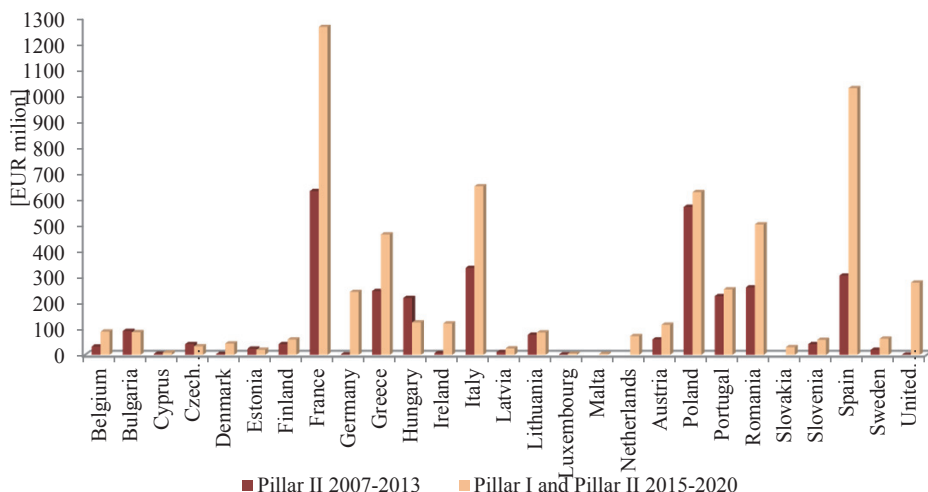
Figure 1.18. Support for young farmers under Pillar II by measure type in 2015-2020



Source: own study, based on: OECD 2017. Evaluation of the EU Common Agricultural Policy (CAP) 2014-2020. TAD/CA/APM/WP(2016)22/FINAL

In 2007-2013, the total amount earmarked for support for young farmers was EUR 3.2 billion; in 2015-2020, it is twice as much (EUR 6.3 billion). The highest spending on measures for young farmers has been recorded in France, Italy, Spain and Poland (Fig. 1.19). The amount of funds for supporting young farmers in these countries accounts for 56% of the total EU budget allocated for this purpose. Compared to the previous financing period, all Member States have allocated funds to support young farmers. In 2007-2013, three countries (Malta, the Netherlands and Slovakia) did not finance such measures.

Figure 1.19. Amounts of funds allocated for support for young farmers in 2007-2013 and 2015-2020 by Member State

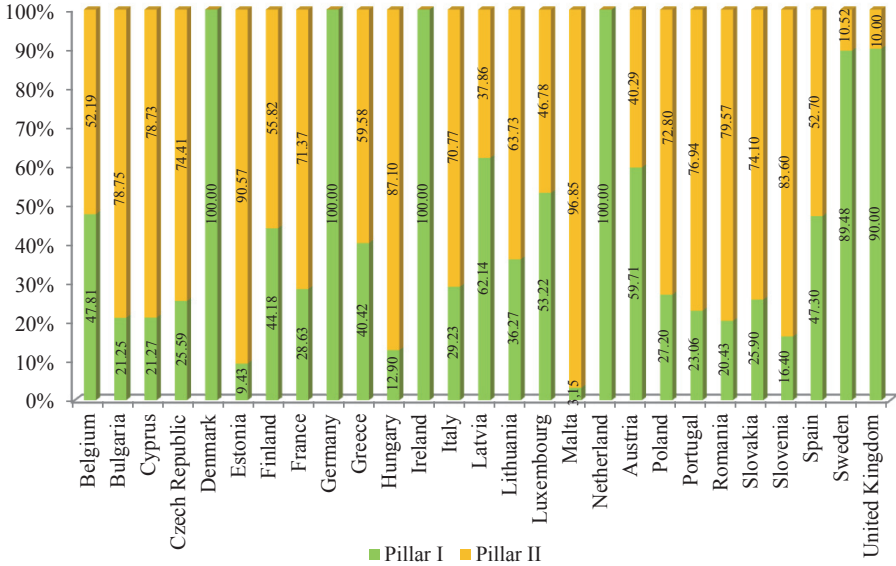


Source: own study, based on: European Court of Auditors 2017. EU support to young farmers should be better targeted to foster effective generational renewal. Special Report No. 10.

Compared to 2007-2013, four Member States have reduced the envelope for support for young farmers in 2015-2020. These were Bulgaria (by 5.29%), the Czech Republic (by 20.30%), Estonia (by 17.35%) and Hungary (by 43%). The largest increase in support for young farmers was recorded in Denmark (from EUR 3.81 million to EUR 44.09 million), Ireland (from EUR 6.5 million to EUR 121.26 million), Germany (from EUR 2.25 million to EUR 242.54 million) and the United Kingdom (from EUR 0.88 million to EUR 278.33 million). In most Member States, measures to support young farmers in 2014-2020 are funded under Pillar II (Fig. 1.20). In Estonia and Malta, the share of funding under Pillar II accounts for over 90% of the total funds allocated for these measures. In Sweden and the United Kingdom, this share is only 10%, whereas in Germany, Denmark, Ireland and the Netherlands, measures to support young farmers are financed exclusively under Pillar I.



Figure 1.20. Financing of support for young farmers under Pillar I and Pillar II in 2015-2020 by Member State



Source: own study, based on: European Court of Auditors 2017. EU support to young farmers should be better targeted to foster effective generational renewal. Special Report No. 10.

In 2015-2020, changes have been introduced also as regards support for cooperation for the development of new products, processes and technologies in the agri-food sector and the forestry sector. Introduced changes are supposed to contribute to better fulfilment of requirements of a knowledge-based economy. It has been allowed to finance projects implemented by a single entity, provided that the results are disseminated. The scope of this measure has been extended with support for small entities so that they can organize common work procedures and share rooms and resources, support for horizontal and vertical cooperation between supply chain entities as well as support for promotional activities and support for a common approach to environmental projects and practices<sup>88</sup>.

As for payments for handicaps in mountain areas and payments in other areas with natural constraints or other specific constraints, a new method of defining such areas has been introduced. For areas with natural constraints, a bio-physical criterion, supported by reliable scientific evidence, is applied.

<sup>88</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 347/487.

New measures implemented as part of support under Pillar II relate to risk management. They are an important part of the so-called “safety nets”. Until 2014, risk management instruments could be supported only under Pillar I. Risk management instruments co-financed with EU funds include: (a) co-financing of agricultural insurance premiums (support rate of up to 65%); (b) support for setting up mutual funds and compensation paid to farmers by such funds for losses suffered as a result of adverse climatic events, the outbreak of animal or plant diseases, pest infestation or environmental incidents (support rate of up to 65%); and (c) an income stabilisation tool in the form of a mutual fund to support farmers facing a severe drop in their incomes (support rate of up to 65%)<sup>89</sup>. In accordance with the RDP financial framework for 2014-2020, only two countries (Italy and Hungary) and one region in Spain have planned funds for an income stabilization instrument. However, according to the European Commission’s data for 2017, no income stabilization instrument has been launched yet. What hinders the use of this instrument is primarily a requirement to suffer a loss of income of more than 30%. Furthermore, not all sectors may use this instrument. Budgetary needs of this instrument are highly volatile. If the scheme is implemented in all Member States, the maximum budgetary needs for one year are estimated at EUR 22 billion (Tab. 1.9).

Table 1.9. Maximum annual EU budgetary needs for income stabilization tools

Item	Compensation [EUR million]	Beneficiaries [million]
All sectors	22.200	3.06
Dairy	3.700	0.44
Crop	4.700	0.45
Olive	800	0.23
Sugar beet	140	0.01
Total for 4 sectors	9.300	1.14

Source: European Commission 2017. *Risk Management schemes in EU agriculture. Dealing with risk and volatility. EU Agricultural Markets Briefs No. 12.*

The use of risk management instruments is optional for Member States and/or regions. Twelve Member States plan to implement these instruments. The largest expenditure on risk management is foreseen by Italy (EUR 1.591 million), France (EUR 600 million) and Romania (EUR 200 million), as well Hungary, Portugal, Croatia and the Netherlands (from EUR 95 million to EUR 54 million) (Tab. 1.10).

<sup>89</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 347/487.

Table. 1.10. Planned spending on risk management instruments under rural development programs for 2015-2020

Member State/region	Insurance	Mutual funds	Income stabilization tool	Spending [EUR million]	Share in the RDP budget [%]
Belgium (Flanders)	5.1	0	0	5.1	0.6
Croatia	57.0	0	0	57.0	2.4
France	540.7	60.0	0	600.7	3.5
Hungary	76.3	0	19.0	95.3	2.3
Italy	1.396.8	97.0	97.0	1.590.8	7.6
Latvia	10.0	0	0	10.0	0.6
Lithuania	17.0	0	0	17.0	0.8
Malta	2.5	0	0	2.5	1.9
Netherlands	54.0	0	0	54.0	3.3
Portugal (Azores)	2.4	0	0	2.4	0.7
Portugal (Madeira)	0.8	0	0	0.8	0.4
Portugal (Mainland)	50	0	0	50.0	1.2
Romania	0	200	0	200.0	2.1
Spain (Castile and Leon)	0	0	14.0	14.0	0.9
Total	2.212.6	357.0	130.0	2.699.6	-

Source: <www.eu2017.ee>.

Another change in the financial support system for rural development for 2015-2020 provides for incorporating thematic sub-programs addressing specific needs of areas of particular importance. Thematic sub-programmes should concern, among others, young farmers, small farms, mountain areas, the creation of short supply chains, women in rural areas and climate change mitigation and adaptation as well as biodiversity<sup>90</sup>. It is also allowed to provide for higher support rates for certain operations covered by those programs. This ensures greater flexibility in using funds and meeting the target needs, while enhancing the effectiveness of such funding. To enhance rural development in line with development strategies, programming skills and expenditures incurred by each Member State in the new financing period, a two-way transfer of EU funds between the first and the second pillar has been made enabled. The transfer of part of funds between the pillars, in particular from Pillar I to Pillar II, is justified by the fact that non-agricultural income sources play an increasingly greater role in generating farm income, and their functioning does not depend on the agricultural output level, but on economic, social and environmental conditions in rural areas. Under Pillar II, funds are spent on a specific goal, as opposed to direct

<sup>90</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 347/487.

payments, which facilitates the implementation of a specific strategy for the development of the agricultural sector and facing new challenges<sup>91</sup>.

New regulations concerning the CAP allow for transferring up to 15% of funds from Pillar I to Pillar II. Member States with an average direct payment per hectare below 90% of the EU average (Bulgaria, Spain, Estonia, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Finland, Sweden and the United Kingdom) may transfer up to 25% of funds from Pillar I to Pillar II. This flexibility, in spite of being perhaps the least expected outcome of the new CAP, aptly shows the redistributive objective of the reforms. What is an innovative element is not the transfer of funds from direct payments to the rural development program (this was already indirectly provided through obligatory modulation introduced by the Fischler reform and previously voluntary modulation of Agenda 2000) but the transfer of funds from rural development to the payments.

Sixteen Member States have chosen to transfer funds between the pillars. Five of them have transferred funds from Pillar II to Pillar I (Tab. 1.11). The greatest transfers will be made in Poland (25%), Slovakia (21.3%), Croatia (15%) and Hungary (15%). In Member States that have chosen to transfer funds from Pillar I to Pillar II, the greatest amounts of funds will be transferred in the United Kingdom (12%), Germany (4.5%), Denmark (from 5% in 2016 to 7% in 2019), Latvia (7.46%), Estonia (from 6.1% in 2015 to 15% in 2019) and Belgium (from 5% in 2015 to 10% in 2019).

The purposes of transfers between the pillars in Member States vary, so do the transfer directions. For example, in Estonia, funds transferred from the first pillar to the second one will be partly used to finance the measure “Development of small agricultural enterprises” (enterprises that generate annual sales revenues of EUR 4.000-14.000). In Germany, a political commitment has been made to transfer funds from the first pillar to the second one to support measures related to organic farming, grassland, less-favoured areas, measures improving animal husbandry and animal welfare, as well as environmental and climate protection measures. In Hungary, funds from the second pillar have been transferred to the first one to increase direct payments (increase by EUR 12.3 per ha), while in Slovakia, funds have been transferred to support specific agricultural sectors that are particularly important for economic, social and environmental reasons, and are also experiencing difficulties.

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<sup>91</sup> A. Czyżewski, S. Stępień, *Wspólna polityka rolna UE po 2013 roku a interes polskiego rolnictwa*, *Ekonomista* nr 1/2011.

Table 1.11. Transfers between the CAP pillars for 2014-2020

Transfer from Pillar I to Pillar II* [%]						
Budget year	2015	2016	2017	2018	2019	2020
Claim year	2014	2015	2016	2017	2018	2019
Belgium	-	2.3	3.5	3.5	4.6	4.6
Czech Republic	-	3.4	3.4	3.4	1.3	1.3
Denmark	-	5.0	6.0	7.0	7.0	7.0
Germany	-	4.5	4.5	4.5	4.5	4.5
Estonia	-	6.1	14.3	15	15	15
Greece	-	5.0	5.0	5.0	5.0	5.0
France	3.0	3.3	3.3	3.3	3.3	3.3
Latvia	7.5	7.5	7.5	7.5	7.5	7.5
Netherlands	-	4.0	4.1	4.2	4.2	4.3
Romania	-	1.8	2.3	2.2	0	0
United Kingdom	12	12	12	12	12	12
<i>Transfers between Pillar I and Pillar II of the CAP will amount to approx. EUR 6.383 billion. The net balance of transfers between Pillar I and Pillar II of the CAP amounts to approx. EUR 4 billion</i>						
Transfers from Pillar II to Pillar I						
Budget year	2015	2016	2017	2018	2019	2020
Claim year	2014	2015	2016	2017	2018	2019
Croatia	15	15	15	15	15	15
Hungary	15	15	15	15	15	15
Malta	0	0.8	1.6	2.4	3.1	3.8
Poland	25	25	25	25	25	25
Slovakia	21.3	21.3	21.3	21.3	21.3	21.3
<i>Transfers between Pillar II and Pillar I of the CAP will amount to approx. EUR 3 billion.</i>						

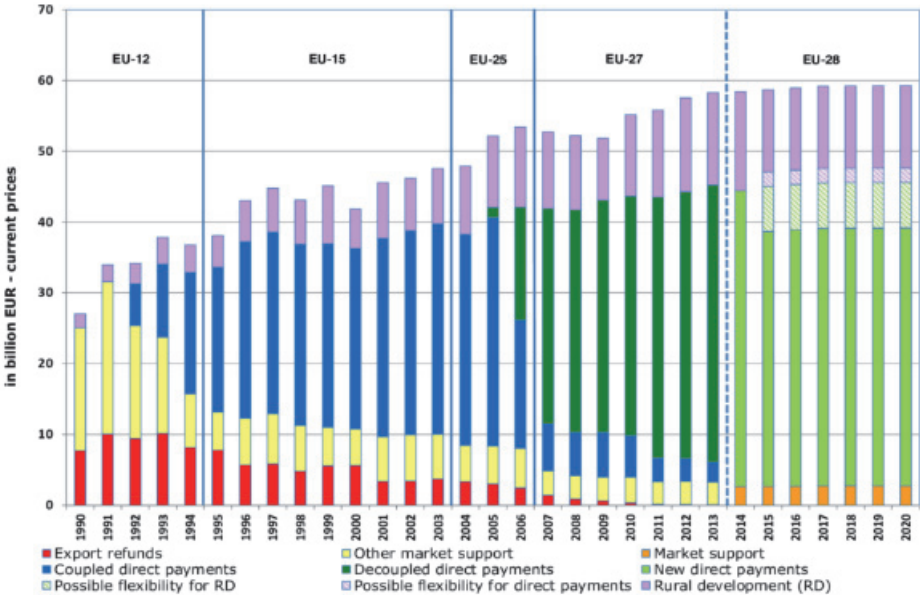
Source: European Commission 2015. *Implementation of The First Pillar of the CAP 2014-2020 in the EU Member States.*

### Changes in the budget of the EU Common Agricultural Policy

Funds for the EU agricultural policy in 2014-2020 will account for about 40% of the total EU budget (in 2020 this is expected to be 36%). Compared to previous financing periods, this share has decreased (Fig. 1.21). As indicated by A. Czyżewski and S. Stępień, in the 1980s 65% of the EU budget was spent on average on agriculture and rural areas. In the 1990s, this was 55%, and in the first decade of this century – over 45%. This is a consequence of gradual changes in the paradigm of the policy underlying the CAP increasing the competitiveness of European economies and strengthening the role of the cohesion policy at the expense of funds for agriculture and rural development. The structure of expenditure on the support for rural and agriculture development has also changed. As a result of introduced reforms, there has been a significant reduction in the use of policy instruments providing support for market prices, which have been targeted at support for rural areas. The amount of export subsidies has decreased, while the amount of funds earmarked for the rural development policy has increased. Direct payments were initially only partially decoupled from pro-

duction (MacSharry reform, Agenda 2000). Later, most payments were replaced with decoupled payments (Fischler reform). In response to the increasingly climate change, the financing of agri-environment and climate programs has been growing since 2007. In 2015-2020, funds allocated for these programs have been even more increased. Since 2016, in order to enhance the greening of the CAP, direct payments have been partly linked to greening. It is worth noting that since 1990, the European Union has grown from 12 Member States (1990) to 28 ones (2013), which should also be taken into account in the assessment of expenditure from the EU budget on agriculture and changes in the level and structure of the financing of the agricultural policy.

