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INCOME CONVERGENCE IN THE AGRICULTURAL SECTOR IN THE CONTEXT OF THE EUROPEAN UNION'S COMMON AGRICULTURAL POLICY[1]

Key words: agricultural income, European Union, convergence, panel unit root test, Phillips and Sul test

ABSTRACT. Agricultural income support is to remain one of the main objectives of the European Union (EU)'s Common Agricultural Policy (CAP) after 2020. Subsidies contribute to increases in income, but the occurrence of income convergence between member states remains questionable. The aim of this article was to assess the phenomenon of convergence of agricultural income (labour factor remuneration) against a background of income in the broader economy. Eurostat data for the years 2001-2019 were used. Convergences were searched for using basic methods (beta and sigma convergence tests), as well as a stochastic framework (Pesaran unit root test) and the robust Phillips and Sul convergence test for comparison. These analyses indicate that there is convergence in the EU's agricultural sector, specifically in terms of labour compensation, but also that this convergence is merely relative. This means that while countries' income growth rates converge, their real income levels do not move to the same level. This conclusion may be an argument for the need to further equalise direct payment rates. The Phillips and Sul test results indicate that incomes in the overall economy are characterised by divergence, but it is possible to identify four convergence clubs.

INTRODUCTION

The Common Agricultural Policy (CAP) remains the most important community policy at an EU level, although its importance is gradually decreasing. In the current financial framework (2014-2020), the budget for the CAP represented 36.1% of the total EU budget after excluding the UK [Massot, Negre 2018], which translated into EUR 382.5 bln in current prices. In the next period (2021-2027), financial expenditures on the CAP will be reduced nominally by about 5% to EUR 365 bln, but in real terms to about EUR 324 bln [Matthews 2018]. Therefore, the CAP's share of the agricultural budget will decrease to about 28.5%. However, total support for the agricultural sector will be somewhat higher, including additional payments (ca. EUR 7.5 bln) from the EU recovery fund (Next Generation EU) set up to deal with the consequences of the coronavirus pandemic.

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Not only are the inputs of agricultural policy themselves gradually evolving; so are its tools and objectives. The CAP was established because of the need to rebuild the destroyed production potential of European agriculture and increase food supply, as well as ensure the balance of power between the largest countries, principally Germany and France [Stępień, Czyżewski 2019]. The particularity of agriculture as a sector was a further significant factor. Due to the immobility of production factors, including a dependence on natural factors, as well as the inflexible nature of demand for food, the market mechanism turns out to be inefficient in relation to agriculture [Czyżewski 2007]. This inefficiency results in inadequate income for farmers and farming families. The rapid appearance of production surpluses in the 1960s prompted decision-makers to introduce further reforms of the CAP. Particular attention should be paid to the so-called Agenda 2000, which divided the CAP into two pillars (support for agricultural production and incomes and rural development) and introduced decoupled payments, starting from 2003. In particular, the latter solution was a symptom of the reorientation of agricultural policy towards supporting farmer income.

Ensuring an adequate level of income remains the most important element of the CAP from a farmer's perspective, while the provision of healthy, high-quality food and the protection of the environment are of key importance to the public. However, it is noteworthy that reducing subsidies to farmers could lead to the further concentration and industrialisation of agriculture. It would produce severe threats to the environment. As a result, the implementation of the postulates that are important for public opinion would then deteriorate [Petit 2019, Michels et al. 2019].

Despite the growing importance of environmental aspects of the CAP, considerable funds will still be allocated to support agricultural income. Pillar I of the new CAP is expected to represent around 78% of the total CAP budget. Subsidies increase farmer income, sometimes even constituting a significant share of it. However, the way these funds are distributed remains an important concern. It influences phenomena such as the level of income inequalities between farms, the level of variability (instability) of these incomes, and the phenomenon of income convergence between particular member states. Taking the differentiation of direct payment rates into account, this final aspect seems to be particularly important; hence, it became the subject of this article.

The main objective of the study is to assess the phenomenon of the convergence of farm income in the European Union against a background of the EU's broader economy. For this purpose, Eurostat data for the period 2001-2019 were used (i.e. the period after Agenda 2000 came into force). Since "convergence" can be understood in several ways, different research approaches and methods were used. Such a triangulation of methods should help obtain robust and meaningful results. It was hypothesised that over the period under consideration, the convergence of incomes generated on farms in the countries assessed did take place. In the second part of the article, a short review of the literature on the relations between agricultural income and agricultural policy is provided. The specific CAP reforms which may have impacted agricultural incomes during this period are also discussed. In the subsequent section of the study, the different methods of calculating convergence together with data are presented. Finally, the results of the research are shown and analysed.

