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# **Developments in farm incomes between 2004 – 2011 in the Polish agriculture and their future prospects**

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# **Developments in farm incomes between 2004–2011 in the Polish agriculture and their future prospects**

## **Abstract**

The paper investigates the trends in the Polish farm incomes between 2004-2011 and some potential changes in the 2015-2020 period. The analysis was prepared based on the Polish FADN database, focusing on field crops, dairy cows, pigs and mixed farms. Our study showed that the production costs increased much faster than value of production in most of the farms in 2004-2011, what resulted in decreasing net income getting from the market. The observed growth in income followed mainly from an increase in the amount of direct payments. The simulations for 2015-2020 indicated a continuation of this tendency in the Polish farms.

**Key words:** farm incomes, EU enlargement

## **Introduction**

Several reports, for example prepared by the European Commission (2011), indicated a dynamic growth in farm incomes in the new Member States (EU-12) after 2004. This was primarily attributed to structural changes (decrease in the number of people employed in agriculture, dropping number of farms, larger area of an average farm) which counteracted the negative trends in the prices of production means and agricultural products. Additionally, an important role of direct payments in the growth of farm incomes was underlined, which helped to cover the total costs of farms getting insufficient income from the market. According to the estimates of the European Commission (2013a), further growth of farm incomes in the EU-12 is expected by 2023, even double as compared to the reference period (average for 2003-2007).

The paper investigates the trends taking place in the amount of farm incomes between 2004-2011 in the new Member States, based on the Polish agriculture. Moreover, the picture of potential changes in these incomes between 2015-2020 is presented.

## **Materials and methods**

The analysis of the farm economic situation and the impact of direct payments on farm incomes in 2004-2011 was prepared based on the Polish FADN data from a representative sample of commercial farms. The aforementioned four types of agricultural holdings represent 88% of the total number of commercial farms (from the Polish FADN area of observation), which use 92% of agricultural areas in that group of farms, they employ 86% of full-time workers and produce 89% of production value (Goraj 2010).

Simulations for the financial situation of selected types of agricultural holdings in 2015-2020 were prepared based on the arrangements adopted during the negotiations concerning the next financial perspective for 2014-2020 (European Commission, 2013b). Results of the study present net incomes per a farm obtained from different options and scenarios in distribution of direct payments after 2013. Moreover, the potential net incomes of examined farms excluding direct payments were calculated as a difference between the value of total production and basic cost categories (direct costs, farming overheads, depreciation costs and costs of externalities).

The following options of direct payments distribution under CAP Pillar I were taken into consideration:

- baseline option (WP) - envelope of direct payments assigned to Poland under CAP Pillar I for 2014-2020;
- option 1 (WP1) - transfer of 25% of the envelope from CAP Pillar II to Pillar I;

- option 2 (WP2) - support for CAP Pillar I with national budget resources, excluding transfer from Pillar II (it was assumed that the level of national support of 2013 will be similar to that of 2015).

Additionally, there were three scenarios analysed under each option:

- ◇ scenario 1 (S1) - support to small farms - up to 10% of the national envelope of CAP Pillar I;

- ◇ scenario 2 (S2) - coupled payments - up to 15% of the national envelope of CAP Pillar I;

- ◇ scenario 3 (S3) - redistributive payments - up to 30% of the national envelope of CAP Pillar I;

Due to significant production differentiation in individual years and steady growth of intermediate consumption, depreciation and, in particular, costs of externalities, different statistical methods for estimation of production and costs after 2014 were checked. Finally, linear regression models were used since they, while ignoring economic fluctuations, well reflected the development trends concerning changes in the area of farms, as well as production and individual components of costs in 2004-2011. Assuming that the development trends observed in 2004-2011 prevail in 2015-2020, changes in the value of production and costs in that period were also estimated on the grounds of these models.

## **Results and discussion**

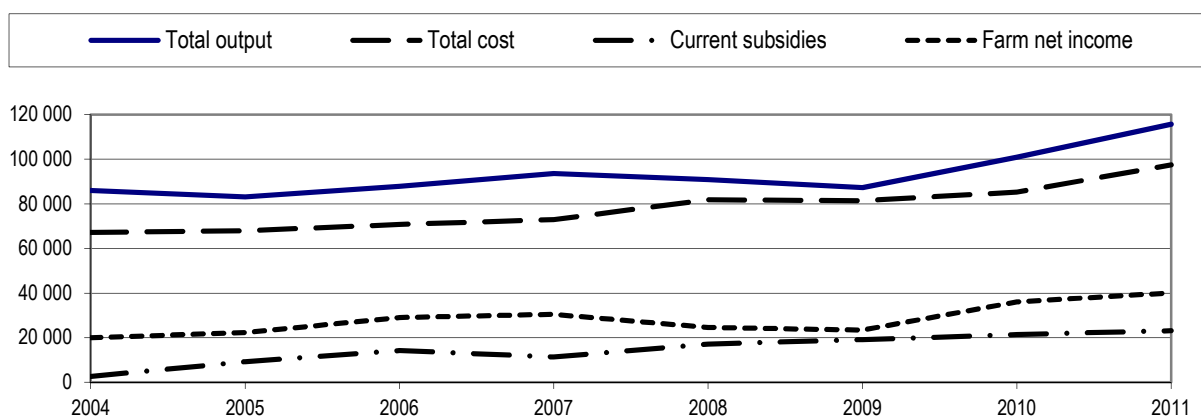
### ***Economic situation of the Polish farms in 2004-2011***