Figure 1.21. Changes in the amount of expenditure under the CAP in 1990-2020 (in current prices)

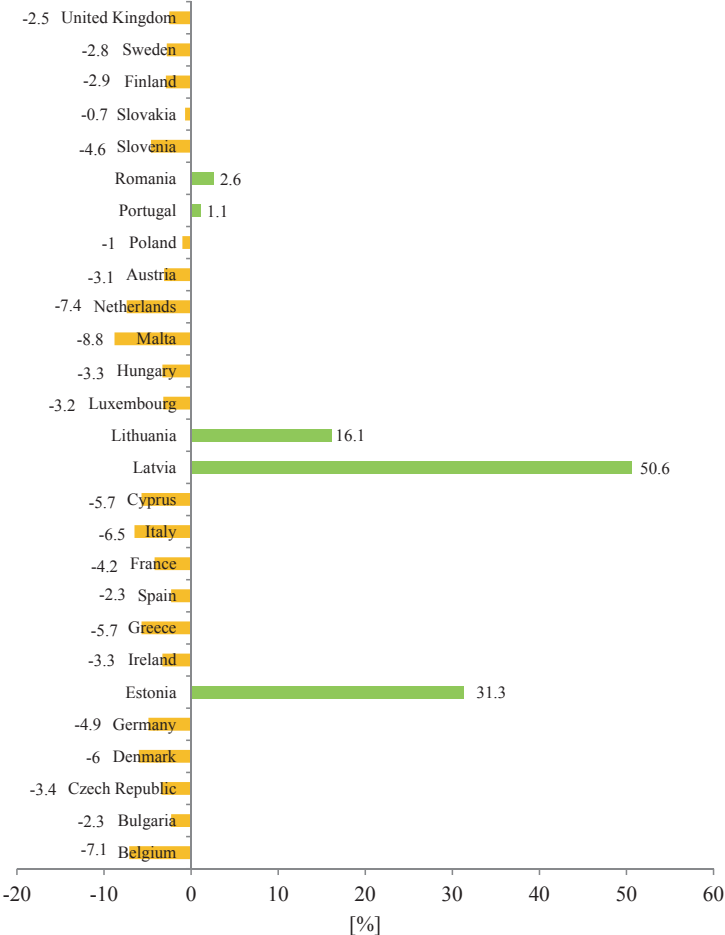


Source: European Commission 2015. DG Agriculture and Rural Development.

The CAP budget for 2015-2020 is EUR 408.31 billion. Direct payments account for over 70% of the CAP budget, i.e. about EUR 42 billion per annum. A small percentage (around 5%) of support accounts for amounts allocated for market measures. Compared to 2007-2013, the amount of direct payments for 2015-2020 has decreased by 2.8%. In most Member States, payment envelopes have decreased, with the exception of Romania, Portugal, Lithuania, Latvia and

Estonia (Fig. 1.22). A slight decrease in the amount of direct payment envelopes has been recorded in Slovakia (0.7%) and in Poland (1%).

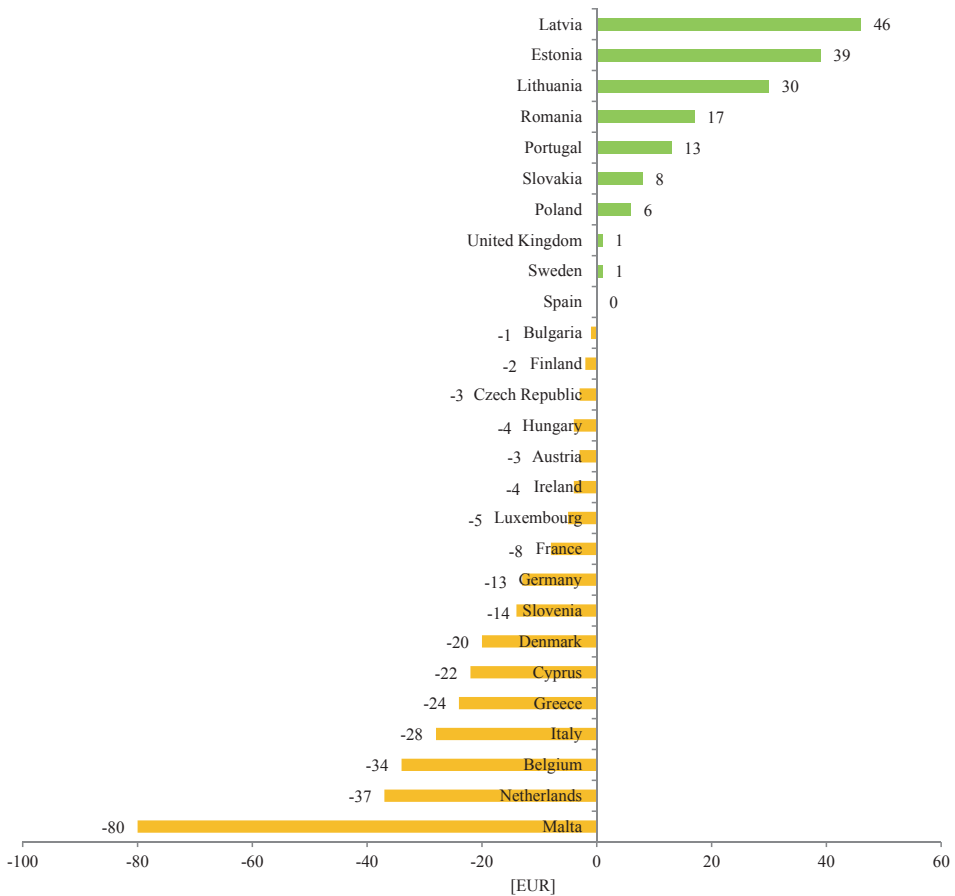
Figure 1.22. Changes in the amounts of direct payment envelopes in 2007-2013 and in 2015-2020 (%)



Source: own study, based on: European Parliament 2016. Common Agricultural Policy 2014-2020: Direct payments. A reference note. European Union 2016. doi:10.2861/289046

In most Member States (18), the average level of direct payments in 2019 will be lower than the average payment received in 2013. The most significant differences are recorded between the countries that have joined the EU after 2004 and those of the old Union. Spain is the only Member State where the average direct payment per ha will not change (Fig. 1.23). The largest decrease in the average direct payment per ha is recorded in Malta (decrease by EUR 80 per ha).

Figure 1.23. Changes in the average direct payment in 2013 and in 2019 (EUR)



Source: own study, based on: *Wspólna Polityka Rolna 2013 plus - reforma na rozdrożu. Forum Inicjatyw Rozwojowych 2012. Materiały konferencyjne.*

EUR 99.58 billion has been allocated for rural development programs, which is one quarter of the total CAP budget. It should be noted that the amount of expenditure on rural development has been increasing since 1993. There was a large increase in funds spent on agriculture between the financing period 1993-1999 and 2000-2006 (by 101%). A significant increase was recorded also between 2000-2006 and 2007-2013 (by 50%). In the last two financing periods, the amounts allocated for agricultural are similar (Tab. 1.12).



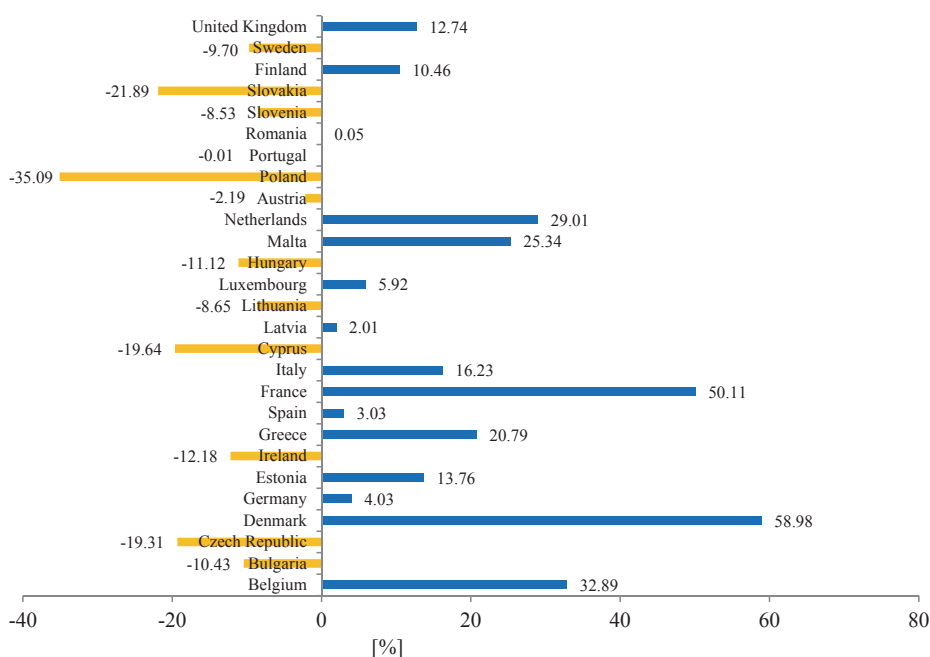
Table 1.12. Evolution of the EAFRD budget

Item	Programming period			
	1993-1999	2000-2006	2007-2013	2014-2020
Financial envelope for Pillar II [EUR billion]	32.053	64.379	96.441	99.587
Share in the total MFF appropriations [%]	6.3	8.6	9.9	9.2
Change relative to the previous programming period [%]		+101	+50	+3

Source: European Union 2016. Evolution of the budget dedicated for rural development policy. Committee of the Regions (doi:10.2863/178403).

Among 28 Member States, 14 ones have allocated more funds for rural development in the 2014-2020 programming period than in the previous period. Smaller financial envelopes are recorded in 11 Member States, whereas in two ones (Portugal and Romania), no changes have been recorded. The greatest increases in financial envelopes have been recorded in Denmark and France, while in Poland, Slovakia, Cyprus and the Czech Republic, there have been marked decreases (Fig. 1.24).

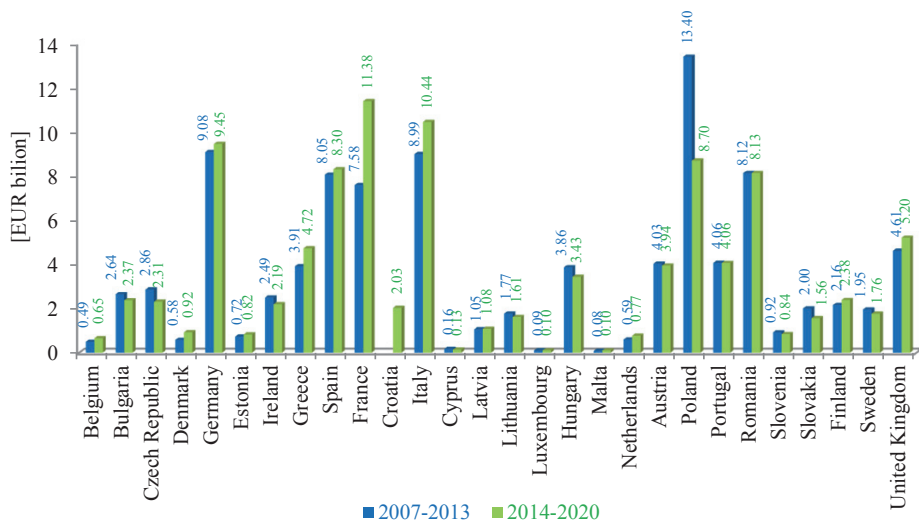
Figure 1.24. Changes in the amounts of funds allocated under the EAFRD in 2007-2013 and in 2015-2020 (%)



Source: own study, based on: European Commission 2015. European Structural and investment funds 2014-2020; European Union 2016. Evolution of the budget dedicated for rural development policy. Committee of the Regions.

Compared to the other Member States, Poland is one of the largest beneficiaries of the CAP budget for 2014-2020, as support granted to Poland amounts to more than EUR 32 billion. EUR 8.7 billion has been allocated for measures contributing to rural development. This amount is much smaller than in the previous programming period. It should be noted that in 2007-2013, measures financed in Poland under the second pillar, which can be considered as priority ones, include support for the restructuring of the Polish agricultural sector and sustainable development issues. The lowest amounts of support have been allocated for measures implemented under Axis 4 - Leader<sup>92</sup>. In the 2014-2020 period, the largest amounts of RDP funds have been allocated to support investment in fixed assets (24.66%), farm and business development (16.35%) and for payments for areas with natural constraints (16.03%)<sup>93</sup> (Fig. 1.25).

Figure 1.25. Funds allocated from the EU budget under the EAFRD to Member States in 2007-2013 and 2014-2020



Source: own study, based on: European Commission 2015. *European Structural and investment funds 2014-2020*; European Union 2016. *Evolution of the budget dedicated for rural development policy*. Committee of the Regions.

<sup>92</sup> A. Kurdyś-Kujawska, *Ocena wykorzystania środków finansowych w okresie trzech lat funkcjonowania Programu Rozwoju Obszarów Wiejskich 2007-2013*, Journal of Agribusiness and Rural Development 2(20) 2011, pp. 47-54.

<sup>93</sup> B. Wieliczko, A. Kurdyś-Kujawska, J. Herda, *Mechanizmy i impulsy fiskalne oddziałujące na rozwój wsi i rolnictwa (2)*, IERiGŻ PIB, Monografie Programu Wieloletniego, Warszawa 2016.

Unlike direct payments and funds for rural development, market measures are not allocated from the national envelope. They are financed in the same way as direct payments from the European Agricultural Guarantee Fund. In the 2014-2020 period, funds for the market policy together with the crisis reserve should account for approximately 4% of the total CAP budget (EUR 17.5 billion). In 2015, total funds for market intervention amounted to over EUR 2.7 billion, which accounted for 6% of total EAGF expenditure (Tab. 1.13). In 2015, the level of support under these measures decreased compared to 2007 by 45.43%. The largest decreases in EAGF expenditure on intervention on agricultural markets were recorded in the case of export refunds (by 99.97%) and storage (82.75%). The level of support for other market measures decreased by 21.27%. The amount allocated to finance the common organization of agricultural product markets has been systematically decreasing from year to year. The level of support decreased on average by 7.29% each year. The largest average annual decrease was recorded with respect to export refunds (65.32%). Funds allocated for storage and for other support measures decreased on average by 19.72% and 2.9%, respectively.