LITERATURE REVIEW

Assessment of the CAP's impact on the income situation of agricultural holdings is not an easy task, due to numerous issues related to the measurement of income itself [Runowski 2020, Spicka et al. 2019]. Nevertheless, it is usually assumed that CAP subsidies make a significant contribution to reducing income deprivation in European agriculture [Smędzik-Ambroży, Guth 2019]. Although payments under the second pillar of the CAP are not designed directly to increase agricultural income, studies have shown that subsidies beyond direct payments, which constitute an additional source of income on the farm, have a pro-income effect overall [Ciliberti, Frascarelli 2018, Galluzzo 2017]. Using the example of Croatia, Vesna Očić et al. [2018] proved that subsidies constitute the largest income share among medium sized farms. This may result from the so-called capping mechanism, which introduces upper limits for possible payments from CAP. The role of subsidies also differs depending on the type of production. Their importance is greater in the case of animal and dairy farms and lower in the case of horticultural farms.

The impact of CAP subsidies on agricultural income, especially second pillar payments, may also be intermediary. Using the example of Baltic countries, Vsida Sapolaitė et al. [2019] pointed to the acceleration of investment processes in agriculture, which resulted in the improvement of productivity and further increases in income. The incomes of farms in the so-called new member states are still lower, on average, than those in the EU-15, but an analysis stratified by economic size indicates that in the case of the largest farms (those with over EUR 250,000 of standard output), the situation is often different. The biggest farms in the "new" EU often generate a higher income than their counterparts from the EU-15 [Smędzik-Ambroży, Guth 2019].

One of the tenets of critiques of the CAP is often the phenomenon of a significant concentration of payments to the largest farms – 20% of the largest entities absorb 80% of payments [EC 2018]. This outcome mainly results from the construction of a system based on payments per hectare. Nonetheless, surveys conducted in Germany [Hansen, Offermann 2016] and Italy [Severini, Tantari 2013] show that payments contribute to a reduction of income inequalities among farms, although recent reforms of the CAP have weakened this pro-equality effect. Another important issue is the stabilisation of agricultural incomes. Subsidy rates do not depend on the current situation in the sector; hence, as a stable source of income, they contribute to overall income stabilisation [Bojnec, Fertő 2019]. The Italian example [Severini et al. 2017] shows, however, that although the stabilising effect may be visible at a level of the whole country, this link does not always exist in individual regions.

Regarding the problem of convergence in European agriculture, the studies conducted so far have primarily focused on the convergence of productivity. They indicate that, in general, there has been a convergence of total productivity within the EU [Hamulczuk 2015, Baráth, Fertő 2017], although, in the case of Mariusz Hamulczuk's research [2015], it was found that there was no sigma convergence at an EU level. Using the example of Poland, Adam Majchrzak and Katarzyna Smędzik-Ambroży [2014] did not find proof for interregional sigma income convergence in any of the main agricultural types.

Among the significant changes proposed for the CAP after 2020 is the increased possibility of applying coupled payments from 8 to 10%. However, it should be noted that some countries could already allocate a larger part of their national envelopes for this type of payment, up to 13% [Matthews 2018]. The key role may be played by income risk management tools, which will be obligatory in the new framework. Payments from the system will be made with income losses of 20%. The scenario of CAP abolition is not seriously taken into account at present, as the removal of payments would lead to a decrease in agricultural income of 17% on average. It is also unlikely that direct payments would be fully replaced by a counter-cyclical payment system, i.e. payments to farmers activated in the event of a drop in income. It is indicated that such a system limits rational market adjustments in agriculture [EC 2018]. In the case of a drop in profitability of a given direction of production, the farmer should at least consider switching to another type of production, rather than staying with the current one. In some countries (e.g. Germany), farmers would accept co-financing income/revenue insurance, even if the subsidy system were entirely replaced by subsidies for these insurance policies [Möllmann et al. 2019]. However, it can be assumed that similar experiments carried out in countries with lower incomes in agriculture could produce a different result. Moreover, it is currently difficult to estimate the possible cost of participation in insurance schemes for farmers.