In the course of the analysis it was stated that the costs of farms specialising in field crops, pig farming, and especially those focused on mixed production increased much faster than production in 2004-2011, what resulted in decreasing net income without direct payments and making those types of farms more dependent on public support. If the present trends continue, the net income at mixed farms, which obtained very low income per farm in 2004-2011, will constitute nearly in 100% of payments in 2020. So far, such a situation took only place in case of farms specialising in herbivores animal farming (excluding dairy cows). Changes in the value of production, costs, direct payments and net incomes at farms in total that took place in the Polish agriculture in 2004-2011 are presented in Figure 1.

The study showed that the average annual increase in the total value of production in 2004-2011 amounted to 4.6%. The greatest increase was noted in case of farms focused on field crops and specialising in dairy cow farming (ca. 8.8% each), while the lowest - for mixed farms (4.3%). On the other hand, the average annual increase in the production costs at farms in total amounted to 5.6% and pertained to most of agricultural types. The raise in costs was the highest in farms focused on dairy cow farming (8.2% per annum) and field crops (7.5% per annum), followed by farms specialising in pig farming (5.9%).

Changes in the net value added in respective years virtually reflect the changes in the amount of net income. As for farms in total and in most of agricultural types the net value added increased in 2004-2007 regularly, but in 2008-2009 it dropped to raise again in 2010-2011. Field crops farms achieved one of the most important increases - almost three-fold growth in the analysed period. In case of pig farms, after a period of better results in 2005-2006, they reached in subsequent years similar results to farms in total. Dairy cow and mixed production farms obtained in 2011 as compared to 2004 over two-fold higher net value added.

Our results also indicated the increasingly high share of direct payments to operating activities in the amount of net value added, with a slight reduction in 2007 and 2010-2011. The examined payments constituted on average 12% of the value added in 2004, while 64% in 2009. It can be stated that the economic situation of farmers is less and less dependent on production activities, and it is more and more reliant on payments channelled via non-market sources. In 2009 payments for mixed production farms constituted nearly 88%, for dairy farms - 71%, and for farms focused on field crops - 68%.



Source: Own calculations

Figure 1. Changes in the value of production, costs, direct payments and net income at the Polish farms in total in 2004-2011 (current prices)

Thus it may be concluded that the observed increase in net income followed, mainly, from the increase in the amount of direct payments. This situation slows down structural changes and favours inefficient use of resources, thereby hindering faster changes in the field of technology and production scale in the Polish agriculture. Fortunately, an analysis of agricultural holdings keeping uninterrupted accountancy under the Polish FADN shows that the number of specialised farms increases at the expense of mixed production farms. The largest farms in terms of area are the first to increase their surface, and the number of medium-sized farms clearly decreases (10-30 ha).

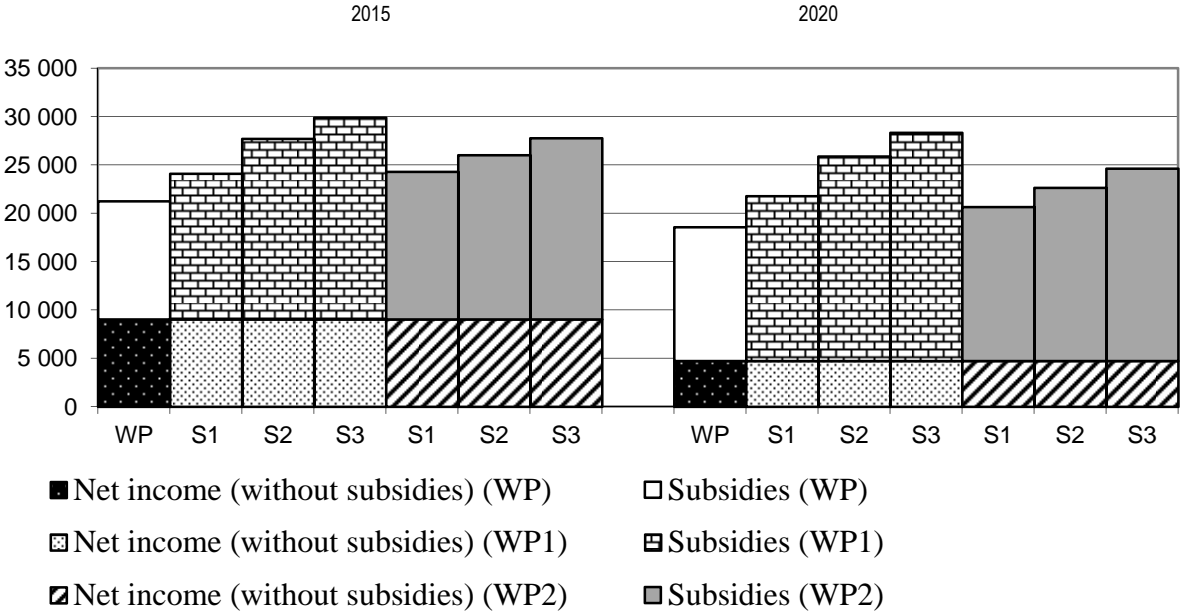
### ***Economic situation of the Polish farms in 2015-2020***

According to our simulations the Polish agriculture should expect in 2015-2020 a drop in income as regards farms in total, which will result from a faster increase in the costs than the production value. Thus the dependence of agricultural holdings on public support will also increase. This pertains to all analysed options and scenarios of changes under the direct payments system (Figure 2). But the economic situation of farms may prove to be very different depending on the agricultural type.

