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PRODUCTIVITY OF LABOUR IN AGRICULTURAL ENTERPRISES IN SELECTED EU COUNTRIES

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Abstract

The objective of the article is to indicate the differences between labour productivity in the Polish agriculture and the EU countries, with special emphasis on the largest producers of food. The article makes use of the data from the Central Statistical Office (GUS) and Eurostat. The difference between the labour productivity in the Polish agriculture and in leading European farms is very significant (German, British or French productivity is 6-7 times higher). The limited growth of labour productivity in agriculture results from endogenous and from exogenous factors.

Key words**:** *labour productivity, agricultural, SO, AWU*

INTRODUCTION

Labour productivity is the basic factor determining the level of economic development of a society, resulting in differences in the level of wealth among the respective sectors of the economy. It follows from the Eurostat data that the level of labour productivity in European farming is lower than in other areas of national economy.
The productive use of labour resources in the agriculture also constitutes one of the factors decisive for the competitiveness of enterprises in the domestic and international markets. Labour productivity is specified based on the consumer goods produced by people in a unit of time, it allows to determine the manufacturing or service-related effects per one person employed in the agriculture. Labour productivity is an economic category which expresses the socially necessary labour input that is changing over time, together with the development of production capacities. The research into productivity of agricultural labour, in terms of the endogenous and exogenous factors that shape it, allows, among others, to assess the current condition of agriculture, including from the social point of view. The value of the goods produced by the given employee determines the level of its personal remuneration and living condition. Obtaining high labour productivity is commonly considered to be one of the most important developmental parameters of economies, because it leads to a reduction in production costs and an increase in supply of goods. It adds dynamism to the market and increases the purchasing power of societies, their wealth and competitive capacity.
That is why this article attempts to assess whether that condition results from the objective conditions of agricultural production, resulting, for example, from its limited and natural character. Or maybe are dynamic parameters decisive, such as, for example, the slow pace of agrarian changes in the European Union. The discussed issues belong to mainstream economy and refer to the problem of balance among production factors, mainly the relationship between the land and the labour factor.

MATERIALS AND METHODS

The objective of the article is to indicate the differences between labour productivity in the Polish agriculture and the EU countries, with special emphasis on the largest producers of food. Gołaś (2016) and Golas & Kozera (2008) indicated that labour productivity is an economic category which expresses the socially necessary labour input that is

changing over time, together with the development of production capacities [3, 4]. The article indicates the differences in agricultural enterprises, taking into account their size, in compliance with the neoclassical model of structural changes taking place in the agriculture which emphasizes the relationships between the size of agricultural enterprises and the scale and capacity of production. That model assumes that only a sufficient scale of production may provide high management efficiency [2]. The increase in the physical and economic size of entities leads to consolidation of their competitive position in the market through benefits of scale, to improvement of their negotiation position in business relationships, etc.

There are many studies devoted to the issue of productivity of labour in agriculture. Retinger and Kristkova stated that its level mainly depends on the outlays on research and development [7]. In turn, there is observed a rising relationship between productivity in the agriculture, access to knowledge resources, and the level of outlays on R&D.

Muguera with his team emphasizes the sources of changes in productivity and profitability at the level of agricultural enterprises, by their size and specialization. The main source of total factor productivity change is technical change. The upward-shifting frontier results in declining technical efficiency. Results point towards the need to support research and development without ignoring efforts to encourage the uptake of existing technologies [5]

It follows from Popescu's research that the level of productivity of the labour factor in agriculture is several times lower than outside it. [6]. The author indicates that, for the purpose of improving labour productivity, advanced technical resources should be introduced, the transfer of knowledge to farmers should be increased, and their level of training and managing skills should be improved. These complementary activities should be executed both within the Common Agricultural Policy, and within the economic policies of the respective EU member states.

The study takes into account the dynamics of changes in labour productivity and the factors determining it in comparison with the period from before Poland joined the European Union. That is because the implementation of the Common Agricultural Policy instruments was conducive towards the adaptation of structures of the Polish agriculture. The applied measure of labour productivity in the form of standard output (SO) in EUR per an annual working unit (AWU) is of estimated character. It results from the manner of calculating standard production which does not reflect the factual condition of agricultural enterprises. The article makes use of the data from the Central Statistical Office (GUS) and Eurostat.

RESULTS AND DISCUSSIONS

Trends in employment in agriculture and their impact ob GDP

Table 1 presents the tendencies in employment in the agriculture and its impact on the gross domestic product in the years 2002 – 2014. The selection of that period allows to analyze the changes from both before and after Poland joined the European Union, as well as in the period of over a decade of experiences associated with the accession of Poland, including the experiences of the agricultural sector. It follows from the data presented that the share of people employed in the agriculture decreased slightly, by 1%. It mainly results from the increase in employment in the whole domestic economy. However, in terms of absolute values, there was recorded an increase in employment in the researched period by ca. 65,000 people, mainly visible in the last two years, i.e. 2013 – 2014. That increase was caused by an impairment of the pace of economic development, measured based on the indices of dynamics of the gross domestic product, and thus by a lower influx of labour resources to the non-agricultural areas of the economy. In the analyzed period, the value of GDP in current prices increased almost 2 times, while GDP in the agriculture – 1.7 times. Against the background of quite dynamic growth of the whole economy, the pace of development of agriculture was slightly lower. The result was the maintained

difference in labour productivity in comparison with the productivity of the persons hired in other sectors of national economy. However, taking into account the data from the 1990s [9], we find that the process of increasing difference in the productivity of the people employed in the agriculture and in other sectors of the national economy, was stopped. This definitely resulted partly from the accession of Poland to the European Union, and from the opening of markets to agricultural and food products [1].

