Julian T. Krzyżanowski[1]
Warsaw University of Life Sciences – SGGW

The Problems of Direct Support for Plant Production in the European Union and the United States

Abstract. The paper shows differences of opinions, on which side of Atlantic the level of support is higher. It reviews the shifts in the UE direct payments system. In the second part of the paper the American system of payments is analyzed. Some calculations of payments are added. Finally similarities and differences between the systems are being indicated.

Key words: agriculture, Common Agriculture Policy, USA, direct payment system,

Introduction

One of the issues which reappears on account of the negotiations regarding the TTIP agreement, are the methods of supporting agriculture in the EU countries and in the USA (Krzyżanowski, 2016). That's why concepts from both sides of Atlantic should be recalled.

Research carried out for the European Parliament has shed light on the degree of government support granted by the EU and US authorities to their agricultural sectors (Butault et al., 2012). The main conclusions of this work are that the EU has provided more support than the US to its farmers over recent years. Studies that find opposite results use questionable methodology implying that US welfare programs (e.g. 'food stamps') act as direct subsidies to US farmers. In reality, they actually benefit producers from other countries through indirect price effects (Risks, 2014). However since U.S. employs a multi-layer policy that protects US farmers against any possible adverse condition affecting either yields or prices, specific backup programs available to American farmers should be examined.

The basic tool of supporting agriculture in both systems, including in particular plant production, is direct payments, however the system is different. The aim of the study is to present the solutions applied on both sides of the Atlantic, to indicate the similarities and differences in the implemented instruments.

Evolution of direct payment within the Common Agricultural Policy

Direct payments were introduced in 1992, in the reform of MacSharry's Common Agricultural Policy, and as a result of subsequent reforms they became the main instrument of supporting agriculture. Initially, they were to compensate for the decrease in intervention prices, while in practice they became the additional means of increasing agricultural income or a compensation for its decrease (Krzyżanowski, 2015). The issue of level of payment rates and the whole further calculations may be presented on the example of payments for cereals.

[1] Dr hab., associated professor, Department of Agricultural and International Economics, Warsaw University of Life Sciences – SGGW, ul. Nowoursynowska 166, 02-787 Warszawa, e-mail: Julian_Krzyzanowski@sggw.pl

In the reform divided over 3 years, the target price of cereals, except for rice, was to amount to ECU 100 for 1t in the third year (ECU – European currency unit, exchange rate in 1992 – ECU 1 = USD 1.29). The proposed level of target price was to be at the level of prices of cereals in the global market, assuming it is stable. In 1992, the average market price of cereals in the countries of the EC was ECU 155. The farmers were to receive the compensation for loss in income, in the amount of ECU 55 for 1t. It constituted the difference between the actual market price of cereals – ECU 155 for 1t, and the target price of ECU100 for 1t. The amount of that payment could change with changes in crops, and in the general conditions in the EU and foreign markets. The rates of subsidies per unit of surface were specified regionally, depending on the amount of average crops achieved over the period of several years before the reform. For example, the average yields in the whole Community, calculated in the above manner, amounted to 4.6 t from 1 ha. Therefore, the payment amounted to ECU 253/ha (4.6t/ha • ECU 55/t).In the first year of the reform, the payment amounted to ECU 30/t, i.e. ECU 138 for 1 ha; in the second year – ECU 45/t, i.e. ECU 207 for 1 ha, and the target level was to be achieved in the third year. The change in the level of payment resulted from the respective decreases in the target price in the first year to ECU 125/t, and in the second – to ECU 110/t (Krzyżanowski, 1993).

In the system which is now called historical, classical or standard, the payment calculation formula was as follows:

Basic area x payment rate/t x yield x PLN/EUR exchange rate = so-called cereal envelope

The payment rate for 1 ha results from dividing the envelope by the number of hectares which are reported by the farmers who apply for payments.

Starting in 1993, the main support for the EU farmers has the form of payments to field crops, special bonuses for cattle and suckler cows, etc. These payments applied until the end of 2004, and, to a limited degree, they were made in certain member states even after the introduction of single area payments in 1 January 2005, as a result of the possibility of also applying partial decoupling.