The above review shows that although the role of the CAP in increasing agricultural income is undeniable, its effects on income distribution are debatable. In the next part of the paper, the process of income convergence in the agriculture of EU countries is evaluated.

MATERIAL AND METHODS

The simplest method of assessing whether convergence occurs is beta convergence analysis. According to this concept, convergence exists when the growth rate of a given variable (e.g. income) is higher in countries where the initial level of that variable is lower [Barro, Sala-i-Martin 1991]. Formally, the occurrence of beta convergence is tested using a linear regression model estimated by least squares (OLS):

$$\Delta\bar{y}_i = \alpha + \beta y_{i0} + \varepsilon_i \tag{1}$$

where: $\Delta\bar{y}_i$ is the average growth rate of income, y_{i0} is an initial level of income (here: income per worker in 2001), ε is an error term, while β is the parameter to be estimated. The significant, negative value of β indicates the existence of convergence.

According to the definition of sigma convergence, convergence occurs when income differences between countries are shown to decrease over a period of time. The standard deviations of logarithms of a given variable are calculated for each year in the examined period (in this case 2001-2019), and then the trend function is determined. If the trend coefficient is both negative and statistically significant, convergence is assumed to occur. Formally, the relevant functions can be written using the following equation to be estimated by OLS:

$$y_t = \alpha + \beta t + \varepsilon_i \tag{2}$$

where y_t is a standard deviation of income calculated as:

$$y_t = \sigma_t = \sqrt{\sum_{i=1}^{n} (\ln y_{it} - \ln \bar{y}_t)^2} \tag{3}$$

where $\ln y_{it}$ is a logarithm of the income level in country *i* and period *t*, while $\ln \bar{y}_t$ represents the average value of income in the group of countries under consideration.

Both approaches are criticised since they assume that sample units (here: countries) are homogeneous. If the examined units are not truly homogeneous, then the error is correlated with the initial income level, causing endogeneity, and thus the resulting β coefficients are biased [Sondermann 2014]. As an alternative, stochastic convergence may be measured. In this framework, convergence occurs when relative income levels follow a stationary process. If the differences between the value of income in a given country and the average value of income in the EU over a given period tend to some constant value, then one can consider convergence as relevant. Absolute convergence occurs if this constant value is zero. In the case of panel data, the panel unit root test framework can be used to assess stationarity (convergence). There are two generations of these tests. The first generation tests assume cross-sectional independence in error terms, while second-generation tests allow for dependence. The latter is a reasonable assumption when macroeconomic data are used, since we observe ever-increasing economic integration between countries. The choice of the appropriate test should be preceded by testing a given variable for cross-sectional dependence. Pesaran, Friedman, or Friese tests may be used to this end [Kijek et al. 2019]. If the null hypothesis of no cross-sectional dependence is rejected, the second-generation test should be used. In this paper, the Pesaran test was used to assess the occurrence of cross-sectional correlation in income in agriculture and the wider economy [Pesaran 2015]. Cross-sectional dependence was found in all cases (cf. results section), so stochastic convergence was measured by the Pesaran second-generation test [Pesaran 2007]. The following equation is estimated in this test:

$$\Delta y_{it} = \alpha_i + b_i y_{it-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{it} \tag{4}$$

where y_{it-1} is the level of income in country *i* in period $t-1$, Δy_{it} stands for income growth, $\bar{y}_{t-1}$ is the average income level in a surveyed group of countries in the period $t-1$, $\Delta \bar{y}_t$ is the average income growth in a surveyed group of countries in period *t,* and α_i, b_i, c_i, d_i are parameters to be estimated. When parameter b_i is negative, and the t-test suggests its significance, then the null hypothesis on the panel unit root can be rejected. This means that incomes converge to a steady-state, so convergence occurs.

If there is more than one equilibrium level among surveyed countries, and data come from a time of transitional dynamics (which could be the case, especially among countries that joined the EU in 2004 and after), then unit root tests may also lead to misleading results [Zhan et al. 2017]. Peter Phillips and Dongguy Sul [2007] proposed a robust method for measuring convergence under such circumstances. Their test allows for heterogeneity among units that can further change over time. Furthermore, there is no need to make assumptions of trend stability or random non-stationarity. In addition, this method can be used to obtain convergence clubs if incomes in different countries do

not share a common trend [Tomal, Gumieniak 2020]. Formally, the Phillips and Sul test can be expressed as follows:

$$\begin{cases} \log\left(\frac{H_1}{H_t}\right) - 2\log\big(log(t)\big) = b_0 + b_1 logt + \varepsilon_t, \ for\ t = T_0, \dots T \\ H_t = \frac{1}{N}\sum_{i=1}^{N}(h_{it} - 1)^2\ , h_{it} = \frac{y_{it}}{N^{-1}\sum_{i=1}^{N} y_{it}} \end{cases} \tag{5}$$