Table 1. Share of people employed in the agriculture and share of agriculture in the gross domestic product in Poland

Years	Share of people employed in agriculture among all the people employed [%]	Share of agriculture in the gross domestic product [%]	How many times general work is more productive than work in agriculture
2002	16.3	2.7	6.0
2003	16.5	2.6	6.4
2004	16.5	4.5	3.6
2005	16.2	4.1	4.0
2006	15.8	3.7	4.3
2007	15.1	3.8	4.0
2008	14.8	3.3	4.5
2009	15.0	3.2	4.7
2010	15.2	3.3	4.6
2011	15.1	3.6	4.2
2012	16.8	2.9	5.8
2013	15.6	2.9	5.4
2014	15.5	2.6	6.0

Source: Own study based on the 2003 – 2015 Statistical Yearbooks, issued by ZWS, Warsaw [8].

It follows from the Eurostat data that the highest employment rates in the agricultural sector appeared in the regions with majority of rural areas – in Romania, Bulgaria, Poland. The share of agricultural employment above average was also observed in Portugal and Greece. In turn, the share of agricultural employment below 5% in rural areas was noted in six member states – Belgium, Denmark, Germany, the Netherlands, Slovakia and Sweden.

The high level of employment in agriculture is accompanied by the relatively low share of that sector in the generation of the added value in the whole economy. This means that work productivity is lower than in the case of –on-agricultural sectors of the economy.

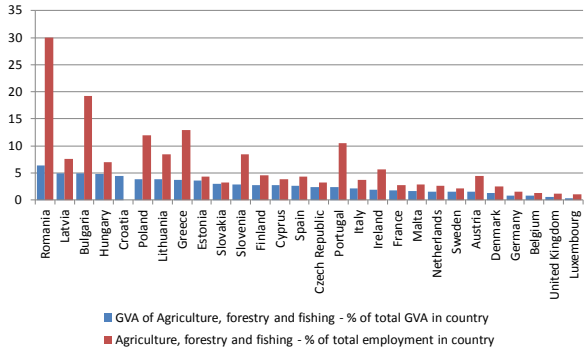

Fig. 1. Share of agriculture in gross value added in % and the share of employees in agriculture in EU in 2014. Source: Own calculation.

Figure 1 presents the dependence between the share of the agricultural sector in the added value of the economy, and the proportion of people working in agriculture in the EU countries in 2014. The works situation is in the case of Romania, Bulgaria, Poland, Greece and Portugal.

Work productivity

The average labour productivity in agriculture in EU-27 was 14,786 euro per work unit in the period of 2010-2014. In 15 old EU states, the average labour productivity in SO per AWU (EUR 25,140/AWU) is six times higher than the average for 12 states that joined the EU in 2004 and later (EUR 4,730/AWU). The highest labour productivity was recorded in Denmark (EUR 53,600/AWU, i.e. 3.5 higher than the EU-27 average), then in the Netherlands (EUR 48,450/AWU) and Belgium (EUR 38,620/AWU). In turn, Latvia, Bulgaria, Poland and Romania were characterized by the lowest labour productivity in agriculture, from EUR 3,340/AWU for Latvia to EUR 4,318/WAWU for Romania.

The value of standard production (SO) per AWU increased in the whole EU by ca. 27% (4.5% annually on average) between 2005 and 2014. The highest increased in labour productivity was recorded in the Baltic states (+ 11.25% annually on average), then in Bulgaria and Romania (+10% annually). On the other hand, many older member states (e.g. Ireland, Germany, Spain and the

Netherlands) have very low or even negative growth rates of the value of standard production per AWU. This may mean that those countries reached the maximum level of labour productivity which will be difficult to exceed with unchanged conditions.

Despite the recorded increase in labour productivity by ca. 30% in the period of 2005-2014, Poland is one of the countries with the lowest labour productivity, below EUR 20,000 per person employed in a statistical agricultural enterprise. Labour productivity in a Polish agricultural enterprise is three times lower than the EU average. Taking into account the size of agricultural enterprises, the smallest distance from the EU average is visible in the agricultural enterprises in Poland of the area of over 100 ha of usable agricultural land, 50-99.9 ha and without usable agricultural land [Eurostat]. In those groups, the differences in productivity among Polish enterprises and the EU average amounted to 27,45 % and 46%, respectively. At the same time, the largest differences in labour productivity referred to the enterprises with 2-4.99 ha and 5-9.99 ha – over 60% in terms of standard production per AWU.