The European Commission considered direct payments to be an instrument that was more explicit than market support and intervention mechanisms. The payments supplemented other support mechanisms, and replaced them over time. They were also perceived as a convenient transition mechanisms, to wean the farmers from the instruments disrupting the operation of the market and to ensure better use of public goods by supporting agricultural income. For example, such an instrument was the criterion of livestock density associated with aid for the producers of beef. This constituted a counterweight for the use of pastures that was too intensive.

However, on the other hand, there have appeared more and more deficiencies of the system applied. The European Commission assumed the position, expressed for years by numerous agricultural economists, that sector-based payments continue to distort the operation of the market, although to a smaller degree than market intervention, because they require the farmer to take specified line of production in order to receive the aid. This meant that in many cases the farmers were stimulated to maximize production, even if they were receiving signals from the market that production should be limited or discontinued.

The second important argument for applying direct payments is the fact that they were excluded from the "reduction obligations" resulting from the WTO Uruguay Round. That's

because they were included in the "Blue Box" category. Such a solution resulted from the compromise between the EU and the USA at the beginning of 1990s.[2]

After the beginning of the new WTO negotiations in 2000, it turned out that that solution was challenged by most members of WTO who demanded that the agreement be changed. If the so-called "Blue Box" ceases to exist, the only way of securing direct payments for farmers from EU countries in the future, will be to modify the payments so that they are classified as means from the "Green Box" group, i.e. payments decoupled from the size of production which, on the basis of the general understanding, are not subject to reduction.

For those reasons, in the plans of the Common Agricultural Policy reform (January 2003), the decoupling of payments from production size became the main element of proposed changes. As a result of arrangements, on 26 June 2003 it was determined that under EU regulation 1782/2003, on 29 October 2003 there would be created a new category of payments, so-called Single Payment Scheme (SPS).

The new system was introduced from 1 January 2005. The funds were paid to all the farmers qualifying to that solution, regardless of what they are going to produce. They may also produce nothing. However, obtaining the aid depends on meeting certain agronomic criteria as well as environmental protection criteria, so-called "cross-compliance". Member states could have decided to introduce the SPS within two years. However, the system had to start operating no later than on 1 January 2007 (Krzyżanowski, 2008).

In most cases, the level of payment is based on the actual amount of payments for each farmer, received in the reference period of 2000-2002. For each member state (including for the new members), from 2005 there were specified the maximum annual amounts of aid.

The payment rates for farmers resulting SPS are specified by dividing the amount of payments from three years by the surface area entitled to payment – also from three years. The entitled area also includes the fodder area.

Therefore, assuming that a farmer that only produces crops, cultivated 100 ha of wheat, getting the yields of 6 tons per hectare, its payment was: 100 ha x 6 tons x 63 EUR per 1 ton, i.e. EUR 37 800 - currently that is the amount it will receive for its farm, or, in other words, after dividing the amount by the size of the cultivated area, EUR 378 per each hectare.

The provisions of the reform of 2003 (Krzyżanowski, 2015) regarding the modifications of the existing instruments of the Common Agricultural Policy, included the provision on evaluation of that Policy (health check) in 2008.

The assessment also set the directions for future changes in the Policy (after 2013). The objectives of the Policy were supplemented with the "new challenges", associated with climate changes, renewable energy, water management, biological diversity, accompanying measures, restructuring of the milk industry, and innovativeness in the scope of the first four tasks. What was significant for the discussion of the future of the Common Agricultural Policy, was also the obligation of the European Commission and Council to analyze the problem of the high diversity of direct payments in the EU and to present the suggestions for suitable changes.

During the meeting of the EU Agriculture and Fisheries Council on 18-20 November 2008, there was adopted the final agreement following the discussions within the Health

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[2] Under the findings of the GATT Uruguay Round, the payments per hectare of crops or per animal, are eligible as "blue box" subsidies, and are conditionally not subject to reduction. The resources for the development of rural areas are excluded from the obligation to reduce them without any limitation, and are classified as the so-called "green box".