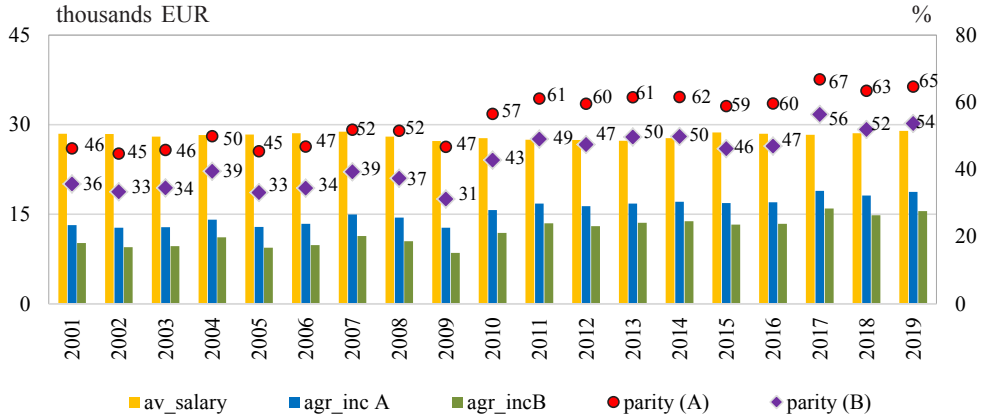
where: log(t) is a slowly increasing variance function, which is used to balance the increase in variance, y_{it} represents the income level in country i in period t; b_1 indicates the convergence rate, h_{it} is a relative transition path of income in a given country and year in relation to the panel average, H_t is a distance measure, and T_0 and T are the first and last observation in the regression. The data used in the regression start at $t = (rT)$, the integer part of rT. In this article a standard approach is used, setting r as 0.3. If the t statistics for b_1 exceed -1.65, the null of convergence cannot be rejected. Relative convergence (income growth rates converge) occurs when b_1 is below 2. Absolute convergence (income levels converge) exists when b_1 is higher than 2. Even if there is no evidence for at least relative convergence, it is possible to identify convergence clubs (i.e. groups of countries that are converging to their specific equilibrium level).

For this analysis, Eurostat data for 28 EU countries for the years 2001-2019 were used. Income in the total economy (av_salary) was understood as the value of wages and salaries per employee (domestic concept). Income in agriculture is defined by a complex interplay of analytical categories; therefore, analysing just one category may lead to wrong conclusions. As such, in this research, incomes were analysed from both broader and narrower perspectives. The first category (agr_inc_A) was the sum of net value added at basic prices, and other subsidies on production, per total labour force employed in agriculture. The second category of income (agr_inc_B) was the so-called entrepreneurial income per unit of unpaid labour force (the farmer and their family). All income values were deflated using the Harmonised Index of Consumer Prices (HICP) published by Eurostat. In convergence calculations, the logarithms of income values were used. For wages and salaries in the broader economy, data for all 28 EU countries (including the United Kingdom) were used. Few countries needed to be omitted in convergence computations for agricultural income. Croatia (agr_inc_A) and Croatia and Cyprus (agr_inc_B) were omitted due to data gaps. Slovakia, Denmark, Czech Republic and Estonia (agr_inc_B) were skipped because of negative values of income in some year which could bias convergence calculations.

RESULTS

As mentioned, the objectives of the CAP, in terms of agricultural income, include reducing income deprivation as well as narrowing the income gap between member states. As regards the former, it can be demonstrated (cf. Figure 1) that income parity (understood as the remuneration of the labour factor in agriculture versus the remuneration of the labour factor in the broader economy) has systematically been increasing. In 2001,

on the EU scale (also, data for those countries which joined the EU in subsequent years are included), the level of income in agriculture constituted 46% of remuneration in the economy if the added value increased by subsidies is taken into account, or 36% in the case of remuneration of an agricultural entrepreneur. In the following years, parity showed an upward trend, although it is worth noting that the economic crisis of 2009 affected agriculture more strongly than the total economy – parity that year decreased in relation to 2008 from 52 to 47% (agr_inc_A) and from 37 to 31% (agr_inc_B). The difference in agricultural income and total income in 2009 would have been even greater if it had not been for the subsidies, the size of which is not related to the economic situation. In the examined period, the share of subsidies in entrepreneurial income amounted, on average, to 59%, but the highest value was recorded in 2009 – as much as 85% (own calculation). After the financial crisis of 2009, an increase in the level of income parity was observed; in 2019, it amounted to 65% (agr_inc_A) or 54% (agr_ inc_B).