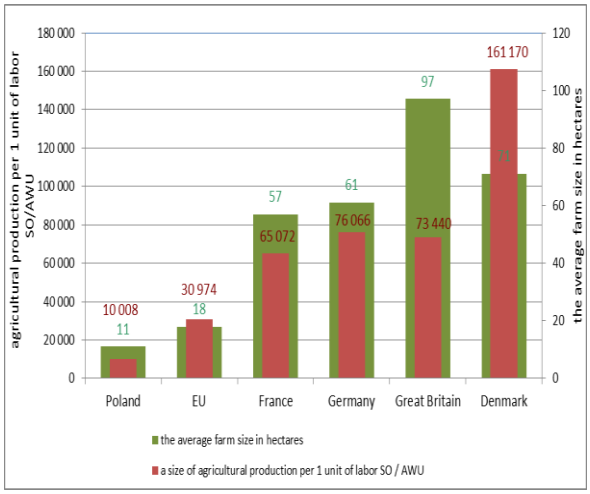

Fig. 2. Average farm size in Poland in ha and SO/AWU in comparison to EU and selected countries in 2014
Source: Own presentation based on EUROSTAT. http://ec.europa.eu/eurostat/web/agriculture/data/main-tables (10.10.2016)

Figure 2 presents the information on the average area of agricultural enterprises in Poland and selected EU countries. Even bigger differences, to the detriment of the Polish agriculture, are visible in comparison with the largest agricultural producers of the EU. A statistical agricultural enterprise in Poland is smaller, in terms of surface area, than the EU average, and several times smaller than those of the main competitors.

Labour productivity in a Polish agricultural enterprise was several times lower than in the countries leading in agricultural production. The highest labour productivity was demonstrated by the agricultural enterprises in Denmark (over 160,000 euro of standard production per AWU), the productivity of which was 16 times higher than in Poland. In turn, the labour productivity in Germany, Great Britain and France was ca. 6-7 times higher than in Poland.

CONCLUSIONS

The labour productivity in the Polish agriculture is affected by the high level of employment, in particular in comparison with the countries of the EU. The rate of people employed in agriculture was 15.5% in 2014, and was one of the highest ones in the EU, next to Romania and Bulgaria. In 2014, the people working in the Polish agriculture constituted 1/5 of all the people working in the EU agriculture, so almost the same number as France, Spain and Germany together.

Labour productivity in the Polish agriculture is many times lower than in the remaining sectors of the economy. It follows from the first table that labour productivity in agricultural enterprises is ca. six times lower than in other sectors.

The difference between the labour productivity in the Polish agriculture and in leading European farms is very significant (German, British or French productivity is 6-7 times higher).

Due to the complex situation in the market of agricultural products in Poland, the significant overproduction of food, and sustaining effects of the Russian export embargo, a fast improvement of the labour productivity in agriculture is not to be expected.

The limited growth of labour productivity in agriculture results from endogenous factors,

i.e. high level of labour resources in agricultural enterprises, and from exogenous factors, i.e. complex market condition resulting from restrictions on exports.

REFERENCES

[1]Biernat-Jarka, A., 2015, Structural changes and labour input in Polish agriculture after the accession to the European Union. Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 15(3):73-78.
[2]Chavas, J.P., Chambers, R.G., Pope, R.D., 2016, Production economics and farm management: a century of contributions, "American Journal of Agricultural Economics", Vol. 92(2): 356-375.
[3]Golaś, Z., 2016, The level and determinants of work profitability changes in the Czech and Polish agricultural sector in the years 2004–2014, Agricultural Economics – Czech, Vol. 62, (7): 334–344.
[4]Gołaś, Z., Kozera, M., 2008, Strategie wydajności pracy w gospodarstwach rolnych (Strategies of labor productivity in agricultural enterprises), "Journal of Agribusiness and Rural Development", Vol. 1(7):73-87.
[5]Mugera, A.W., Langemeier, M.R., Ojede, A., 2016, Contributions of Productivity and Relative Price Changes to Farm-level Profitability Change, "American Journal of Agricultural Economics", Vol.98 (4): 1210-1229.
[6]Popescu A. 2015, Research on labour productivity in Romania's agriculture. Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 15(2):271-280.
[7]Ratinger, T., Kristkova, Z., 2015, R&D Investments, technology spillovers and agricultural productivity, case of the Czech Republic, Agric. Econ. – Czech, 61 (2015): 297-313.
[8]Rocznik statystyczny z 2014, Wyd. ZWS, Warsaw, p. 466-467.
[9]Ziętara, W., Ekonomiczna i społeczna wydajność pracy w różnych typach gospodarstw rolniczych (Economic and social labor productivity in various types of agricultural enterprises), Zeszyty Naukowe SGGW, Ekonomika i Organizacja Gospodarki Żywnościowej 41/2000, p. 19-34.