Check (Sprawozdanie, 2008). The result of the Health Check was the adoption of the legal documents modifying the basis of functioning of the Common Agricultural Policy:

The method of converging direct payments among the member states (when negotiating the Common Financial Framework) was also determined. In the member states with the direct payments per hectare below 90% of the average EU level, the difference between the current level of payments and 90% of the EU average is to be reduced by one third. That process will be conducted gradually, from the 2015 financial year until the 2020 financial year. Eventually, all the member states are to achieve the level of payments of at least EUR 196/ha (at current prices). The above convergence will be financed by the countries in which the direct payments are higher than the EU average.

Generally speaking, in the EU there are currently operating two payment systems: Basic Payment Scheme (**BPS** – the former name SPS) and Single Area Payment Scheme (**SAPS**).

The **Basic Payment Scheme (BPS)** is used in the EU-15 states and in Croatia, Malta and Slovenia. The new system consists of the mandatory elements that a member state must implement, as well as voluntary elements, the application of which depends on the decision of the given state.

The **Single Area Payment Scheme (SAPS)** is the simplified system of direct payments applied by all the states that joined the European Union in 2004 or later, except for Croatia, Malta and Slovenia. That system does not have entitlements to payments. The rate of the uniform area payment is calculated by dividing the annual domestic financial envelope, specified for each state, by the area of eligible lands. In the SAPS system, it is possible to apply the same types of payments that are applied in the basic payment system.

Direct aid for plant production in the USA

As regards the aid for plant production, the 2014 Farm Bill repeals the direct payment program, thus ending almost the period of almost 20 years of (annual) payments. Those payments were calculated on the basis of the eligible number of acres and output from 1 acre, so in the same manner as in the classical system of the European Union from the beginning of 1990s. The Bill also repeals two other programs associated with direct payments, i.e.: the previous countercyclical payments (CCP) which were also based on historical values (base acres and output), but their payments depended on the current pricing condition, and the ACRE instrument (Average Crop Revenue Election) which allowed payments to be paid to the agricultural producers after their revenues dropped below a certain reference level (average value of production from 5 years and the average value of prices from 2 years).

Instead of those, chapter I of the Bill includes two new programs supporting plant production (which, in fact, still operate on the basis of countercyclical payments, but with slightly different rules):

Price Loss Coverage (PLC) and the Agriculture Risk Coverage (ARC) which is going to operate together with the previous Marketing Assistance Loan Program.

The beneficiaries that want to make use of those programs, must be active agricultural producers, meet the specified limits of Adjusted Gross Income (AGI), i.e. USD 900,000 of revenues in total, from agricultural and non-agricultural operations, and may not receive the payments over the specified upper limit of USD 125,000 per farmer, but the spouse may receive the additional aid in the amount of USD 125,000 (that limitation applies to all the payments received).

Current aid instruments

Price Loss Coverage (PLC) – agricultural producers who possess the so-called base acres for the selected species of arable crops: wheat, fodder crops, rice, oleaginous plants, peanuts as well as selected species of high-protein plants are entitled to benefit from the program. The payments are made when the market prices drop below the reference price specified in the 2014 Farm Bill. As a rule, the payment rate is specified on the basis of the difference between the reference price and the annual domestic average market price. The rate is then multiplied by 85% of the number of base acres of the given crop. The reference period for calculating the base acres is 2009 – 2012, and for the reference prices 2008 – 2012. It is The arable species which were selected, apply during the whole period of effectiveness of the bill (5 years as a rule). Should the farmer also grow fruits, vegetables or wild rice, these areas are deducted from the surface area eligible for aid.

Example (Charakterystyka …, 2016):
The farm has 350 acres[3] of corn.
The reference price specified in the Farm Bill is 3.70/bushel[4]
Average price - business year (Marketing Year Average): USD 3.40/bushel
Yield: 160 bushels/acre
The difference between the reference price and the average price for the current business year
3.70 \$ - 3.40 \$ = 0.3 \$/bushel
            0.3 \$/bushel x 160 bushels from acre x (85% x 350 acres) = 14280 \$
In the PLC system, the payment is then **14280 \$**

Agriculture Risk Coverage (ARC) – that program has two different administrative levels: county level and individual farm level. The species eligible for aid are the same as in the above PLC program. Just like in the program above, a farmer chooses which of its products are to be covered by aid, and the decision made applies during the whole period, i.e. 5 years.