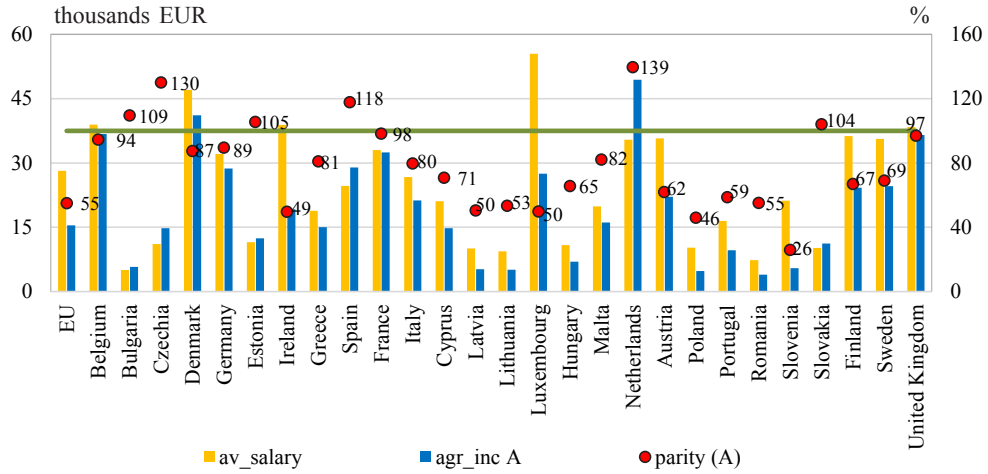


Note: av_salary – average level of wage and salary per employee in the total economy (domestic concept); agr_inc_A – net value added at basic prices, and other subsidies on production, per total labour force employed in agriculture; agr_inc_B – entrepreneurial income per unit of unpaid labour force (the farmer and their family); parity (A) – agr_inc_A/av_salary (%); parity (B) – agr_inc_B/av_salary (%)

Figure 1. The average levels of income per worker in the EU in the wider economy and in agriculture in thousands of euros (left axis) and corresponding parity levels in % (right axis)

Source: own elaboration based on Eurostat data (nama_10_gdp, nama_10_pe, aact_eaa01,aact_ali01, prc_hicp_aind)

However, when analysing the situation in individual countries, it was observed that the average level of parity in the period under examination was very different (Figure 2). On average, in the years 2001-2019, it amounted to 55% in the EU, with 83% in the so-called "old EU" and 75% in the "new EU". Looking at the situation in countries that joined the EU in 2004 or later, one can see that in countries where agriculture was fragmented, the parity level was lower. For example, in Poland it was 46%, and in Slovenia, only 26%. On the other hand, in countries with a predominance of large-scale agriculture (the Czech Republic and Slovakia), the level of parity exceeded 100%, 130% in the Czech Republic and 104%



Note: av_salary – average level of wage and salary per employee in the total economy (domestic concept); agr_inc_A – net value added at basic prices, and other subsidies on production, per total labour force employed in agriculture; parity (A) – agr_inc A/av_salary (%); for the sake of clarity, the figure only presents parity between income in the total economy and agricultural income understood as added value increased by subsidies

Figure 2. Income per worker in EU Member States in the wider economy and in agriculture (2001-2019 average) in thousands of euros (left axis) and the corresponding parity level in % (right axis)

Source: own elaboration based on Eurostat data (nama_10_gdp, nama_10_pe, aact_eaa01,aact_ali01, prc_hicp_aind)

in Slovakia, respectively. As far as the EU-15 countries were concerned, the highest parity level was recorded in the Netherlands (139%), where agriculture is extremely intensive, and also in Spain, where there are extensive farms in the central part of the country and smaller, labour-intensive farms in coastal regions. On the other hand, low parity values were recorded in countries with relatively less favourable conditions for farming (Sweden and Finland), in countries where there are relatively many small farms (Ireland, Austria, Portugal) and/or where income in the total economy is particularly high (Luxembourg).