Taking into account the possible decrease in farm incomes in Poland in the coming years it may be stated that each potential opportunity to increase the envelope of direct payments for the Polish agriculture, either through a transfer of a part of resources from CAP Pillar II to Pillar I (option WP1) or through support from the national budget (option WP2), will have a positive impact on the income of an average farm. However, a selection of a specific option by decision-makers should consider the interdependencies between CAP Pillar I and Pillar II and between CAP and other EU policies, especially the Cohesion Policy (the need for national budget co-financing), as well as objectives and priorities set for the entire Polish economy in the coming years.

The dilemma about how to spend funds under the CAP in rational way is not a new issue in the EU. For years, the EU agricultural policy has been struggling to articulate clearly formulated objectives. Resources transfer in the scope of this policy consists in subsidising all farmers, and not in preventing market failures. Indeed, the greatest support is provided to farms having a significant share in market production or to farms large in terms of area (Koester,

2012). For example, the increase in the incomes of the Polish field crops farms noted recently, resulted not from better efficiency of farming, but from an increased area of farms and higher amount of direct payments obtained on that account. It could be expected that after 2020 the rules of CAP Pillar I functioning will change. Without considering internalisation costs and starting to actually pay the farmers for the provision of public goods it would not be possible to lead the future CAP.



Source: Own calculations

Figure 2. Estimates of net farm income under analysed options and scenarios of direct payments distribution in the Polish farms in total (2015-2020 years)

These changes may be favoured by introduction of redistributive payments to the CAP measures framework. According to our analysis, allocation of up to 30% of the Polish envelope of CAP Pillar I payments to first hectares (scenario S3) may have the most positive influence on the incomes of an average farm, while allocation of up to 10% of the envelope for support to small farms is the least favourable choice (scenario S1). It is interesting that the use of a part of CAP Pillar I envelope to a programme supporting small farms brings them the greatest benefits, but they are still the lowest as compared to all the other scenarios. The redistributive payment may prove to be the most efficient option as it comes to an increase in the farm incomes of small farms.

The use of the redistributive payments raises a lot of controversy, since it causes redistribution from larger to smaller farms and thus it may have a negative impact on the competitiveness of large farms (Matthews, 2013). According to the estimates made as part of our study this form of support will mainly contribute to an increase in income of mixed production farms. On the other hand, the analysis depending on the economic size of farms showed that the greatest increase in farm income may occur in case of very small farms. Other farms should expect definitely lower benefits. The increase in income was particularly minor (1%) for very large farms.

On many occasions the European Commission has tried to initiate changes in the principles of distributing direct payments between farms. The 20%-80% proportions, i.e. 20% of farms using 80% of payments continue under the CAP for many years and apply to both the EU-15 and EU-12. The introduction of the redistributive payments provides an opportunity to change

these proportions and thus to use public funds more efficiently. According to Gardner (2013) many farms depend on direct payments because of low efficiency of their agricultural activity; he is of the opinion that the larger and more specialised farm is, the less it depends on support and direct payments play a smaller part in the farm decision-making process.

## Conclusions

The economic situation of Polish farmers becomes to be less dependent on production activities and more on direct payments channelled via non-market sources. In 2004-2011, the production costs increased much faster than value of production in most of the farms, what resulted in decreasing net income without payments. The observed increase in income followed mainly from an increase in the amount of direct payments. This situation slows down structural changes and favours inefficient use of resources, thereby hindering faster changes in the field of technology and production scale in the Polish agriculture.

Our simulations showed that between 2015 and 2020 a drop of farm income should be expected in Poland as regards farms in total. Probably, the trend of faster increase in costs than in the production value will continue. This pertains to all analysed options and scenarios of changes under the direct payments system. Thus each possibility to increase the envelope of direct payments (transfer of a part of resources from CAP Pillar II to Pillar I or support from the national budget) may have a positive impact on the income of an average farm in 2015-2020. The choice is determined primarily by the relations between CAP Pillar I and Pillar II and between CAP and the Cohesion Policy, as well as priorities and objectives set for the Polish economy in the coming years.

It was concluded that the most favourable impact on income of an average farm may follow from allocating up to 30% of the envelope of CAP Pillar I payments to the so-called redistributive payments, while the lowest income was noted in case of using 10% of the envelope for support to small farms. The redistributive payment may play a significant part in the redistributing of direct payments between farmers and in changing the efficiency of public funds used under the CAP.

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