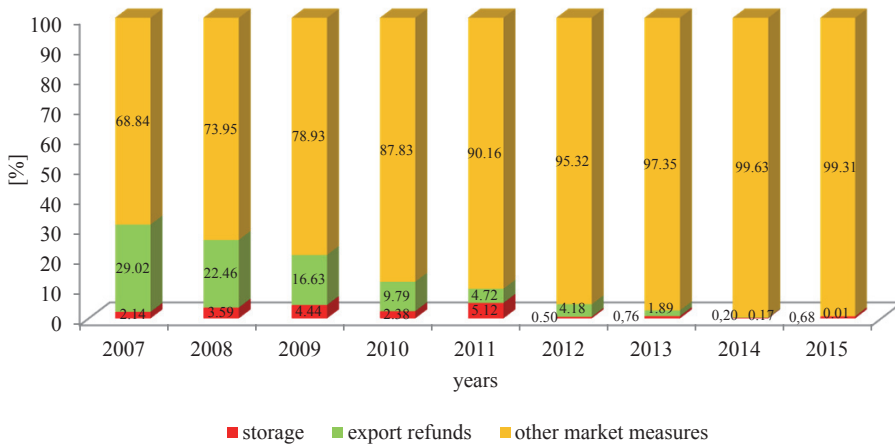
Table 1.13. EAGF expenditure on intervention on agricultural markets in 2007-2015 (in EUR million)

Item	Years								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Storage	106.7	147.9	173.4	93.6	194.6	17.4	25.1	5.1	18.4
Export refunds	1.444.7	925.4	649.5	385.1	179.4	146.7	62.4	4.5	0.3
Other market measures	3.427.1	3.046.4	3.083.5	3454.8	3.428.3	3.344.5	3.217.2	2.579.6	2.698
Total	4.978.5	4.119.1	3.906.4	393.5	3.802.3	3.508.6	3.304.7	2.589.2	2.716.7

Source: Parlament Europejski 2007. Noty faktograficzne o UE. Pierwszy filar WPR: I - wspólna organizacja rynków produktów rolnych (WORR).

Expenditure on other market measures accounted for the largest share in the structure of expenditure on intervention on agricultural markets. In 2007-2015, this share ranged from 68.84% to 99.31% (Fig. 1.26). Since 2011, there has been a systematic increase in the share of funds allocated to support other market measures.

Figure 1.26. Share of expenditure on intervention on agricultural markets in 2007-2015



Source: own study, based on: Parlament Europejski 2007. Noty faktograficzne o UE. Pierwszy filar WPR: I - wspólna organizacja rynków produktów rolnych (WORR).

The share of funds earmarked for measures related to storage ranged from 2.14% in 2007 to 0.68% in 2015, while the share of funds allocated for export refunds in the total amount allocated for intervention on agricultural markets decreased from 29.02% to 0.01%.

Changes in the EU budget for the common organization of agricultural product markets reflect changes introduced under the 2013 CAP reform. Financing of market intervention was gradually reduced, while increasing support for certain agricultural markets.

### Common Agricultural Policy post-2020

On 29 November 2017, the European Commission published a communication entitled “The future of agriculture and food production” on changes in the Common Agricultural Policy in the next programming period. This document outlines the issue of the agricultural production and the agri-food industry in the EU against a background of identified key challenges, determined the objectives on achieving of which the CAP post-2020 is to be focused and presented the most important instruments and possible new solutions to deliver the announced objectives.

In general, it can be said that this document does not envisage a real revolution, although it presents some changes. In most issues, we can see only

a slight shift in emphasis. Naturally, we need to remember that this is only a strategy paper and any potential key changes can only result from specific solutions and changes in the level of support which are not presented in this document. The main topic of the communication is the change consisting in increasing the role of the Member States in shaping the CAP instruments. Even now, under the CAP shaped by the 2013 reform, we can talk not about a single CAP but about 28 various CAPs since there are no two countries whose direct payment scheme or rural development programme are shaped in the same way. However, the change announced in the communication is to increase the role of the Member States in shaping the individual instruments. Here, the lead is taken by so-called greening of direct payments. It is the Member States which are to choose the appropriate environment-friendly practices, the compliance with which is to make it possible to receive the payments. On the other hand, the EC is to supervise that the adopted solutions ensure the achievement of the environmental objectives.

Another important point of the communication is the risk management problem. This problem has become more important in recent years. Many publications and expert statements (Cordier, 2015, Wieliczko, 2016) pointed to the absence of a well-developed risk management system under the CAP as an element showing the lack of preparation of the CAP to face new challenges associated with the growing scale of various risks, including, in particular, the catastrophic risks related to climate change and the derivative of this risk, i.e. price volatility, which is further increased as a result of changes in the global consumer trends and changes in the scale of the agricultural production in other parts of the world.

The third key element of the communication is the emphasis on the CAP to become a “result-oriented policy”. This is to imply a greater simplification of the implementation process, with the already mentioned increased role of the Member States in shaping the CAP individual instruments. It is the responsibility of the EC to supervise that the Member States achieve the declared results, and the role of the states is to designate a pathway to reach the planned results.

As already mentioned, the key change is the so-called new model of implementing the future CAP, under which the role of the Member States. The EU would only define the basic parameters of the CAP, i.e. objectives, broadly understood types of intervention and basic requirements. At the same time, it has been clearly stated that the CAP objectives should cover both the Treaty objectives and other EU action objectives set out in other key documents, including the environmental objectives or sustainable development objectives. As it has been stressed, the Member States would have to develop a way of achieving

these objectives, while ensuring a reliable mechanism to monitor the results. It is worth noting that it is also envisaged to increase the Member States' impact on the system of controls and penalties applied to the beneficiaries.

However, the increased impact of the Member States on shaping the CAP would be targeted by creating a strategic CAP plan which is to increase the European value added of this policy. This means that the CAP's direction and objectives would be still set at the EU level, however, the envisaged simplification and flexibilisation of the implementation would make it possible to adapt the solutions to the conditions of the country or region concerned.

The communication also presented the objectives of the future CAP, which is to be smarter, more modern and sustainable. The set objectives are:

- “to foster a smart and resilient agricultural sector”;
- to bolster environmental care and climate action and to contribute to the environmental and climate objectives of the EU;
- to strengthening the socio-economic fabric of rural areas”.

As we can see, these objectives are both very ambitious and quite general, but in the further part of the communication it is clearly stated that the key issue is the social responsibility of the agricultural sector concerning the quality of food produced and the environmental concern.

An important place in the communication is taken by the issue of research and innovation. The issue of innovation in agriculture has been undertaken in the CAP for a long time, but the effects are still insufficient. In addition, currently the implementation of innovations becomes all the more urgent and more important due to climate change which is increasingly preventing the reliance on the existing production solutions. Modern technologies and digitisation provide many solutions enabling the more efficient use of resources, therefore, a particularly important issue for the CAP is to provide small- and medium-sized farms with access to such solutions. This also applies to access to knowledge and, consequently, strengthening the farm advisory system implemented in the model popularised for many years – agricultural knowledge and innovation system – AKIS.

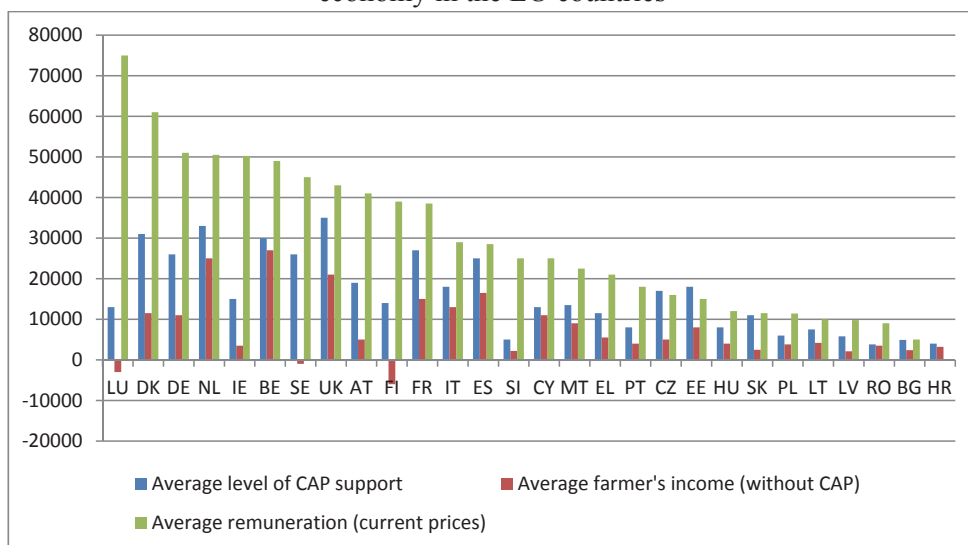
The communication noted that farmers' income in most Member States is, on average, significantly lower than income in other sectors of the economy (Fig. 1.27). At the same time, a need to promote the more sustainable distribution of support has been identified and the following solutions have been mentioned to be considered:

- Mandatory upper limit of direct payments, taking into account the level of employment;
- Degressive payments as a way of reducing support for larger farms;

- Redistributive payment to target support;
- Support for only active farmers for whom the agricultural activity is a source of maintenance.

Important was also considered to increase the role of the CAP in helping farmers obtain greater income from the agricultural activity. It is about supporting the creation of producer organisations, diversification of the activity and empowering farmers in the food chain. In this context, the improvement in implementing investment support has also been mentioned. This is to be achieved through better integration of advice, promotion of collective investments and enhancement of synergies between investments and innovations. It has been stressed that the current investment gap should be eliminated through the use of innovative financial instruments.

Figure 1.27. Level of income in agriculture and of remunerations in the entire economy in the EU countries



Source: European Commission (2017).

It should be noted that the communication often indicated the EU policy objectives related to the bio-economy and circular economy. These issues are particularly strongly raised in the context of the rural development as a way of developing and creating new rural jobs.

As regards risk management, attention has been drawn to the issue of improving farmers' knowledge (the above-mentioned AKIS). It has also been announced to create an EU-level platform being a forum for the exchange of opinions and experiences on risk management among farmers, public administration

and other stakeholders. An important element was the increase in coherence between actions taken at the EU and national level. As regards the new directions for finding ways to manage risk, the financial instruments have been indicated that could be used for current deficiencies of financial resources. The financial instruments used so far applied only to loans and credits for investment purposes. The introduction of the financial instruments in a form of working credits will be an important novelty in the functioning of the CAP. However, a question arises to what extent the specific solutions will make this instrument useful and popular.

The second new application of the financial instruments is to be support for persons taking up agricultural activity. This means that instruments need to be adapted to the beneficiaries with a higher level of risk.

As a new proposal in improving the competitiveness of agriculture, but also in terms of long-term risk management, we can also consider the indication of the new role of the CAP. This policy is to help farmers anticipate changes in the demand level resulting from changes in consumers' eating habits. The CAP is also intended to help farmers adapt to these changes.

As far as environmental issues are concerned, it is envisaged to have the more targeted and ambitious but flexible approach. One of the proposals here is to introduce, within the framework of the CAP strategy, nutrient management plans obligatory for each Member State and the incentives for precision farming. A prerequisite to receive a full amount of subsidies will be the implementation of specific environmental practices. New, as defined in the communication, "optimised" environmental and climatic conditions are to be determined in detail by the individual Member States so as to ensure that the specific environmental needs and risks of the given area are included. They are also to contribute to achieving the objectives set at the EU level. It is the Member State which will have to guarantee that the objectives are implemented and that monitoring of their implementation is fully reliable. According to the authors of the communication, this solution means simplification, as there will be only one level of requirements. It is difficult, however, to agree with this opinion. The requirements at the national level do not constitute any simplification and reduction in the administrative burden, either for public administration or for farmers. The only change is a possibility of concluding that this is not the burden imposed by the EU, but the requirements designated by the given country.

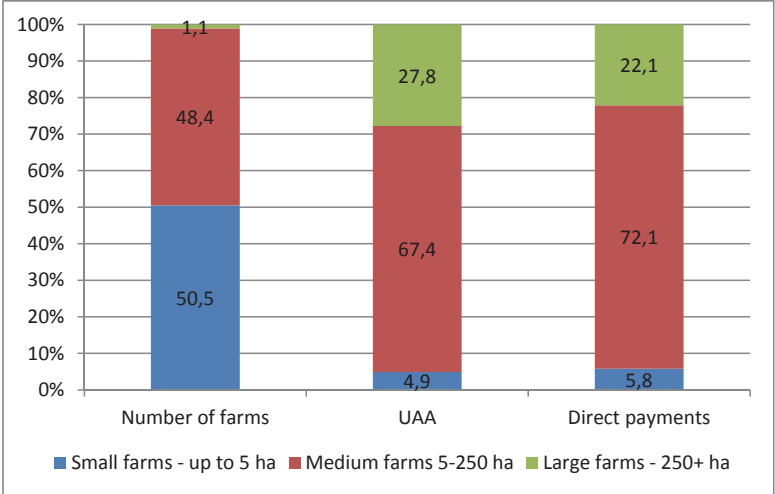
With regard to the rural development policy, it is noteworthy that the EC is going to look at other areas of its activity through the prism of the rural development. The new slogan with regard to the rural development is the concept of the so-called smart villages. It is just developing under various types of pilot programmes. The EC wants to support the rural development by increasing their



potential, supporting investments and innovations, improving infrastructure and developing the skills of rural residents.

The level of direct payments is an important issue. Given the schedule of work on the EU multiannual financial framework, no specific amounts appear in the communication. However, this issue has been addressed in the context of differences in the level of subsidies, by pointing to the still existing problem related to the fact that most payments are received by large farms. However, data on the structure of farms in terms of their share in the number, size of the utilised agricultural area and direct payments shows that the share of the largest farms in the support structure is even now significantly smaller than their share in the utilised agricultural area (Fig. 1.28). Thus, it should be considered whether the further extension of the application of the support limits is a good solution. Tightening the support limits can result in a significant reduction in the competitiveness of the largest agricultural producers, and it is their production which is of utmost importance for the food industry and food export.

Figure 1.28. Structure of farms in the EU



Source: Plewa (2017).

In its communication, the EC also stated that “the CAP must be functioning in accordance with the principle of equality among the small and large countries in the east or west, north or south, which has been referred to by President Juncker in his address on the state of the EU of 2017. In this sense, we should seek to reduce the differences among the Member States in terms of CAP support. Even if we recognise the large diversity of relative labour and land costs and different agricultural potential, which exist in the EU, the challenges faced

by all EU farmers are alike.” This statement suggests that payment rates may be aligned pursuant to the principle of equality, which would mean that the economic issues would not be taken into account. However, attention should be paid to another fragment of the EC communication, in which the EC has indicated that “direct payments will be more effective and more efficient if they are simplified and better targeted. However, any change will have to protect one of the key advantages of this policy: the protection of the efficiently functioning internal market created by the CAP over years.” This suggests further, although incomplete, reductions in the level of differences in the average payment rates among the Member States.

As Dudek stated, the shape of the CAP results from a conflict and cooperation among various stakeholders (Dudek, 2017). The EC communication is the first step towards a further process of developing the shape of the CAP post-2020. This communication sets the direction for further discussion. It seems that the changes will not be revolutionary. We can see this, *inter alia*, when comparing the CAP objectives set out in the current EC communication and the EC communication preceding the latest reform (European Commission, 2010). Previously, as the objective related to the agricultural activity the EC regarded the profitable food production, and now – supporting the smart and resilient agricultural sector. Although both objectives are formulated differently, both communications pointed to the similar issues – support for farmers’ income, competitiveness of the sector and its position in the food chain. The second objective was previously sustainable management of natural resources and climate action, and now this is the increased environmental concern and the intensification of climate action so as to contribute to achieving the EU objectives related to the environment and climate change, which is exactly the same objective, just differently formulated. The third and final objective was previously the sustainable territorial development, and now – strengthening the socio-economic structure of rural areas, which is also just another way of formulating the same objective.

## 2. Conservation auctions as a tool for internalising externalities and supplying public goods by agriculture

### Introduction

The interest in using market instruments in agricultural policy for environmental protection is systematically increasing. There is a growing number of research experiments in which attempts are made to determine the factors determining the effectiveness of the implementation of them, as well as the cases of their actual application in the practice of environmental protection. Among these instruments there are various forms of conservation auctions. The practical application of an auction in respect of environmental protection in agricultural activity dates back to 1986, when the Conservation Reserve Program was launched in the United States<sup>94</sup>.