The convergence of income in agriculture and the total economy in European Union countries was examined by means of convergence analysis. It should be noted, that the research period is relatively short, so more analyses would be needed in coming years,

Table 1. Beta and sigma convergence among incomes

Variable	Beta convergence		Sigma convergence	
av_salary	-0.00139***	convergence	-0.00017***	convergence
agr_inc_A	-0.00148***	convergence	-0.00028***	convergence
agr_inc_B	-0.00188***	convergence	-0.00042***	convergence

Note: *** $p < 0.01$, beta standardized coefficients are provided
Source: own elaboration based on Eurostat data

especially when the next EU Multi-Annual Financial Framework is completed. In the first step, the occurrence of beta and sigma convergence was analysed (Table 1).

Beta convergence has been found to exist in regard to both income in the total economy and agricultural income. This means that the higher the initial income level, the lower the income growth rate over the period considered. Standardised regression coefficients have been used in Table 1, making it possible to compare coefficient values. Therefore, it can be concluded that the beta convergence rate of agricultural income was higher than that of the total economy. Similar conclusions can be drawn from the analysis of sigma convergence. It appears that income disparities between member states have been decreasing, although the rate of this reduction in agricultural income has been higher than in the total economy.

The results of the above estimations can be biased, as beta and sigma convergence tests assume the homogeneity of investigated units, which is unrealistic for an organisation as diverse as the EU. In the next step, therefore, stochastic convergence was analysed. It was assessed whether income in the total economy and agriculture moved to the equilibrium. In other words, the stationarity of panels was examined. Table 2 shows the results of Pesaran's test for the presence of a cross-sectional correlation in error terms. Since it did occur in the case of each of the examined variables, the second generation Pesaran test was used to assess stationarity (convergence) (Table 3).

Table 2. Results of the Pesaran cross-sectional dependence test

Variable	Cross-sectional dependence	
av_salary	84.491***	yes
agr_inc_A	80.642***	yes
agr_inc_B	64.619***	yes

Note: *** $p < 0.01$, the null hypothesis is: errors are weakly cross-sectional dependent
Source: own elaboration based on Eurostat data

Table 3. Income convergence under a unit root test setting. Test statistics for the Pesaran test in heterogeneous panels

Variable	Without trend		With trend	
av_salary	-2.026	no convergence	-2.808**	convergence
agr_inc_A	-2.606***	convergence	-2.654*	convergence
agr_inc_B	-2.605***	convergence	-2.672**	convergence

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, lags criterion decision based on the F joint test. In this test convergence means that null of homogeneous non-stationarity is rejected
Source: own elaboration based on Eurostat data

The results of the Pesaran unit root test indicate that agricultural incomes in the EU (both categories) tend to converge, i.e. idiosyncratic shocks only have short-term effects on the income level in a given country in relation to others. Relative income levels follow a stationary process. As far as income in regard to the wider economy is concerned, stochastic convergence was noted only if such a trend was assumed.

The occurrence of income convergence in European agriculture has also been confirmed by the robust Phillips and Sul test (cf. Table 4). However, the strength of this convergence should be described as low. Taking the values of regression coefficients into account,

one can speak of relative convergence at most, i.e., that there is a weak convergence of income growth rates. The values of coefficient are close to 0, and in the case of income understood as the added value plus subsidies, the parameter even took a negative value. However, it is not significantly different from 0, which makes it impossible to reject the null of convergence. In other words, differences in income growth rates are decreasing, but the levels of income do not move to the same level, i.e. absolute convergence between countries has not yet been observed (regression coefficient < 2) [Choi, Wang 2015].

Table 4. Income convergence under a Philips and Soul test setting

Variable	Coefficient	t-statistics	Convergence
av_salary	-0.3159*** (0.0365)	-8.6636	divergence
agr_inc_A	-0.0118 (0.0437)	-0.2709	relative convergence
agr_inc_B	0.0193*** (0.0462)	0.4174	relative convergence

Note: the robust one-sided t-test is used, the null hypothesis of convergence is rejected when t-statistics < -1.65
Source: own elaboration based on Eurostat data

Table 5. Income convergence clubs (total economy)

Variable	Coefficient	t-statistics
Club 1	0.1372 (0.0268)	5.1140
Club 2	0.1583 (0.0647)	2.4468
Club 3	0.0771 (0.0477)	1.6182
Club 4	0.6798 (0.1468)	4.6317