Table 1. Agricultural Risk Coverage at county level

Year	Corn	
	Yield in bushels per county	Average reference price for the given year
2009	183.0	3.70
2010	180.4	5.18
2011	165.7	6.22
2012	156.7	6.89
2013	185.0	4.50
5-year average	176.4	5.3
benchmark revenue	5.30 x 176.4 = 935 \$/acre	
Guaranteed level of ARC-County	935 \$ x 86% = 804 \$/acre	

Source: (Charakterystyka …, 2016).

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[3] 1 acre = ca. 0.4 ha.
[4] 1 bushel of soy [bu] = 60 pounds[lb] = 27.22 [kg], 1 bushel of corn [bu] = 56 pounds[lb] = 25.40 [kg].

Aid at county level:

The aid is applied when the level of income from the given production (calculated as the product of the actual average yield per county and the domestic farm gate price) drops below 86% of the guaranteed reference point (calculated by multiplying the 5-year average yield a given county and the 5-year average of the domestic price or reference price in the given year, depending on which value is higher for each year; the borderline values are excluded from the calculations). Then, the level of aid for a farm is calculated as the difference between the above results and the current income per acre (but the level of payment from the given crop may not exceed 10% of the benchmark revenue), and is multiplied by **85%** of the area of eligible acres in the farm. Should the farmer also grow fruit, vegetables or wild rice, the payment is reduced on the basis of the acre-by-acre rule.

The projected price for the current year is 3.9 $/bushel, and the average yield in the county is 189 bushels/acre i.e. the current level of income in the County is 3.9 $ x 189 bushels/acre = 737 $ per acre.

Calculation of the level of payment within the ARC-County system

It is the difference between the guaranteed level of ARC- County and the current income in the county (804 $ - 737 $= 67 $/acre). However, it should be borne in mind that the aid may not exceed 10% of the benchmark revenue, i.e. 10% of 935 $, i.e. 93.5 $/acre. In this case the limit is not exceeded, so the result is 67 $/acre. The aid for a farm with 330 acres of corn is as follows:(area x 85%) x calculated payment level, so (85% x 330 acres) x 67 $ = 18 793.50 $.

Aid at farm level(ARC-IC):

That type of aid is provided in the case when the actual income from the crops covered by the aid system is lower than the reference income for that farm. The current income of a farm is calculated on an annual basis. The ARC-IC guarantee for an individual farm constitutes 86% of the individual ARC-IC benchmark revenue**.** The benchmark revenues is the 5-year average income obtained from each production in the farm, calculated as the ratio of the cultivated area to the total area of the farm covered by the aid system, and then added up (explanation in the example below). The actual revenue is determined, based on the farm yield, multiplied by the maximum domestic price for the given business year (specified in the 2014 Farm Bill). The individual aid level is calculated as the difference between the benchmark revenue and actual revenue (but its value may not exceed 10% of the individual guaranteed benchmark), and then multiplied by **65%** of the eligible base surface area of the farm. Should the farmer also grow fruit, vegetables or wild rice, the payment is reduced.

Example (Charakterystyka …, 2016):

The farm has 350 acres of corn and 235 acres of soy (585 acres in total).

The reference price of corn was specified in the bill at 3.50 $/bushel, and 8.40 $/bushel for soy.

