THE SHARE OF THE AGRICULTURAL SECTOR AS A FACTOR FOR REGIONAL DIFFERENCES FORMATION

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Abstract

The role of the agricultural sector in the light of the structural approach is considered. The close connection between the share of the agricultural sector and the level of the economic development in the EU countries and the Balkan countries is analysed. A parallel of these dependencies is made with the differences in the regional economic development in Bulgaria - the connection between the GDP, the people employed in agriculture and the degree of regional economic development. Based on the obtained results, summaries and conclusions are made about the possibilities for achieving integrated regional development.

Keywords: structural changes, agricultural sector, regional differences.

INTRODUCTION

The approach in economics known as "structural" (or "structuralism") emphasizes the importance of measuring the impact of structural characteristics when performing economic analysis. The structural approach in economic research is generally associated with an analysis of the factors determining the relationship between economic growth and changes in economic structures. Silva and Teixeira (2008) define the analysis of structural changes as a powerful tool in determining the economic development path, especially as regards the process of absorbing new technologies.

Research on structural changes emphasizes the fact that countries and regions at different stages of development have different economic structures due to differences in their sectoral effectiveness (Pasinetti, 1981). According to Kuznets "structural changes .... are necessary, without which modern economic growth is impossible" (Kuznets, 1971, p. 348).

In general, favourable structural economic development is associated with changes in the production structure in favour of industries and sectors that are characterized by higher labour productivity. The ability of an economy to adapt to changing economic conditions through the implementation of structural changes is associated with the ability of this economy to achieve effective economic growth (Memedovic & Iapadre, 2010).

Although the concept of what is structural change is not unambiguously defined by different authors, the most common meaning in one or another form refers to lasting changes in the sectoral structure of the economy – the share of individual sectors in the formation of the Gross Domestic Product (GDP) or the relative share of those employed by the sector.

The economic factors that determine the intensity and direction of the structural changes for each region (country) for a concrete period are related to specific circumstances that change over time. In practice, they determine the comparative advantages of regions and countries and their "optimal" economic structures, as well as investment opportunities, workforce readiness to retrain and a number of other factors.

The so-called three-sector hypothesis or three-sector model of changes in the structure

(determining, primary-agricultural sector, secondary-industry sector and tertiary-service sector) is based on the understanding of a constant process of structural changes within these sectors. The model was first proposed by A. Fisher (1919). The first phase (step) of structural changes is in the increase of the relative share of the people employed in the industrial sector at the expense of the agrarian one and is connected with the ongoing processes of urbanization. Increasing labour productivity in the industry is a prerequisite for moving to the next phase, in which the participation of employees in the service sector is growing and this is mainly at the expense of industry and to a lesser extent the agricultural sector. Of course, these stages take place differently in different regions and countries and should be perceived as a long-term trend in the development of modern economies, in the sense that turbulent impacts such as economic crises can disrupt this trend for some time (Clark 1940).

In accordance with the three-sector hypothesis the countries and regions characterized by a higher relative share of the agricultural sector are expected to be at an earlier stage of structural development – that implies also the potential of their economies to be lower. So, the high share of employed in the agricultural sector is inherent in countries and regions that are at a relatively lower level of economic development.

At the same time, structural changes need to be considered from a systemic point of view too, insofar as the formation of the relative share of a given sector is also a result of inter-sectoral dependencies. In other words, the difference in the development of sectors is not so much a result caused by a specific autonomous sectoral development, but is primarily the result of interaction between sectors - since the relative increase or decrease of participation of one sector is a result of favourable or unfavourable development of the other sectors.

The main goal of the study is to assess the extent to which the observed economic structures at national and regional level determine the potential for economic development, and respectively how it will influence this development in the future.

The evaluation of the impact of the difference in structures on economic development was made by assessing the relationship between the relative share of the Gross Domestic Product (GDP) or the Gross Value Added (GVA) on one hand, and the share of employees in agriculture or the GVA produced in agriculture, on the other. The statistical information about the observed indicators is based mainly on the available data from Eurostat as well as from the National Statistical Institute. The information used covers variational statistical rows – on countries for 2019 and on district level for Bulgaria for 2017. Some results for the observed indicators obtained on the basis of different time series were used in the analysis as well.

In the analysis, results from the application of statistical indicators and methods are used, as well as from the application of methods and indicators for assessing the formation of differences in structures (the so called "shift share analyses"). The results of the study allow the prediction of trends about the structural changes in the main sectors at national and regional level and about the opportunities for economic development they determine.