The most important problem of the implementation of agri-environmental instruments is the estimation of their value. Instruments for providing environmental services usually encounter the following problems related to the level of payments:

1. The payments are higher than the opportunity costs and even more than the value of the ES provided, resulting in uneconomical social costs, high information rents, and eventual negative effects on the efficiency and scale of the whole program.
2. The payments are lower than the losses incurred when farmers change their activities, i.e., the opportunity costs to participate in the program; and
3. Inappropriate payments such as a uniform price payment system lead to providing lower compensation for high-opportunity-cost and higher compensation for low-opportunity-cost<sup>95</sup>.

Generally, all kinds of auctions are an instrument that is particularly useful in situations where there is no functioning market in relation to a given good<sup>96</sup>. The use of an auction allows reducing the asymmetry of information<sup>97</sup> between the parties to the contract. However, when applying them, there may be

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<sup>94</sup> U. Latacz-Lohmann, C. van der Hamsvoort, (1997), *Auctioning Conservation Contracts: A Theoretical Analysis and an Application*, American Journal of Agricultural Economics 79, 407-418.

<sup>95</sup> X. Deng, Z. Xu (2015), *Green Auctions and Reduction of Information Rents in Payments for Environmental Services: An Experimental Investigation in Sunan County, Northwestern China*, PLoS ONE 10(3), p. 1-15.

<sup>96</sup> U. Latacz-Lohmann, C. van der Hamsvoort C. (1998), *Auctions as a Means of Creating a Market for Public goods from Agriculture*, Journal of Agricultural Economics, 49, 334-345.

<sup>97</sup> G. Stoneham, V. Chaudhri, A. Ha, L. Strappazon (2003), *Auctions for conservation contracts: an empirical examination of Victoria's Bush Tender trial*, The Australian Journal of Agricultural and Resource Economics 47, 477-500.

a problem of strategic bidding behaviour, also called bid shading, i.e. a situation where bidders submit bids exceeding their actual costs of participating in the environmental protection program, which may limit the benefits of the auction.

From the point of view of external effects and public goods concerning agriculture, the most important issue effectively resolved by conservation auctions is the uncertainty as to the value of the auction item. This advantage means that conservation auctions can be an effective way to achieve environmental objectives as part of agricultural policy. In practice, the value of environmental public goods determined through conservation auctions can be a result of private and public values<sup>98</sup>.

The purpose of this chapter of the monograph is to assess the possibility of using conservation auctions as an instrument used to increase the scale of public goods provided by the agricultural sector and to reduce the negative environmental externalities generated by this sector. The chapter is of a review nature and is based on a meta-analysis of the results of the research conducted so far on the use of auctions in agricultural policy.

### **General characteristics of auctions**

Conservation auctions also known as conservation tenders<sup>99</sup> are one of the market and quasi-market instruments increasingly being analysed from the point of view of their applicability in the agricultural policy to achieve objectives related to the provision of public goods or minimizing the scale of negative externalities related to the agricultural activity<sup>100</sup>. However, it should be noted that the knowledge about conservation auctions is still very limited, which should not come as a surprise because only since the beginning of the 21st century, scientific experiments to optimize the implementation solutions of the conservation auctions that maximize the effectiveness of this instrument have been conducted on a larger scale. It is also worth adding that the number of this type of research works seems small considering the number of problems still remaining to be investigated in relation conservation auctions. According to Schilizzi<sup>101</sup>, from the beginning of the twenty-first century until 2014, a total of around 40 laboratory

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<sup>98</sup> B.K. Jack, 2009, *Auctioning conservation contracts in Indonesia – participant learning in multiple trial rounds* [in:] CIP Graduate Student and Research Fellow Working Paper No. 35. Center for International Development at Harvard University.

<sup>99</sup> The other terms used in the literature are: procurement auction and reverse auction.

<sup>100</sup> B. Wieliczko, A. Kurdyś-Kujawska, J. Herda-Kopańska (2016), *op. cit.*

<sup>101</sup> S.G.M. Schilizzi (2017), *An overview of laboratory research on conservation auctions*, *Land Use Policy* 63, p. 572-58.

experiments were carried out relating to the auction as an instrument for the delivery of environmental public goods.

Analysing the use of conservation auctions should cover a wide range of research problems. First of all, it should be specified how the type of conservation auction, the rules of its implementation and the characteristics of the participants influence the effects of using this instrument (Fig. 2.1).

In the theory of auctions, there is a theorem of income equivalence. According to it, various forms of auctions bring on average similar revenues, and in the case of reverse auctions, as in the case of auctions regarding public goods, auctions bring the same costs if the following conditions are met:

- Participants are risk neutral;
- Participants have their own independent values, independent of other participants;
- The purchase applies to a single unit of a homogenous good;
- There is a single payment;
- There are no transaction costs<sup>102</sup>.

However, in reality these criteria are not met, therefore, it is necessary to look for the optimal shape of the auction for the given conditions.

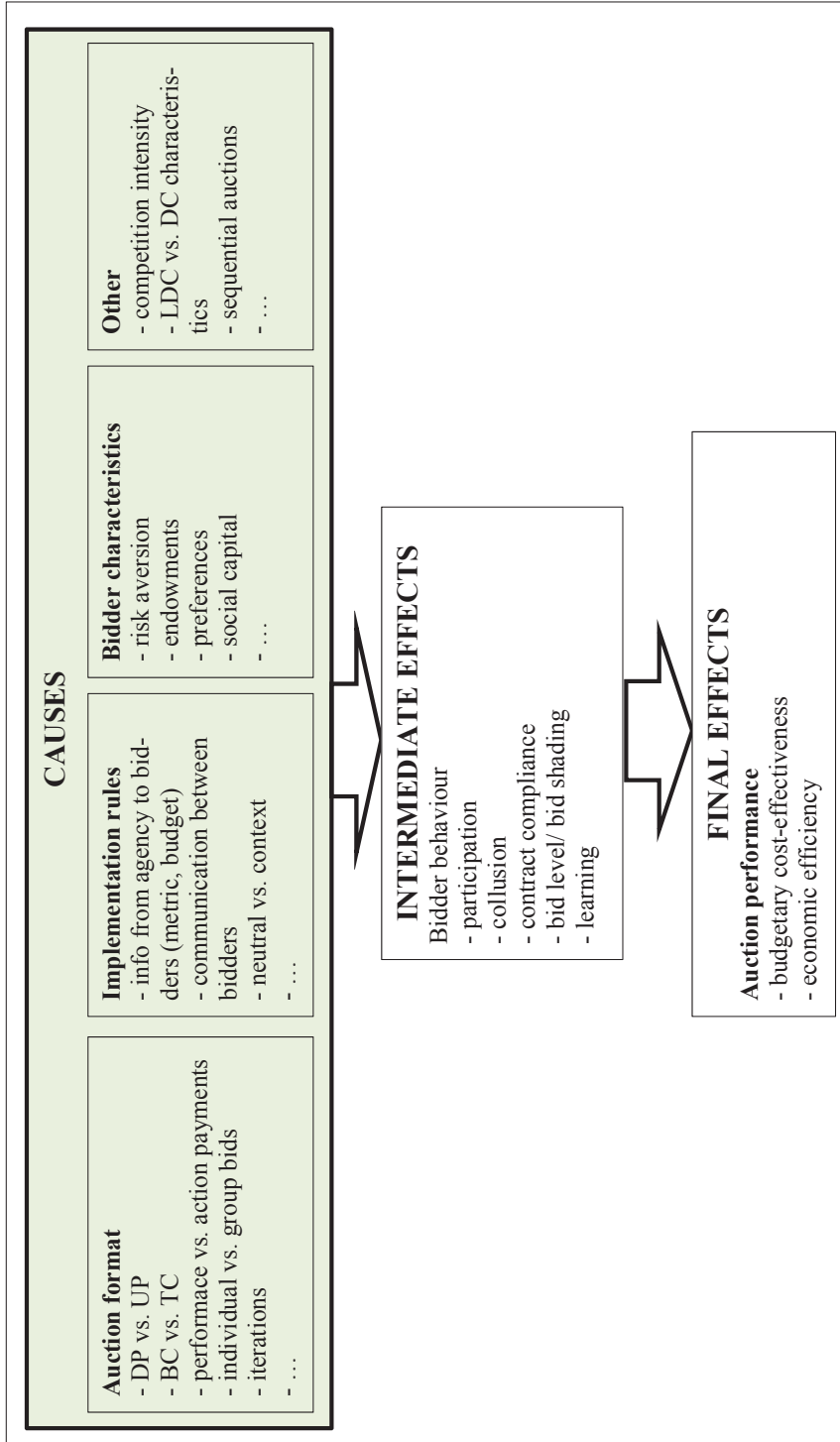
There are many combinations and variants of shaping the rules for participating in auctions and selecting the winning offer. At the same time, four basic types of auctions are distinguished in the literature on the subject: English auctions, Dutch auctions, first-price sealed bid auctions and second-price sealed bid auctions.

We can also deal with auctions in which the upper limit (bid cap) of the offered amount is set. There are also auctions with one or more rounds of offers. In the case of many rounds, participants of the auction can change their price in subsequent rounds. An important distinction is also the issue of restrictions imposed on the purchaser of public goods in conservation auctions. It can introduce a budget restriction, which means that the buyer will pay for as many units of the services provided as it is possible within the adopted budget. However, in the case when the target is defined in advance, i.e. the size of the area covered by the program and the budget is not set in advance, the buyer selects the number of program participants that will ensure the achievement of the goal. In both cases, we have uncertainty about the scale – in the first case of the effects that we will obtain, and in the second case of the expenditure, which will have to be incurred in order to obtain the expected scale of program implementation.

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<sup>102</sup> S.M. Whitten, T. Wünscher, J.F. Shogren (2017), *Conservation tenders in developed and developing countries – status quo, challenges and prospects*, Land Policy Use 63, p. 552-560.

Figure 2.1. Framework for the analysis of conservation auctions



Source: Schilizzi (2017), fig. 2.

Another important issue is the scope of information provided to auction participants. The purchaser of public goods may inform participants of such important issues as the possible occurrence of a budgetary constraint or a specific objective of the program. Providing or not providing such information may affect the results of the auction.

Regardless of the detailed solutions, the scheme of the auction operation is the same (Fig. 2.2). The results of the auction are affected by the features of the plot covered by the project and agro-technical skills as well as knowledge of the auction participant and its socio-economic characteristics. No less important is the process of project implementation, and in particular monitoring the implementation of tasks to which farmers participating in the auction have committed.

In the case of conservation auctions, auctions of many units of the auctioned item (multiunit auctions) are an important type of auction. In this type of auction, a certain number of identical units of a given item is sold. If the price is the same for all units, then we are talking about a uniform auction and a uniform price, but we can also deal with different levels of this price. It may be the amount equivalent to the price offered by the last person who was qualified to perform the contract for the provision of public goods or the price proposed by the person qualified first (i.e. the highest price offered during the auction) or any resultant / average of these prices. However, in the case of price differentiation of individual units, we are dealing with a discriminatory auction / pay-as-bid auction / discriminatory price auction.

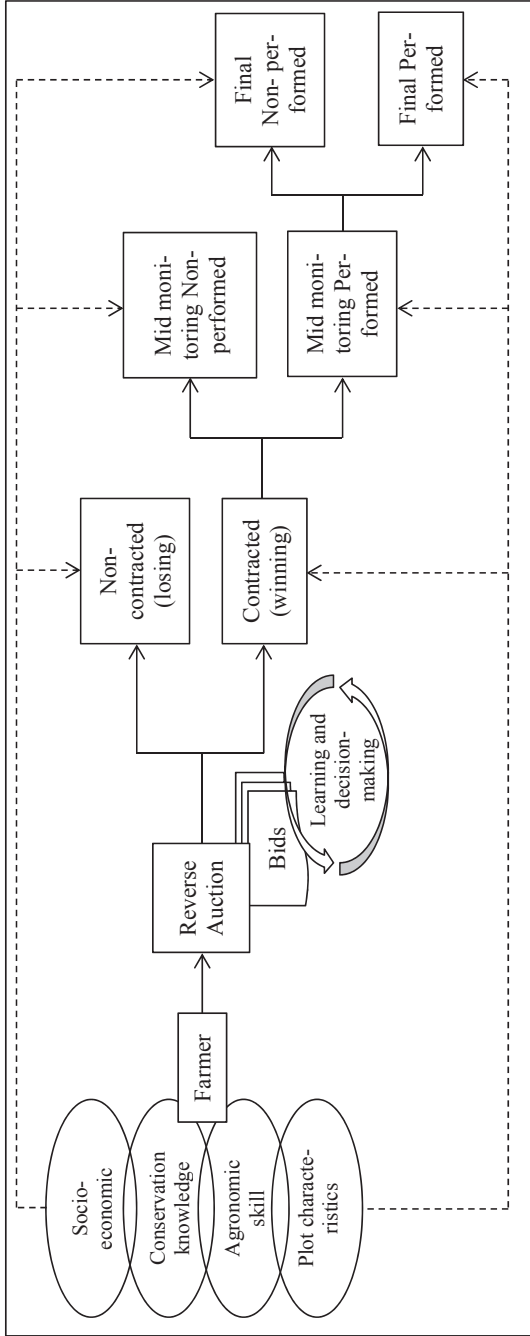
It should be added that in the case of public goods auctions, as in the case of all forms of environmental payments:

1. the transaction between the parties is voluntary;
2. the subject of the transaction is precisely defined;
3. there is at least one buyer;
4. there is at least one service provider<sup>103</sup>.

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<sup>103</sup> S. Engel, S. Pagiola, S. Wunder (2008), *Designing payments for environmental services in theory and practice: An overview of the issues*, Ecological Economics 65, p. 663-674.

Figure 2.2. Schematic diagram of a reverse auction leading to the allocation of a conservation contract and its performance



Source: B. Leimona, L.R. Carrasco (2017).



Theoretical analyses indicate that in the case of auction participants of which are characterized by risk aversion, the first price auctions give a higher income to the auctioneer than English auctions or second-price auctions (Riley, Samuelson, 1981). According to Latacz-Lohmann and van der Hamsvoort<sup>104</sup>, in the case of pro-environmental activities, the risk aversion characterizing many farmers may translate into a willingness to lower the offered price for providing environmental services to guarantee the auction winning, as environmental payments are a non-stochastic component of income and thus reduce uncertainty as to the total income of the farmer.

When considering the possibility of using the auction as an element of agricultural policy, their disadvantages and limitations should also be taken into account. The key problem is the level of transaction costs incurred by both public institutions and farmers. No less important is the issue of spatial targeting of instruments for the provision of public goods by agriculture. On the one hand, these instruments must cover a large area (i.e. larger than a single farm) so that the obtained effects are noticeable. On the other hand, too narrow a group that can participate in a given action will result in a lack of competition between bidders.

No less important is the phenomenon of adverse selection, and especially the rent seeking behaviour, which may occur especially in the case of repeated actions. As Kulawik shows<sup>105</sup>, each of the policy mechanisms oriented at reducing the information rent in environmental programs has its advantages and disadvantages and it is difficult to determine unambiguously which of them is the best from the point of view of the state (Tab. 2.1). However, according to Reese and others<sup>106</sup>, to reduce the problem of adverse selection in the case of auctions, it is best to use multi-stage bidding without information on how many stages it will cover. In this situation, the bidders wanting to win the bidding try to adjust the price to the level of actually incurred costs of the given environmentally friendly obligation.

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<sup>104</sup> U. Latacz-Lohmann, C. van der Hamsvoort (1997), *op. cit.*

<sup>105</sup> J. Kulawik (2016), *Wybrane aspekty ekonomiczno-fiskalne zrównowazenia i wielofunkcyjności wsi i rolnictwa*, IERiGŻ-PIB, Warszawa.