Table 2. Calculation of the benchmark revenue and guaranteed level of ARC-IC

Year	Yield (in bushels)	Average price for business year	Revenue in $
		Corn	
2009	195.0	3.70	722
2010	184.7	5.18	957
2011	178.0	6.22	1179
2012	154.0	6.89	1015
2013	189.5	4.46	845
5-year average revenue			944 $
benchmark revenue	350:585 = 0.6 corn (944 $*0.6) + soy (572*0.4) = 795 $/acre		
guaranteed level of ARC-IC	795 $ x 86% = 683 $/acre		
		Soy	
2009	50.5	9.59	484
2010	42.6	11.30	481
2011	49.5	12.50	619
2012	46.4	14.40	668
2013	46.8	13.00	608
5-year average revenue			572 $
benchmark revenue	350:585 = 0.6 corn(944 $*0.6) + soy (572*0.4) = 795 $/acre		
guaranteed level of ARC-IC	795 $ x 86% = 683 $/acre		

Source: (Charakterystyka …, 2016).

Calculation of the level of payment within the ARC-IC system is as follows: is the difference between the guaranteed level of ARC-IC and the current revenue in the farm, i.e. 683 $ - 579 $ = 104 $/acre. However, it should be borne in mind that the aid may not exceed 10% of the benchmark revenue, i.e. 795 $/acre i.e. 80 $/acre. Therefore, in this case the maximum value of 80 $/acre must remain. That is why the calculation of the aid per farm is as follows:

(area x 65%) x calculated payment level, i.e. (65% x 585 acres) x 80 $/acre = 30420 $.

Table 3. Calculation of current revenue of a farm

Product	Area of crops in acres	YieldOutput in the farm	Current domestic price in the given business year	Revenue per acre
Corn	350	192	3.4	653
Soy	235	47	9.95	468
current revenue of the farm	(653*0.6) + (468*04) = 579 $/acre			

Source: (Charakterystyka …, 2016).

The **Marketing Assistance Loan Program** allows to obtain a loan on the basis of the non-recourse rule, addressed to the producers of wheat, corn, sorgo, barley, oats, cotton, long- and medium-grain rice, soy and other oleaginous plants, peanuts, wool, honey and other goods. Those loans apply in the postharvest period, when the market prices of agricultural products are usually lower. The eligible goods are submitted by the farmer as a collateral, and the loan may be granted for the whole period, until the moment of selling the goods. The repayment may occur at the moment when the price of the given goods rises appropriately, or, if the prices stay at a low level, the farmer may repay the loan at reduced price based on the quantitative equivalent at which the loan was obtained (so the current "low" market price will apply).

Similarities and differences between the systems. Conclusions

Both the previous and current payments systems in the USA, just like the system applied in the European Union, were based on the historical values of eligible areas and yields. In the EU, the third element taken into account in the calculations is the payment rate, while in the USA – the price differences.

Let's start from the crop level. The payment rate was specified for one produced ton, so it should be determined what is its amount for one unit of production area. In the first years of operation of McSharry's reform, the calculations took into account the average yields of cereals in the European Union. However, several years later the decision was made to reward higher production output in individual EU countries and, under Council Regulations 1251/99 and 2316/99, the European Union switched to application of the domestic yields from the years 1986/87 – 1990/91, i.e. from the so-called reference period (Kowalski 2001). That is why those yields were called "reference yields". After the 2003 reform, the so-called regional payments were introduced and regional yields were implemented into calculations. According to the Farm Bill, in the United States the yield in bushels per acre is determined both at the level of farm and county.

As stated above, the EU calculations of payments take into account their rates per 1 ton or 1 ha of cultivated area. In fact, that level results (it's initial level) from the price differences, just like in the USA. In the EU it constituted the difference between the target (global) price and the market price, but in the United States it was the difference between the reference price specified in the Farm Bill (so also a kind of target, preference price) and the market price.

Unlike in the USA, in the EU there is no maximum level of payment per farm, but the highest payments are subject to a 5% reduction; besides, a given country, e.g. Poland (limit of EUR 150,000 per 1 hectare) may introduce limitations on payments itself.

Furthermore, in the EU there is no limit of the surface area eligible for payments. In the USA, the yields are determined for a given county, which results in a much greater diversity of payments than in the European Union.

Generally speaking, the American system is more complicated than the "EU" system, but it may provide the farmers with funding from several programs. It means, which is presented in several publications (Momagri, 2012; Farm Bill, 2016) that an American farmer is not less subsidized than his European counterpart.

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