Source: own elaboration based on Eurostat data

In the case of income in the broader economy outside the agricultural sector, test results clearly indicate the existence of divergence. However, four convergence clubs could be identified (cf. Table 5). The first club comprised Austria, Belgium, Finland and Sweden. This club included some of the richest member states. Bulgaria, Estonia, France, Germany, Latvia, Lithuania, the Netherlands, Slovakia and the United Kingdom created a second club, which covered most of the remaining wealthy countries of Western Europe, and most of the "new" EU countries that have joined the Eurozone. The third club included the Czech Republic, Italy, Malta, Slovenia, and Spain, while the fourth consisted of Croatia, Greece, Poland, Portugal and Romania. Club 4 experienced the fastest pace of convergence by far (cf. the coefficient in Table 5), which should be associated with a rapid growth of income in Poland, Romania and Croatia, while the rate of development in Portugal and Greece was decreasing (sometimes even recession was noticed). However, even in this club, there was no absolute convergence in income levels. Luxembourg, Denmark, Cyprus, Ireland and Hungary were not classified in any club.

CONCLUSIONS

The aim of this study was to assess the occurrence of income convergence in the agricultural sector against a background of the total economy among European Union member states. Data from Eurostat for 28 EU countries from the time period 2001-2019 were used. The analyses were conducted in the context of the evolution of the

Common Agricultural Policy, through which income support is expected to remain a key component of EU agricultural policy even after 2020, although the CAP is becoming a more environmentally-focused policy.

The use of robust methods for calculating convergence has shown that, in terms of income understood as compensation of the labour factor in the total economy, divergence is observed. It is, however, possible to identify groups of countries that are converging to their own equilibrium levels. Income in agriculture is supported on a large scale by payments that constitute a significant part of income in agricultural holdings. The analyses indicate that, in regard to remuneration of the labour factor in agriculture in the EU, convergence is observed, but it is only relative convergence. This means that an equalisation of income growth rates between countries takes place, but no convergence of income levels is observed. Therefore, it can be concluded that the CAP has been successful in increasing agricultural income in particular countries and in reducing the disparity between the income of farmers and non-farmers. However, from the farmers' and a broader political point of view, a further reduction of the income gap in agriculture between countries remains an important challenge. In the long term, this is of fundamental importance for the competitiveness of the sector in countries with lower income levels, as well as for ensuring the smooth succession process at farms. A lack of absolute income convergence may provide an argument in favour of the need for further equalisation of direct payment rates and, in the long run, perhaps introduce a so-called flat rate.

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KONWERGENCJA DOCHODÓW ROLNICZYCH W KONTEKŚCIE EWOLUCJI WSPÓLNEJ POLITYKI ROLNEJ

Słowa kluczowe: dochody rolnicze, Unia Europejska, konwergencja, panelowe testy pierwiastka jednostkowego, test konwergencji Phillipsa i Sula

ABSTRAKT

Wsparcie dochodów rolniczych jest jednym z głównych celów wspólnej polityki rolnej Unii Europejskiej po 2020 roku. Subsydia przyczyniają się do podniesienia dochodów, jednak problematyczna pozostaje kwestia konwergencji dochodowej pomiędzy krajami członkowskimi. Celem artykułu była ocena zjawiska konwergencji dochodów rolniczych (wynagrodzenie czynnika pracy) na tle dochodów w gospodarce ogółem. Wykorzystano dane Eurostat za lata 2001-2019. Występowanie konwergencji badano za pomocą podstawowych metod (konwergencja typu beta i sigma), jak i w ujęciu stochastycznym (test pierwiastka jednostkowego) oraz z wykorzystaniem odpornego testu Phillipsa i Sula. Przeprowadzone analizy wskazują, że odnośnie wynagrodzenia czynnika pracy w rolnictwie, w UE obserwuje się konwergencję, ale jest to jedynie konwergencja relatywna. Oznacza to, że dochodzi do wyrównania stóp wzrostu dochodu pomiędzy krajami, ale nie obserwuje się zbliżenia poziomów dochodu. Wniosek ten stanowić może argument za potrzebą dalszego wyrównywania stawek płatności bezpośrednich. Wyniki testu Phillipsa i Sula wskazują, że w gospodarce ogółem obserwuje się raczej dywergencje dochodową, ale możliwe jest wyznaczenie czterech klubów konwergencyjnych.

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