<sup>106</sup> A. Reeson, L.C. Rodriguez, S.M. Whitten, K. Williams, K. Nolles, J. Windle, J. Rolfe (2011), *Adapting Auctions for the Provision of Ecosystem Services at the Landscape Scale*, *Ecological Economics* 70, 1621-1627.

Table 2.1. Possibilities of reducing information rent  
(the effect of negative selection) obtained in environmental payments

Specification	Target based on costly-to-fake signals	Screening contracts	Procurement auctions
Institutional complexity	+	++	+++
Informational complexity	++	+++	+
Technical complexity	+	+++	++
Rent reduction	+	++	++
Comments	Good when correlations between signals and landowner costs are strong; information acquisition can be costly; field examples exist	Theoretically powerful; technically challenging; no field examples	Rent reduction requires competition among sellers; ability to reduce rents in a repeated contract environment is unknown; field examples exist

Legend: + low impact; ++ medium impact; +++ large impact.

Source: Kulawik 2016.

### Conclusions from previous research on factors determining the effectiveness of the conservation auctions

The effects of conservation auctions depend on a number of different factors. Apart from the selection of the type of auction, the characteristics of potential participants (e.g. preferences, risk aversion), characteristics of the farm owned (including in particular the costs of possible participation in the auction) and criteria for participation and implementation rules have to be taken into consideration<sup>107</sup>. According to Rousseau and Moons<sup>108</sup>, conservation auctions are effective in terms of the allocation of funds if the selected participants offer the highest level of services in relation to the price, and these prices reflect the social value of the resources.

Assessment of the use of various types of auctions in relation to environmental issues of agricultural policy is still based mainly on the results of theoretical considerations and conclusions drawn from various types of experiments. The results of the research confirm the increase in the effectiveness of environ-

<sup>107</sup> S.G.M. Schilizzi (2017), *op. cit.* i K. Reichelderfer, W.G. Boggess (1988), *Government decision making and program performance: the case of the Conservation Reserve Program*, American Journal of Agricultural Economics 70, p. 1-11.

<sup>108</sup> S. Rousseau, E. Moons (2008), *The potential of auctioning contracts for conservation policy*, European Journal of Forest Research 127, p. 183-194.

mental policy implementation. However, the sheer scale of this growth varies and ranges from a few to several hundred percent<sup>109</sup>.

Among the problems related to the use of conservation auctions within the agricultural policy there are also the ways of selecting participants, payment methods and enforcing contracts (Tab. 2.3). There are still many questions and doubts about the optimal shape of conservation auctions.

Table 2.2. Selected issues of shaping conservation auctions

Conservation tender design issue	Status quo	Emerging issues
Ranking metrics (accounting for heterogeneity)	Benefit indices or scoring approaches are common but many tenders use area or other simple metrics.	Balancing the cost and complexity of more complex measures with practical implementation. Calibrating benefit estimates with purchaser values.
Single or multiple payments	Both forms are common depending on context and funding arrangements.	Evidence for effectiveness of differing approaches is needed to improve future tender design.
Contract compliance and enforcement	Almost no discussion. Presumed similar to agri-environmental schemes more generally.	Opportunity for future research.
Individual or group contracts	Individual dominant with emerging evidence of group contract effectiveness in developing country settings.	Are group contracts only effective in developing countries and for specific outcomes or are there opportunities in other settings?
Payments in cash or kind	Cash payments are most common.	Exceptions using materials or vouchers exist with unknown efficiency implications.

Source: Whitten et al. (2017), tab. 2.

One of the key problems with conservation auctions is the issue of high transaction costs. This problem may be limited by auctions involving not only individual farmers but their groups<sup>110</sup>. Takeda and others came to similar conclusions<sup>111</sup>. They also drew attention to the more practical aspect relating to the

<sup>109</sup> M. Takeda, D. Takahashi, M. Shobayashi (2015), *Collective action vs. conservation auction: Lessons from a social experiment of a collective auction of water conservation contracts in Japan*, Land Use Policy 46, 189-200.

<sup>110</sup> U. Narloch, U. Pascual, A.G. Drucker (2012), *Collective action dynamics under external rewards: experimental insights from farming communities in the Andes*, World Development 40, 2096-2107.

<sup>111</sup> M. Takeda, D. Takahashi, M. Shobayashi (2015), *Collective action vs. conservation auction: Lessons from a social experiment of a collective auction of water conservation contracts in Japan*, Land Use Policy 46, 189-200.

use of conservation auctions. They stated that giving interested parties enough time to make a joint decision regarding participation in the auction and the offer submitted could reduce transaction costs.

It should be said that an extremely important conclusion from the research on conservation auctions concerning all environmental protection instruments is quite a trivial statement, but it is worth emphasizing that such activities should be structured so as not to negatively affect the production base of farms, because this can have very negative effects in the long run<sup>112</sup>.

It should be noted that when designing conservation auctions, one should not aim to maximize the number of participants, as such conduct leads to worse economic and environmental results compared to other instruments<sup>113</sup>. This is a particularly important consideration when attempting to provide specific environmental activities on a sufficiently large area, e.g. to ensure sufficiently large habitats of fauna or flora, attempts are made to create mechanisms that increase farmers' interest to participate<sup>114</sup>. At the same time, the imposition of a bid price limitation (bid cap) in target-based auctions limits the price offered by the auction participants, i.e. increases their cost effectiveness from the point of view of the state budget. At the same time, however, the use of price restrictions may be detrimental to the efficiency of conservation auctions. This happens when the restrictions are set too low, which means that potential participants do not take part in the tender, thus lowering auctions' environmental impact<sup>115</sup>.

According to Valle<sup>116</sup>, lowering the frequency of behaviours such as rent seeking serves also offering farmers contracts for a number of periods, and not just for one period of implementation of specific environmental activities. However, it is still an open question how such contracts would affect environmental effects. Another limitation of rent seeking is, as Bartczak and others point out, the auction participants, although they know the level of productivity of their own plot, they do not know its value in relation to the areas owned by the auction participants competing with them<sup>117</sup>.

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<sup>112</sup> *Ibidem*.

<sup>113</sup> P.C. Boxall, O. Perger, M. Weber (2013), *Reverse Auctions for Agri-Environmental Improvements: Bid-Selection Rules and Pricing for Beneficial Management Practice Adoption*, Canadian Public Policy/Analyse de Politiques, 39, p. 23-36.

<sup>114</sup> P.C. Boxall, O. Perger, K. Packman, M. Weber (2017), *An experimental examination of target based conservation auctions*, Land Use Policy 63, p. 592-600.

<sup>115</sup> D.M. Hellerstein (2017), *The US conservation reserve program: the evolution of an enrollment mechanism*, Land Use Policy 63, 601-610.

<sup>116</sup> H. Valle (2012), *Coordination and Strategic Behaviour in Landscape Auctions*. Uploaded from: <http://ageconsearch.umn.edu/bitstream/124466/1/2012AC%20Valle%20CP.pdf>.

<sup>117</sup> A. Bartczak, M. Krawczyk, N. Hanley, A. Stenger (2014), *Buying spatially-coordinated ecosystem services and biodiversity conservation on forest land: an experiment on the role of*

It is also worth looking at the literature on the subject of the American environmental protection program – Conservation Reserve Program<sup>118</sup>, under which farmers bid for the possibility of set aside their farmland for a period of 10-15 years. According to Kirwan and others<sup>119</sup>, between 10% and 40% of the amount farmers receive under this scheme was a share premium, i.e. the amount exceeded the costs associated with the participation.

The American experience also shows that just after the introduction of the program the farmers offered prices of environmental services they provided close to the limit set by the state, which resulted from the asymmetry of information between the parties<sup>120</sup>. This suggests that at the initial stage of conservation auctions' implementation their theoretical advantages do not necessarily have to be revealed.

The most important detailed conclusions from previous experiments in the field of environmental auctions are presented in Tab. 2.2. As it can be seen, there are limitations in many cases, which means that the actual effects depend on strictly defined conditions.

Among the many problems associated with auctions, there is also the question of estimating the expected benefits. As indicated by Whitten<sup>121</sup>, the analysis should start with the anticipated biophysical changes that will result from changes in the management of the area. This operation should be carried out for each station planned for the implementation of the program, and then assessed for the possibility of synergy or other types of interaction between areas. In practice, different solutions are used. Examples are shown in tab. 2.3.

It is worth noting that programs that operate longer, such as the American Conservation Reserve Program, undergo various modifications and changes. In the case of this program, the key changes concerned the rules of participation. Initially, the participation criteria provided a very wide base of potential participants, which over time was changed and very competitive participation conditions were introduced. Currently, the system is mixed and some participants

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*auction format and communication*, University of Warsaw, Faculty of Economic Sciences, Working Papers No. 19/2014 (136).

<sup>118</sup> *Conservation Reserve Program: Status and Current Issues* (2011), Congressional Research Service.

<sup>119</sup> B. Kirwan, R.N. Lubowski, M.J. Roberts (2005), *How cost-effective are land retirement auctions? Estimating the difference between payments and willingness to accept in the conservation reserve program*, *American Journal of Agricultural Economics* 87, 1239-1247.

<sup>120</sup> R. Shoemaker (1989), *Agricultural land values and rents under the conservation reserve program*, *Land Economics* 65, 131-137.

<sup>121</sup> S.M. Whitten (2017), *Designing and implementing conservation tender metrics: Twelve core considerations*, *Land Use Policy* 63, 561-571.

qualify due to offering a competitive offer, and some due to the environmental objective of nature protection<sup>122</sup>.

Table 2.3. Key results of conservation auction experiments

Results	Restrictions
Discriminatory price (DP) format is more cost-effective than uniform price (UP) format	(DP > UP) depends on: <ul style="list-style-type: none"> <li>• Rate of bid shading</li> <li>• Shape of bidder cost curve</li> <li>• Differences in risk aversion</li> <li>• Degree of compliance</li> </ul>
Uniform price better if goal is to reveal underlying bidder costs	
Budget-constrained format more robust to bidder learning than target-constrained	Provided bidders know format
Budget-constrained and target-constrained more cost-effective than fixed price scheme in one shot but lose edge with repetition	
Payments can be linked to uncertain outcomes or contracts can be auctioned, but usually not both	
Q-based bidding is more robust to learning than P-based	But in one-shot no clear difference
Multi-round auctions achieve greater efficiency, and yield cooperation among bidders	But greater transaction costs But more gaming/collusion
Agglomeration bonuses increase size and quality of bid pool; spatial targeting selects best land units	
Conservation auctions can 'crowd out' people with willingness to accept compensation $\leq 0$	If bidders also hold social preferences
Withholding info on value of environmental outcomes increases auction efficiency	
If bidders are uncertain as to their own opportunity costs, they are less willing to put in a bid and bids and auction cost efficiency (CE) are more volatile	These results are affected by bidder risk aversion but it is unclear how
Communication between bidders does increase collusion but also sharing of benefits at the end	
UP format mitigates rents from collusion more than DP	
Revised bids in multi-round auctions yields better coordination for catchment scale outcomes, provided that. . .	... provided that a lock-in rule is used in the iterated auction.
Network or group leaders reduce cost efficiency of auction but. . .	... social networks can increase CE if group-performance incentives are used
For steeper bidder cost curve, UP's CE increases relative to DP's. . .	... but very steep cost curves make the use of auctions inadequate
UP less sensitive to changes in shape of cost curve than DP	
Relative difference of bid shading between low cost and high cost bidders depends on shape of cost curve	
Distributional outcomes and equity preferences affect auction performance	

Source: Own elaboration based on Schilizzi (2017), tab. 1.

<sup>122</sup> D.M. Hellerstein (2017), *op. cit.*

Table 2.4. Sample algorithms for estimating environmental benefits of auctions

Conservation tender	Benefit estimate algorithm
Conservation Reserve Program (1995 onwards)	$EBI = \sum(N1 \dots N6)$ where: N1...N6 represent the factor scores for Wildlife, water quality, erosion, enduring benefits likely to remain beyond contract, air quality and cost. Part of the points for N6 (cost per acre) are awarded after tenders are received based on actual offer data. Points for all other factors are derived from a schedule of management actions (such as multi-species plantings, trees and type etc.).
BushTender	$BBI = (\text{Biodiversity significance score} \times \text{Habitat Service Score})$ where: Biodiversity significance score (BSS) represents the score for current site quality relative to a reference condition (multiplied by hectares), Habitat service score (HSS) represents the threats present from landscape configuration and the effectiveness of any actions offered including habitat maintenance, habitat improvement, security via a permanent protection agreement, contract length, and area of site.
Environmental Stewardship Program (2008–2010)	$CVM = (\text{Landscape context} + \text{Change to patch condition}) \times \text{ha} \times \text{Years} \times \text{Security}$ where: Landscape context = rarity of vegetation community and percentage of native vegetation in neighbourhood, Change to patch condition = the predicted impact of management actions on condition attributes given initial ecological condition relative to predicted ecological condition absent management at end of contract, ha = hectares, Years = contract length, Security = bonus weighting via a permanent protection agreement.
NatureAssist*	$EBI = \text{ha} \times [\sum(\text{Criteria weight} \times \text{Normalized criteria score})]$ where: Criteria weight = weight assigned to criteria, Normalized criteria score = score normalized for the distribution of scores for that criteria to allow comparison between different measures, ha = hectares. Twenty Five criteria were included in the NatureAssist MCA which was optimized using compromise programming, a technique designed to take into account the distance an individual score lies from the optimum. Around one third of weights relate to the impact from a management agreement. Security is included within the EBI and includes management history and proposed monitoring.
Environmental Stewardship Program (2011–2012)	$CVM = \text{Probable future condition} \times \text{Condition value} \times \text{ha} \times \text{Years} \times \text{Security}$ where: Probable future condition = likelihood of a site being in a particular ecological state (in an ecological state and transition model) given the starting condition, threats present, and management actions offered, Condition value = conservation value assigned to ecological state, ha = hectares, Years = contract length, Security = bonus weighting via a permanent protection agreement.

\* slightly generalized for simplicity – does not impact on intent

Source: Whitten (2017), tab. 2.



Practical examples of the use of conservation auctions should also be mentioned. These examples are very diverse, but all point to the high potential of the auction in generating public goods (Tab. 2.4.). The increase in efficiency in individual cases varies, and the results may reach even 315%<sup>123</sup> or 700%<sup>124</sup>.

In addition to all the problems and difficulties related to the implementation of conservation auctions aforementioned described, such as the potential of implementing institutions to carry out such tasks, the fundamental problem is the existence of a competitive market, i.e. existence of a diversified level of costs for implementation of given activities by individual farmers<sup>125</sup>. If there is no such differentiation, the auctions will not be an effective instrument. Another fundamental problem which the public choice theory speaks of is the risk that individuals will not receive adequate incentives to increase the efficiency of using public funds. Past experience indicates that such situations may occur as in the case of auctions in Canada<sup>126</sup>. Research indicates that the risk and high costs of participating in the program are discouraging for potential participants<sup>127</sup>.

Despite the growing number of experiments concerning the functioning of various auction models, they still know what are the best results in terms of environmental protection and cost effectiveness. As pointed out by Schilizzi<sup>128</sup>, among the still unresolved issues include the following problems:

- The influence of parameters used in experiments on their results.
- Possible differences in the assessment of individual solutions depending on the adopted evaluation criteria.
- Identification of factors affecting the behaviour of auction participants.
- Impact of social networks on group participation in auctions.
- The importance of the learning process of auction participants.
- The impact of various information on the behaviour of participants and the results of the auction.

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<sup>123</sup> B. White, M. Burton (2005), *Measuring the efficiency of conservation auctions* [in:] Contributed paper at the 49th Annual Conference of the Australian Agricultural Economics Society Conference, Coffs Harbour, NSW, Australia.

<sup>124</sup> G. Stoneham, V. Chaudhri, A. Ha, L. Strappazzon (2003), *op. cit.*

<sup>125</sup> J. Rolfe, S. Whitten, J. Windle (2017), *The Australian experience in using tenders for conservation*, Land Use Policy 63, 611-620.

<sup>126</sup> M.R.J. Hill, D.G. McMaster, T. Harrison, A. Hershmillier, T. Plews (2011), *A reverse auction for wetland restoration in the Assiniboine River Watershed, Saskatchewan*, Canadian Journal of Agricultural Economics 59, 245-258.

<sup>127</sup> D. Hellerstein, N. Higgins, M. Roberts (2015), *Options for Improving Conservation Programs: Insights From Auction Theory and Economic Experiments*, ERR-181, U.S. Department of Agriculture, Economic Research Service.

<sup>128</sup> S. Schilizzi (2017), *op. cit.*



- Impact of the function of the costs of participation in the auction on the participants' decisions.

Table 2.5. Examples of the use of environmental auctions

Auction name	Problem	Key design	Noteworthy results	Lessons learned
Conservation Reserve Program (USA)	Land set-aside	Multiple signup; multicriteria bid ranking	Long-lasting; 10% of US farmland enrolled	Bidders learn to game the auction
BushTender (Australia)	Buy bush management and conservation	Individual management plans	Large cost savings relative to fixed prices	High initial investment and learning costs
Auction for Landscape Recovery (Australia)	Multidimensional auction targeting biodiversity, salinity, groundwater	Setup similar to BushTender but allows for joint bidding and site synergies	Cost savings significant but less than for BushTender	3 types of bidders; auction performance depends on benchmark
Challenge Funds (United Kingdom)	Extension of woodland area, among other things	Individual planting plans; multi-criteria bid ranking	Very effective in achieving objectives; some cost savings	20% higher admin. costs; considered 'unfair' by some; discontinued
Grassland Pilot (Germany)	Encourage broader participation in agri-environmental schemes	Auction used to determine top-up payment	Low rate of participation; fewer bidders than expected	Payment level not the only determinant of participation
Outcome based auction (Germany)	1) Payment on output, not input 2) Estimate transaction costs	Simple classification of output quality	Low transaction costs reflect simple scheme	Compare output and input based payments

*U. Latacz-Lohmann, S. Schilizzi (2005).*

## Summary

Due to the constantly growing need for greater environmental protection, including both reducing external effects unfavourable for nature and increasing the supply of public goods by agriculture, interest in both auctions and other market instruments is increasing. Auctions are, unlike agri-environmental programs, instruments of agri-environmental policy, in the case of which farmers define the initial amount for which they will implement specific environmental actions.

However, the knowledge on how to design and implement the auctions is still small, and the conducted experiments and theoretical analyses often do not take into account or simplify the important real conditions that may affect the functioning of the environment based auction support. An example is the diversification of the production value of individual plots potentially included in environmental activities. Therefore, in the absence of certainty as to the level of prices offered by others, they cannot afford to significantly inflate prices, which is conducive to the effectiveness of the auction.

It is worth mentioning that in the European Union within the framework of rural development programs it is possible to implement agri-environmental measures (in the 2014-2020 programming period called agro-environmental-climate) in the form of auctions, referred to in the applicable tenders (Regulation 1698/2005 ) or calls for proposals using economic and environmental performance criteria (Regulation 135/2013). However, this solution did not meet the interest of the Member States.

To sum up, the current results of research on the use of auctions for the supply of public goods and environmental protection in agriculture can be said to be an instrument that can significantly increase cost and environmental effectiveness in comparison with the tools used so far. In addition, it is known that the optimization of the shape of the auction requires consideration of the existing conditions, and the success of the auction is strongly dependent on political and institutional support.

However, the knowledge about what detailed solutions ensure the best results is still insufficient. It is connected with the huge complexity of the functioning of the auction and the multitude of interactions affecting the actual effects. This limits the use of the auctions in practice, which is why they have not become a widely used tool for environmental protection. However, it can be assumed that their application will systematically grow with the increase in knowledge about their functioning and in connection with the search for cost-effective solutions from the point of view of the state budget.

It seems that the auctions at this stage should be introduced in the form of pilot programs due to the need to “tame” farmers with such an instrument, as well as to gain knowledge about the actual advantages and disadvantages of this instrument in order to optimize the use of the auction on a wider scale.

### 3. Fiscal multipliers in agriculture

#### Introduction

Fiscal multipliers play an important role in the macroeconomic theory. They can be defined in the simplest way as the ratio of the change in the output volume to the change in the volume of a fiscal policy instrument. For example:  $\frac{dY_t}{dZ_t}$ , where  $Y$  stands for the output (or any other variable activity), and  $Z$  stands for a fiscal instrument, i.e. government spending on goods and services, government transfers, taxes or tax rates. Fiscal multipliers in this form are classified as impact multipliers.

In the literature, a fiscal multiplier is interpreted in a variety of ways. It is mainly considered to describe the impact of changes in the nature of fiscal instruments on real GDP.

The correct estimation and appropriate use of fiscal multipliers is the key to ensuring the accuracy of macroeconomic forecasts. These multipliers are quite important and should, therefore, be taken into account in political counseling and planning. Underestimating them may lead to difficulties in achieving fiscal targets, as well as incorrect calculation of the adjustment amount, which is necessary to reduce the debt ratio. All this can affect the credibility of fiscal consolidation programs<sup>129</sup>.

Despite the fact that fiscal multipliers bring numerous benefits, they are not widely used by economists in operational work. They have not been examined in the agricultural sector either, therefore an attempt was made in this work to estimate them.

Based on data from the Ministry of Finance (MF) and the Central Statistical Office (GUS), the values of multipliers of budget expenditure on agriculture and of multipliers of budget income from agriculture in Poland in 2001-2015 were estimated. The study was started by selecting the variables described in Table 3.1.

The presented variables enabled estimating both multipliers of budget expenditure on agriculture and multipliers of budget income from agriculture. In each group, five multipliers were estimated.

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<sup>129</sup> B. Wieliczko, A. Kurdyś-Kujawska, J. Herda-Kopańska (2016), *op. cit.*, p. 124.

Table 3.1. Description of the variables used to estimate fiscal multipliers

Variable	Name of the variable	Description
$Z_W$	Budget expenditure on agriculture	State budget expenditure budgeted in Section 32 – Agriculture, in PLN million
$Z_D$	Budget income from agriculture	State budget income generated in Section 32 – Agriculture, in PLN million
$Y_1$	Agricultural value added	Gross value added of agricultural output (current prices), in PLN million
$Y_2$	Agricultural output value	Value of global agricultural output (current prices), in PLN million
$Y_3$	Agricultural land area	Agricultural land area (as at 1 January) in thousand hectares
$Y_4$	Value of fixed assets	Gross value of fixed assets in agriculture and hunting (current standard prices) (as at 31 December), in PLN million
$Y_5$	Number of agricultural workers	Number of agricultural workers (as at 31 December) in thousand

Source: own study based on: <http://www.mf.gov.pl>; <https://stat.gov.pl>.

### Multipliers of budget expenditure on agriculture

Multipliers of budget expenditure on agriculture were estimated as follows:

$$\frac{dY_{it}}{dZ_{Wt}} \quad (1)$$

Table 3.2 presents estimated values of these multipliers in Poland in 2001-2015.

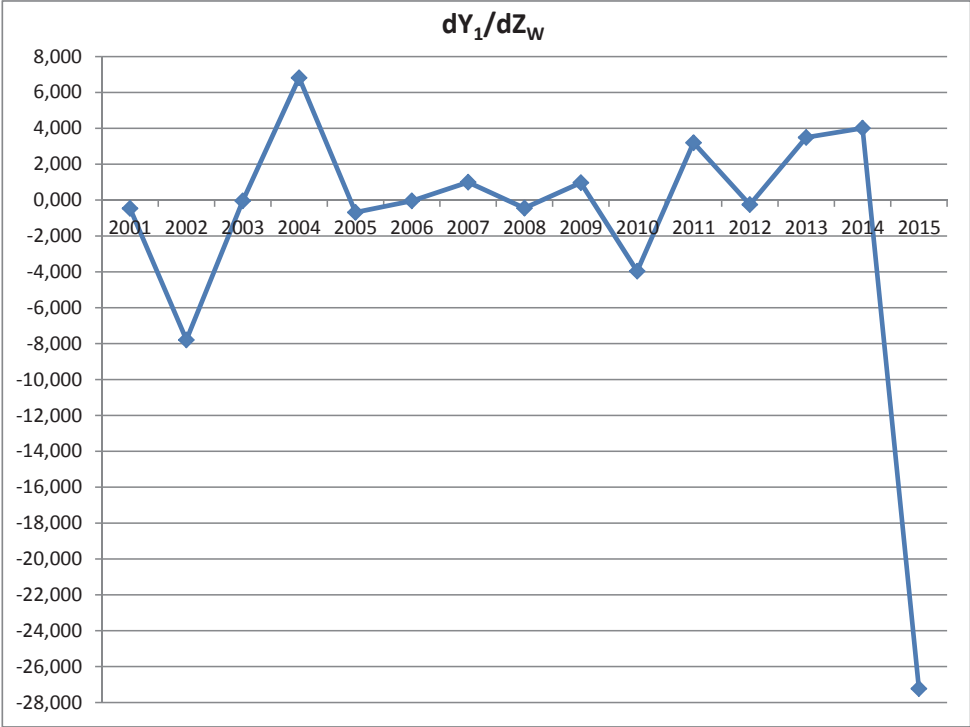
Table 3.2. Multipliers of budget expenditure on agriculture in 2001-2015

Budget expenditure multiplier \ Year	$\frac{dY_1}{dZ_W}$	$\frac{dY_2}{dZ_W}$	$\frac{dY_3}{dZ_W}$	$\frac{dY_4}{dZ_W}$	$\frac{dY_5}{dZ_W}$
2001	-0.466	-0.286	0.007	-0.020	0.008
2002	-7.791	-3.879	1.747	0.380	-0.086
2003	-0.040	-0.079	-0.032	-0.026	3.984
2004	6.818	3.220	-0.023	0.012	0.035
2005	-0.685	-0.498	-0.017	0.090	-0.004
2006	-0.046	-0.084	0.008	-0.062	0.000
2007	0.998	0.878	-0.005	0.080	-0.022
2008	-0.448	0.122	-0.014	0.115	-0.016
2009	0.970	-1.673	-0.101	0.954	-0.073
2010	-3.965	-1.792	0.082	-0.441	-3.863
2011	3.199	1.816	-0.031	0.212	-0.004
2012	-0.251	0.258	-0.025	0.276	0.003
2013	3.492	1.086	-0.074	0.719	0.011
2014	4.010	0.746	0.106	-0.918	-0.075
2015	-27.230	-16.242	-0.459	4.245	-0.022

Source: own study based on data from the Ministry of Finance and the Central Statistical Office.

Based on the estimates, charts for each multiplier were developed (Fig. 3.1).

Figure 3.1. Multiplier of budget expenditure on agriculture in relation o agricultural value added ( $YI$ ) in 2001-2015

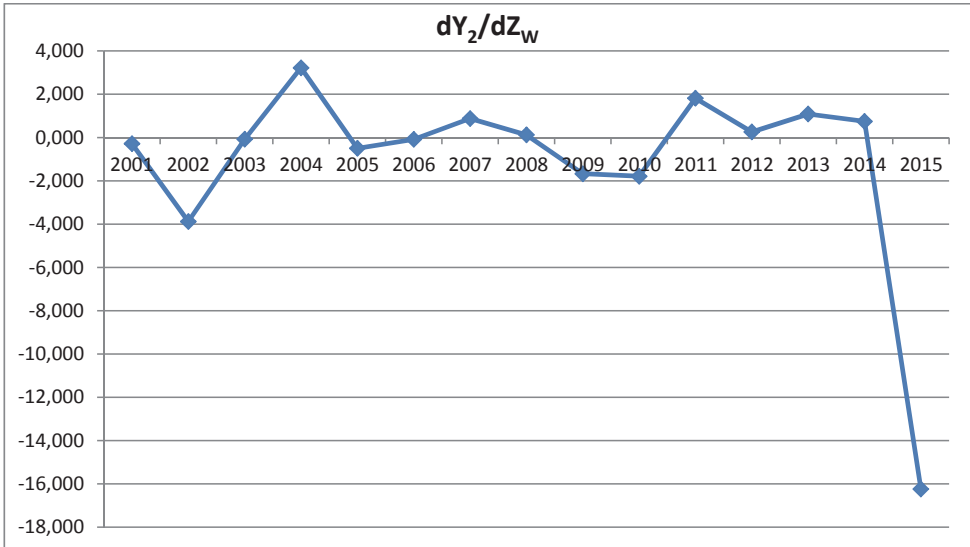


Source: own study based on data from Table 3.2.

Figure 3.1 presents the estimated values of the multiplier of budget expenditure on agriculture in relation to agricultural value added, calculated in accordance with equation (1) for 2001-2015. The multiplier values showed high volatility in the analysed period. Prior to Poland’s accession to the EU, i.e. before 2004, its values were negative. The lowest value was recorded in 2002 (approx. -8), which implies that an increase in budget expenditure on agriculture by PLN 1 million resulted in a decrease in the agricultural value added by approx. PLN 8 million. In 2004, i.e. when Poland joined the EU, the highest value of this multiplier was recorded (almost 7), which means that each additional PLN 1 from the budget spent on agriculture generated an increase in the agricultural value added by almost PLN 7. In the next five years, the values of the multiplier of budget expenditure on agriculture relative to the agricultural value added were close to 0, whereas in 2010, after the global financial and economic crisis, its value began to deviate from this trend and amounted to approx. -4, to be posi-

tive in the following year (over 3), and then dropped again below 0 (-0.25) in 2012. In the subsequent two years, the values of this multiplier were positive (almost 3.5 and over 4, respectively). The lowest value of the multiplier of budget expenditure on agriculture relative to agricultural value added was recorded in 2015 (over -27). This value diverged most from the others.

Figure 3.2. Multiplier of budget expenditure on agriculture in relation to the value of agricultural output ( $Y_2$ ) in 2001-2015

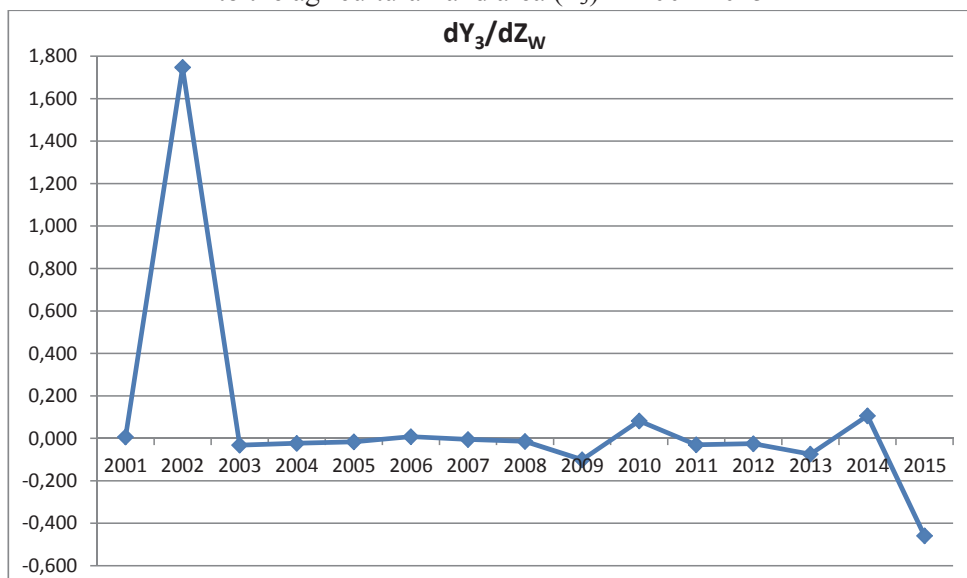


Source: own study based on data from Table 3.2.

Figure 3.2 presents the estimated values of the multiplier of budget expenditure on agriculture in relation to the value of agricultural output, calculated in accordance with equation (1) for 2001-2015. Similarly to the previous multiplier, the values of this multiplier were also highly volatile. In the period prior to Poland’s accession to the EU, i.e. in 2001-2003, these multipliers were also negative and the lowest value was recorded also in 2002 (around -4). This means that the increase in budget expenditures on agriculture by PLN 1 million resulted in a decrease in the value of agricultural output by approximately PLN 4 million. The following years (2004-2007) were characterized by a similar variability as was the corresponding period in the case of the previous multiplier. In the year when Poland joined the EU, the value of the multiplier of budget expenditure on agriculture relative to the value of agricultural output was the highest (over 3), which means that each additional PLN 1 spent from the budget on agriculture generated an increase in the value of agricultural output of more than PLN 3. However, in the following years, until the global financial and economic crisis

in 2008, values of the analysed multiplier were close to 0. During the crisis and shortly thereafter, i.e. in 2009-2010, the multiplier value was around -2. In the last years in which budget expenditure multipliers were estimated, the values of the multiplier of budget expenditure on agriculture in relation to the value of agricultural output were positive, except for 2015 when, as in the case of the previous multiplier, the lowest value of this multiplier was recorded (around -16), hence one which diverged most from the others.

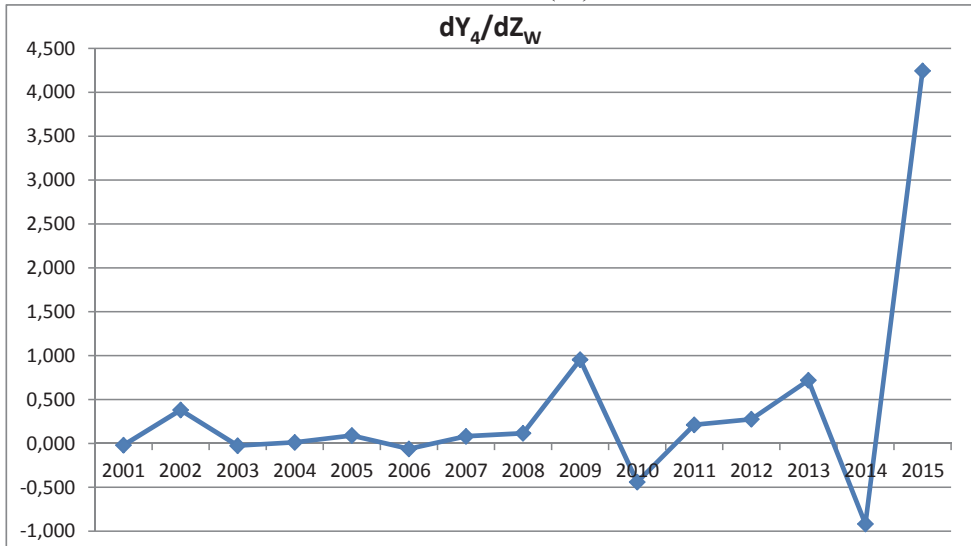
Figure 3.3. Multiplier of budget expenditure on agriculture in relation to the agricultural land area ( $Y_3$ ) in 2001-2015



Source: own study based on data from Table 3.2.

Figure 3.3 presents the estimated values of the multiplier of budget expenditure on agriculture in relation to agricultural land area, calculated in accordance with equation (1) for 2001-2015. The values of this multiplier in the analysed period were similar – close to 0, except for two years: 2002 and 2015. In 2002, the highest value of the analysed multiplier was recorded – almost 1.8, which means that the increase in the budget expenditure on agriculture by PLN 1 million contributed to an increase in the agricultural land area by almost 1.8 thousand hectares. The opposite was recorded in 2015, when the multiplier of budget expenditure on agriculture relative to the agricultural land area was the lowest (less than -0.5), which means that the increase in budget expenditure on agriculture by PLN 1 million resulted in a reduction in the agricultural land area by approx. 0.5 thousand hectares.

Figure 3.4. Multiplier of budget expenditure on agriculture in relation to the value of fixed assets ( $Y_4$ ) in 2001-2015



Source: own study based on data from Table 3.2.

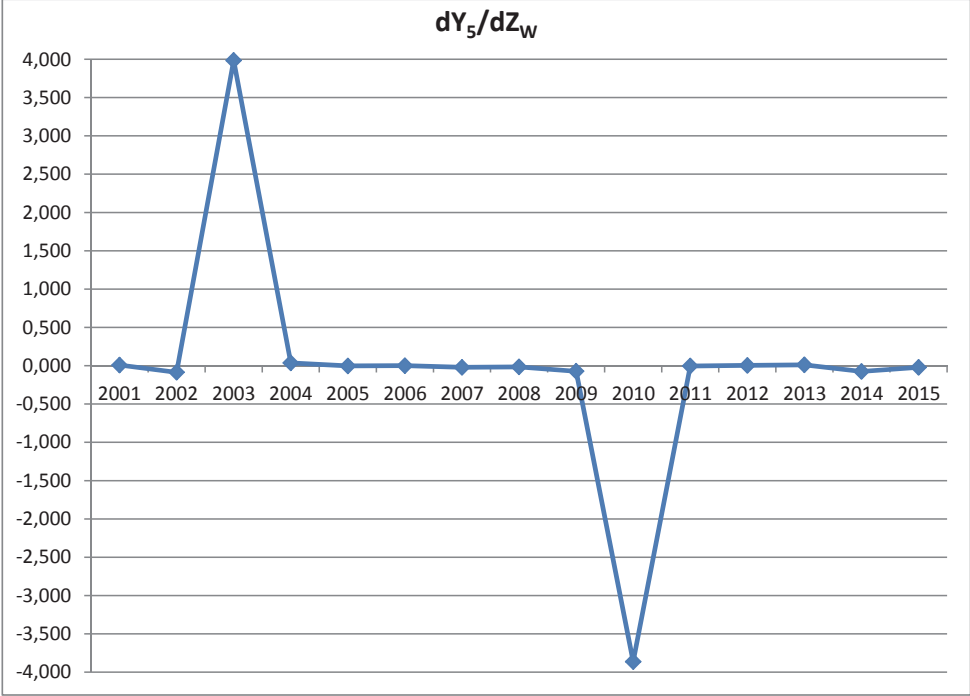
Figure 3.4 presents the estimated values of the multiplier of budget expenditure on agriculture in relation to the value of fixed assets, calculated in accordance with equation (1) for 2001-2015. In 2001-2008, the values of this multiplier were close to 0. During the global financial and economic crisis, i.e. in 2009, the value of this multiplier increased to approx. 1, to drop in the following year, i.e. after the crisis, below 0. In the subsequent three years, the multiplier of budget expenditure on agriculture relative to the value of fixed assets remained positive, below 1. In 2014, the lowest value of the multiplier was recorded (almost -1), while in 2015, this value was the highest (over 4) and the most divergent from the others. This entails that each additional PLN 1 spent from the budget on agriculture generated an increase in the value of fixed assets of more than PLN 4.

Figure 3.5 presents the estimated values of the multiplier of budget expenditure on agriculture in relation to the number of workers, calculated in accordance with equation (1) for 2001-2015. The values of this multiplier in the analysed period were close to 0, except for two years. In 2003, i.e. before Poland's accession to the EU, its value was the highest (about 4). This means that the increase in budget expenditure on agriculture by PLN 1 million contributed to an increase in the number of agricultural workers by almost 4 thousand people. However, after the global financial and economic crisis, i.e. in 2010, the value of the analysed multiplier was the lowest and amounted to almost -4, so



the increase in the budget expenditure on agriculture by PLN 1 million resulted in a drop in the number of agricultural workers by almost 4 thousand people.

Figure 3.5. Multiplier of budget expenditure on agriculture in relation to the number of agricultural workers ( $Y_5$ ) in 2001-2015



Source: own study based on data from Table 3.2.

**Multippliers of budget income from agriculture**

Multipliers of budget income from agriculture were calculated in the same way as multipliers of budget expenditure on agriculture.

$$\frac{dY_{it}}{dZ_{Dt}} \tag{2}$$

The estimated values of these multipliers in Poland in 2001-2015 are presented in Table 3.3.

Table 3.3. Multipliers of budget income from agriculture in 2001-2015

Budget income multiplier Year	$\frac{dY_1}{dZ_D}$	$\frac{dY_2}{dZ_D}$	$\frac{dY_3}{dZ_D}$	$\frac{dY_4}{dZ_D}$	$\frac{dY_5}{dZ_D}$
2001	0.773	0.475	-0.011	0.033	-0.013
2002	1.234	0.614	-0.277	-0.060	0.014
2003	-0.042	-0.083	-0.034	-0.027	4.191
2004	0.435	0.205	-0.001	0.001	0.002
2005	0.563	0.410	0.014	-0.074	0.003
2006	0.002	0.004	0.000	0.003	0.000
2007	-0.349	-0.306	0.002	-0.028	0.008
2008	-0.003	0.001	0.000	0.001	0.000
2009	-0.023	0.040	0.002	-0.023	0.002
2010	4.901	2.216	-0.101	0.545	4.776
2011	0.662	0.376	-0.006	0.044	-0.001
2012	3.413	-3.519	0.346	-3.754	-0.037
2013	0.772	0.240	-0.016	0.159	0.002
2014	2.003	0.373	0.053	-0.459	-0.037
2015	-1.629	-0.972	-0.027	0.254	-0.001

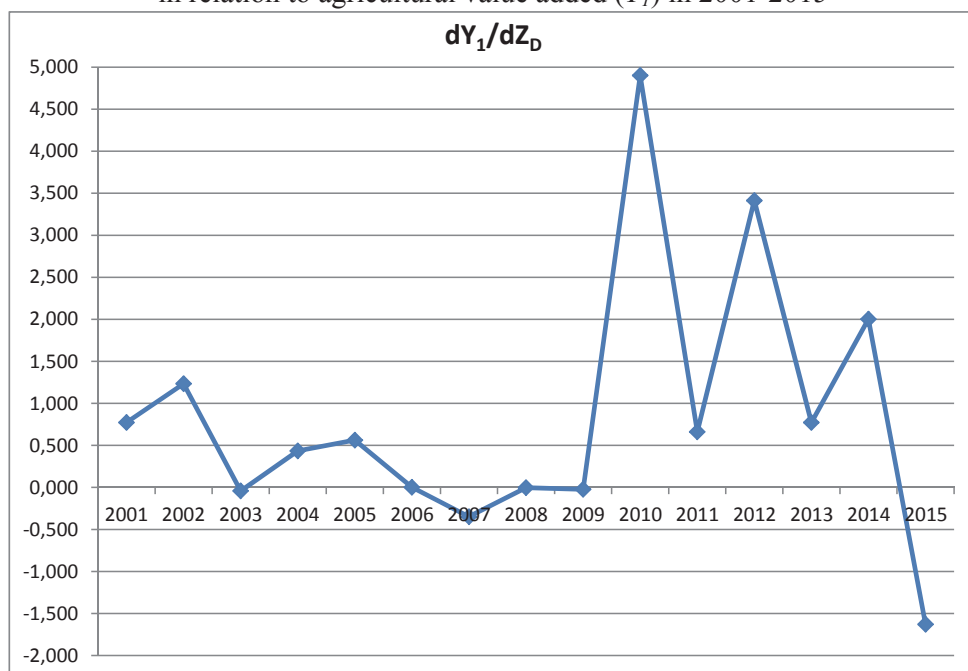
Source: own study based on data from the Ministry of Finance and the Central Statistical Office.

Just like in the case of multipliers of budget expenditure on agriculture, charts were developed also for multipliers of budget income from agriculture, based on the estimates made.

Figure 3.6 presents the estimated values of the multiplier of budget income from agriculture in relation to agricultural value added, calculated in accordance with equation (2) for 2001-2015. Just like in the case of the multiplier of budget expenditure on agriculture relative to agricultural value added, the values of this multiplier in the analysed period showed high volatility. In the first two years of the analysis, these values were greater than 0, and just before Poland's accession to the EU, i.e. in 2003, a negative value was recorded (almost -0.05). However, from 2004 onwards, i.e. from the time of Poland's accession to the EU, the value of this multiplier was positive, close to 0, until 2007, when its value dropped below 0. During the global financial and economic crisis, i.e. in 2008-2009, the values of this multiplier were still below 0. Only in 2010, i.e. once the crisis was over, the value of the analysed multiplier reached its maximum level of almost 5, which means that each additional PLN 1 of budget income from agriculture generated an increase in agricultural value added of almost PLN 5. The following four years were characterized by a changeable level of the multiplier of budget income from agriculture relative to agricultural value added – at times it was lower, then higher, just to drop again, but in no case was it below 0. Only in 2015, a negative value of the analysed multiplier

was recorded (over -1.5), and was the lowest one throughout the analysed period. This means that an increase in the budget income from agriculture by PLN 1 million resulted in a decrease in agricultural value added by more than PLN 1.5 million.

Figure 3.6. Multiplier of budget income from agriculture in relation to agricultural value added ( $Y_I$ ) in 2001-2015

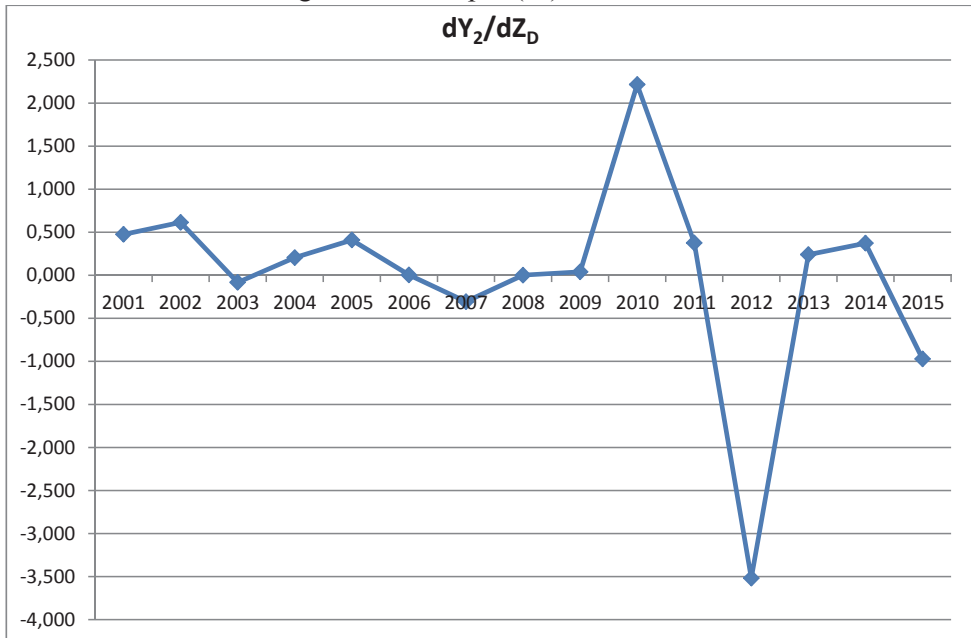


Source: own study based on data from Table 3.3.

Figure 3.7 presents the estimated values of the multiplier of budget income from agriculture in relation to the value of agricultural output, calculated in accordance with equation (2) for 2001-2015. The values of this multiplier in the analysed period were close to 0, except for three years. In 2010, i.e. just after the global financial and economic crisis, it reached the highest level of more than 2, which means that each additional 1 PLN of budget income from agriculture generated an increase in the value of agricultural output of more than PLN 2. The opposite result was recorded in 2012, when the value of this multiplier was the lowest and amounted to approx. -3.5, which means that an increase in budget income from agriculture by PLN 1 million resulted in a decrease in the value of agricultural output by approx. PLN 3.5 million. This multiplier's value deviating from the prevailing trend was rec-

ordered also in 2015 (less than -1), but this difference compared to the other values of this multiplier was not very large.

Figure 3.7. Multiplier of budget income from agriculture in relation to the value of agricultural output ( $Y_2$ ) in 2001-2015



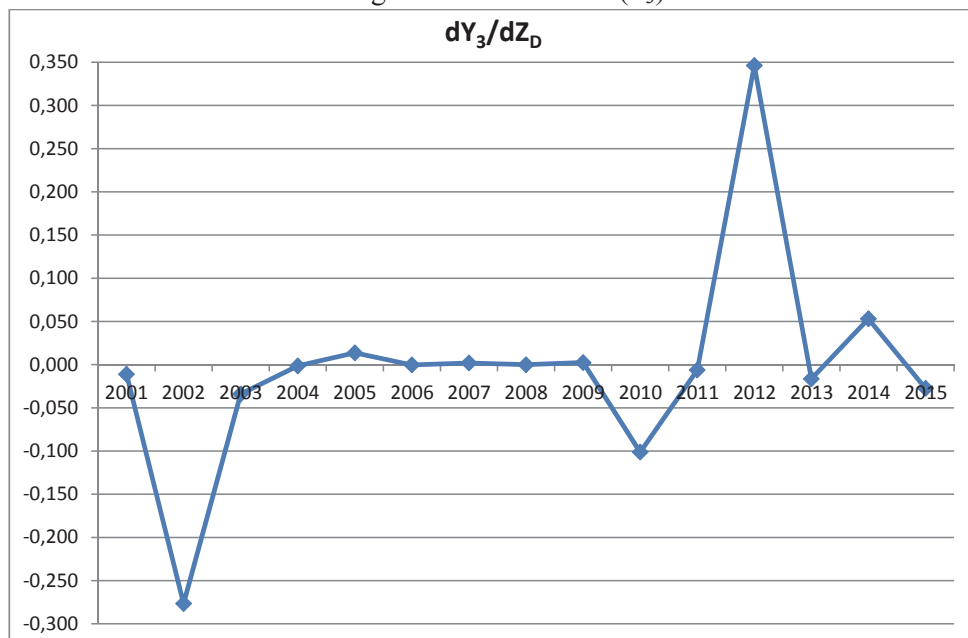
Source: own study based on data from Table 3.3.

Figure 3.8 presents the estimated values of the multiplier of budget income from agriculture in relation to the agricultural land area, calculated in accordance with equation (2) for 2001-2015. The values of this multiplier in the analysed period were close to 0. Prior to Poland's accession to the EU, i.e. before 2004, these were negative. The lowest value was recorded in 2002 (less than -0.3), which implies that an increase in budget income from agriculture by PLN 1 million resulted in a decrease in the agricultural land area by almost 0.3 thousand hectares. The highest value of this multiplier was recorded in 2012 and amounted to 0.35. This means that an increase in budget income from agriculture by PLN 1 million resulted in an increase in the agricultural land area by almost 0.35 thousand hectares.

Figure 3.9 presents the estimated values of the multiplier of budget income from agriculture in relation to the value of fixed assets, calculated in accordance with equation (2) for 2001-2015. The values of this multiplier in the analysed period were similar – close to 0, except for 2012, when the lowest val-

ue was recorded, namely -4, which was also a value which diverged most from the others. This implies that an increase in budget income from agriculture by PLN 1 million resulted in a decrease in the value of fixed assets by almost PLN 4 million.

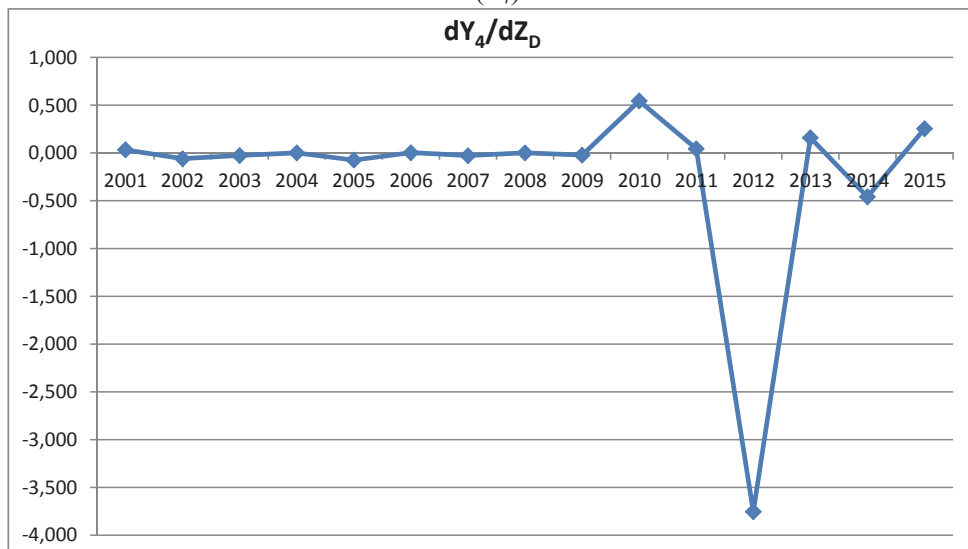
Figure 3.8. Multiplier of budget income from agriculture in relation to the agricultural land area ( $Y_3$ ) in 2001-2015



Source: own study based on data from Table 3.

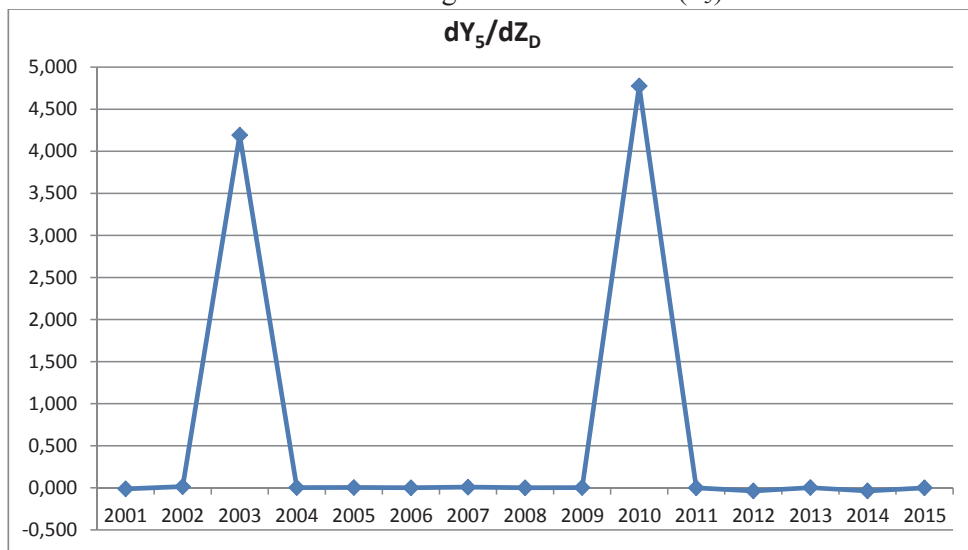
Figure 3.10 presents the estimated values of the multiplier of budget income from agriculture in relation to the number of agricultural workers, calculated in accordance with equation (2) for 2001-2015. Just like in the case of the multiplier of budget expenditure on agriculture relative to the number of agricultural workers, the values of this multiplier in the analysed period were close to 0, except for two years. In 2003, i.e. prior to Poland's accession to the EU, the value of the analysed multiplier was more than 4, which means that an increase in budget income from agriculture by PLN 1 million resulted in an increase in the number of agricultural workers by more than 4 thousand. In 2010, i.e. just after the global financial and economic crisis was over, the analysed multiplier reached the highest level of almost 5, which means that an increase in budget income from agriculture by PLN 1 million resulted also in an increase in the number of agricultural workers by almost 5 thousand.

Figure 3.9. Multiplier of budget income from agriculture in relation to the value of fixed assets ( $Y_4$ ) in 2001-2015



Source: own study based on data from Table 3.

Figure 3.10. Multiplier of budget income from agriculture in relation to the number of agricultural workers ( $Y_5$ ) in 2001-2015



Source: own study based on data from Table 3.

## Summary

Comparing the multipliers of budget expenditure on agriculture with the multipliers of budget income from agriculture in relation to agricultural added value, it can be observed that the values of these multipliers in the analysed period were in both cases highly volatile. The highest value of the multiplier of budget expenditure on agriculture (almost 7) was recorded in 2004, i.e. in the year when Poland joined the EU. As regards the multiplier of budget income from agriculture, its greatest value (almost 5) was recorded in 2010, i.e. once the global financial and economic crisis was over. As for the lowest values of the two multipliers concerned, these were recorded in 2015 (the multiplier of budget expenditure on agriculture of more than -27 and the multiplier of budget income from agriculture of more than -1.5).

Comparing the multipliers of budget expenditure on agriculture with the multipliers of budget income from agriculture in relation to agricultural output, it can be observed that their values in the analysed period showed different trends. The multiplier of budget expenditure on agriculture was highly volatile, while the multiplier of budget income from agriculture remained at a similar level, close to 0, except for three years, when this multiplier's values were definitely different from the others. The highest and the lowest values of the multiplier of budget expenditure on agriculture were recorded in the same years as in the case of the multiplier of budget expenditure on agriculture in relation to agricultural value added, i.e. in 2004 – more than 3, and in 2015 – approx. -16. As regards the multiplier of budget income from agriculture, its highest value (more than 2) was recorded in 2010, i.e. just after the global financial and economic crisis, while the lowest one (approx. -3.5) was recorded in 2012.

Comparing the multipliers of budget expenditure on agriculture with the multipliers of budget income from agriculture relative to the agricultural land area, one can see that the values of these multipliers were in the analysed period close to 0, but there were also some exceptions. As regards the multiplier of budget expenditure on agriculture, the value which differed most from the others was recorded in 2002 (approx. 1.8). As for the multipliers of budget income from agriculture, their highest value (approx. 3.5) was achieved in 2012, while the lowest one (almost -0.3) – in 2012.

Comparing the multipliers of budget expenditure on agriculture with the multipliers of budget income from agriculture relative to the value of fixed assets, one can see that in the first half of the analysed period, i.e. in 2001-2008, the values of these multipliers were closed to 0. Only in 2009, did they begin to show different trends. The values of the multiplier of budget expenditure on agriculture in 2009-2014 were in the range from -1 to 1. In 2015, its highest value

of more than 4 was achieved. As regards the multiplier of budget income from agriculture, its values continued to be close to 0, except for 2012, when the lowest value (almost -4) was recorded, which was also the most divergent one from the others.

Comparing the multipliers of budget expenditure on agriculture with the multipliers of budget income from agriculture relative to the number of agricultural workers, it can be seen that their values were in the analysed period usually close to 0, except for two years, i.e. 2003 and 2010. In 2003, i.e. before Poland's accession to the EU, the values of these two multipliers were close to 4. In 2010, i.e. just after the global financial and economic crisis, the multiplier of budget expenditure on agriculture reached its lowest value (almost -4), while the multiplier of budget income from agriculture reached its highest value (almost 5).

Examining the period prior to Poland's accession to the EU, and more specifically 2003, it can be seen that in that year the values of all multipliers of budget expenditure on agriculture and multipliers of budget income from agriculture were close to 0, except for multipliers relative to the number of agricultural workers, whose values were around 4. In 2004, i.e. when Poland joined the European Union, the values of all multipliers of budget expenditure on agriculture and those of budget income from agriculture were higher than 0, except for multipliers relative to the agricultural land area, whose values were negative. In subsequent years, i.e. 2005-2008, the values of all analysed multipliers were in the range from -1 to 1. From 2009, i.e. when the global financial and economic crisis had already begun, to 2015, no trend can be identified as regards the estimated values of the multipliers due to their variance.

Significant discrepancies in the results may be due to different methods of gathering data in such a long time series.

Summing up, it can be concluded that the values of the multipliers of budget income from agriculture are usually lower, in absolute numbers, than the values of budget expenditure on agriculture. A similar conclusion was drawn by J. Kilponen et al. who believe that the values of short-run tax multipliers (labour, consumption and capital) are usually lower, in absolute numbers, than the values of government consumption multipliers<sup>130</sup>.

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<sup>130</sup> J. Kilponen, M. Pisani, S. Schmidt, V. Corbo, T. Hledik, J. Hollmayr, S. Hurtado, P. Júlio, D. Kulikov, M. Lemoine, M. Lozej, H. Lundvall, J. R. Maria, B. Micallef, D. Papageorgiou, J. Rysanek, D. Sideris, C. Thomas, G. De Walque (2015), *Comparing fiscal multipliers across models and countries in Europe*, ECB Working Paper, No. 1760, s. 4.



### **Summary of the monograph**

The most important instrument of the CAP for 2014-2020 support for agriculture remains, although changed in relation to the previous ones, direct payments. The CAP reformed in 2013 introduced a completely new system of direct payments. The change in the shape of this system resulted from the need to strive for a more targeted and equitable distribution between Member States, regions and farmers, and linking them to the use of environmentally beneficial agricultural practices.

A new component connected with environmental protection has been introduced to the direct payments system, i.e. payment for agricultural practices beneficial for the climate and the environment. This component is an attempt to link direct payments to remuneration for public goods and services produced by agricultural holdings. Its introduction to the direct payments system is considered one of the most important changes of this system undertaken within the last CAP reform.

The use of conservation auctions in the practice of agri-environmental policy is still sporadic. Auctions are a complex instrument and it is possible that for this reason we witness such a conservative behaviour of entities shaping the instruments of agricultural policy.

Previous experience and research experiments indicate that conservation auctions can be an effective tool for providing environmental public goods by the agricultural sector. In addition, it is known that the optimization of the shape of the conservation auctions requires consideration of the existing conditions, and the success of these auctions is strongly dependent on political and institutional support for them.

However, the knowledge about what detailed solutions ensure the best results is still insufficient. It is connected with the huge complexity of the functioning of the conservation auctions and the multitude of interactions affecting their actual effects. This limits the use of such auctions in practice, which is why they have not become a widely used tool for environmental protection. However, it can be assumed that their application will systematically grow in popularity with the increase in knowledge about their functioning and in connection with the search for cost-effective solutions from the point of view of the state budget.

It seems that conservation auctions at this stage should be introduced in the form of pilot programmes due to the need to make farmers familiar with such an instrument, as well as to gain knowledge about the actual advantages

and disadvantages of this instrument in order to optimize the use of conservation auctions on a wider scale.

The monograph also presents the results of the estimation of fiscal multipliers in Polish agriculture. The results indicate that the level of multipliers of budget expenditure on agriculture and multipliers of budget income from agriculture in relation to value added in agriculture and value of production were characterized by high volatility. However, in the case of multipliers in relation to the UAA, in the majority of the analysed years, values close to 0 were recorded. After combining the multipliers of budget expenditures for agriculture with agricultural budget incomes in relation to the value of fixed assets, it can be noted that in the first half of the analysed period, i.e. in the years 2001-2008, the values of these multipliers were close to 0. Only since 2009 they started to have different trends. In the case of the multipliers estimated in relation to the number of employed in agriculture, it can be noticed that in the period under consideration they reached values close to 0, except for 2003 and 2010. It should be noted that large discrepancies in the results obtained may indicate different ways of collecting data in such a long time series.

Summing up, it can be concluded that the values of the multipliers of budget income from agriculture are usually lower, in absolute numbers, than the values of budget expenditure on agriculture. A similar conclusion was drawn by J. Kilponen et al. who believe that the values of short-run tax multipliers (labour, consumption and capital) are usually lower, in absolute numbers, than the values of government consumption multipliers.

It is worth looking at all the issues discussed in the monograph from the perspective of the debate on the future of the CAP. At the end of 2017, the EC presented its communication regarding the next reform of the CAP. It has a very general character and focuses on setting the direction of the reform, not the description of support instruments. Generally, the EC's proposals are aimed at maintaining the character and shape of support with only small alterations concentrating on closer focus on evidence-based policy.

The leitmotiv of the communication is a change consisting in increasing the role of member states in shaping the CAP instruments. The Member States would play a particularly important role with regard to the greening of direct payments. It is up to Member States to designate practices to be monitored by Member States. In addition, the EC proposes to make the whole amount of direct payments subject to greening, which would be an important change given

the fact that currently only 30% of payment amount is related to meeting greening practices.

The proposals presented by the EC are very conservative. Challenges facing EU agriculture, in particular climate change and growing competition in global markets, require more comprehensive and ambitious solutions. Innovations that allow sustainable intensification of agricultural production are particularly urgent.

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