RESULTS AND DISCUSSION

The share of the agricultural sector in the EU countries and some Balkan countries
The close negative relationship between the proportion of the agricultural sector and the degree of economic development achieved is confirmed by the estimation of the coefficients of correlation between the relative share of the GVA produced in agriculture and the GDP per

capita.[1] The coefficient of the linear correlation for the EU-28 countries in 2019 is negative – minus 0.70 (in other word the higher is the share of the GVA produced in agriculture the lower is expected to be the GDP per capita in the given country). Only for the EU-15 (member states until 2004) it is minus 0.68, while for the new member states after 2004, it is minus 0.72. These coefficients for the new member states were much higher in the years after their accession, which shows that gradually these connections are becoming to play approximately the same role for the observed groups of the EU countries.

However, if one calculates this coefficient in 2019 for the new member states after 2004 and the Balkan countries together, it is coming to a very high negative level – minus 0.86. This determines that for the Balkan countries - the higher share of the GDP in agriculture can be tightly linked to the lower level of economic development (Fig. 1.).
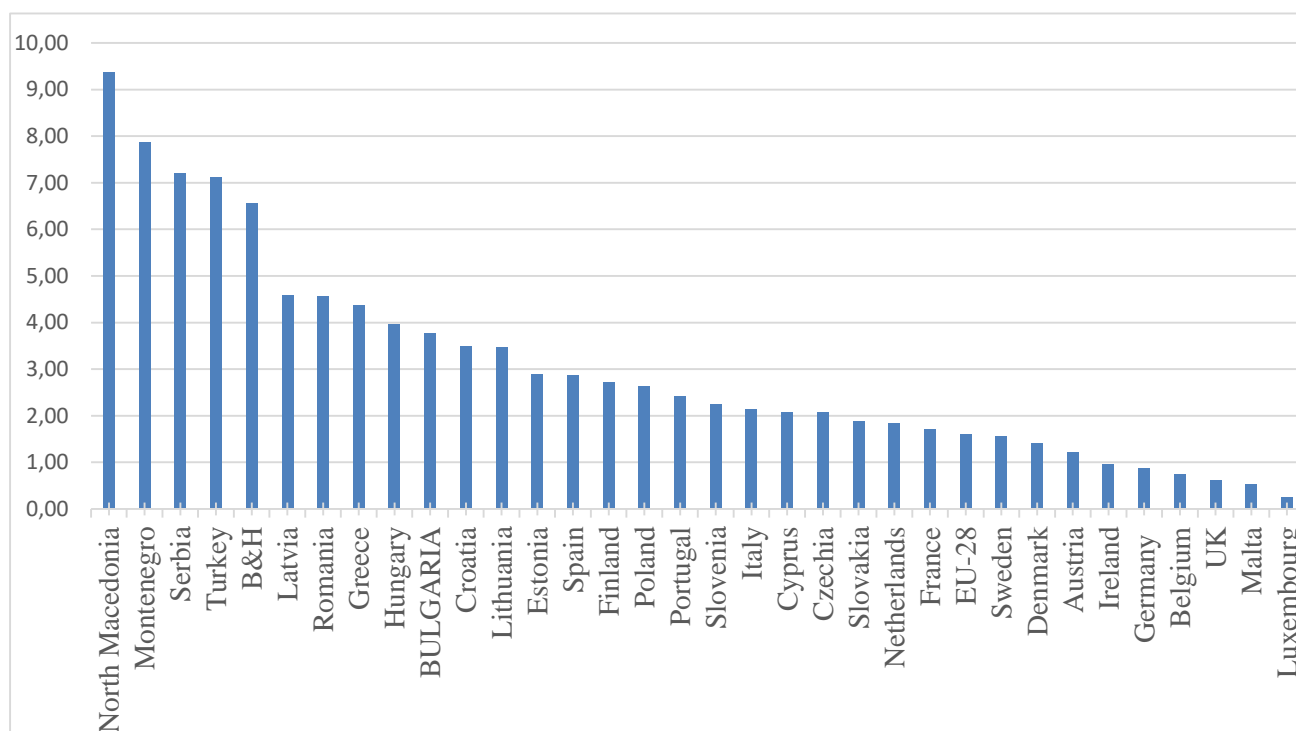

Fig 1. Share of the GVA produced in agriculture, in % for 2019 *
* The share of the GVA produced in Albania is very high - 21%, therefore it is not included in Fig. 1
Source: Eurostat and calculation of the author.

Confirmation of this data is also obtained from assessing the relationship between the relative share of employees in the agricultural sector and the GDP per capita for 2019. Specifically, for the EU-15 countries this coefficient is negative minus 0.48, while for the new member states after 2004, it is minus 0.62

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[1]A correlation coefficient measures the statistical relationship between two variables. The variables more often are two columns of observation – in our case, for example, the share of the GVA produced in agriculture and the GDP per capita for the observed group of countries. A high value (approaching +1.00) is a strong direct relationship (high values of the one indicator are associated with high values of the other and vice versa). Values near 0.50 are considered moderate and values below 0.30 are considered to show a weak relationship. A low negative value (approaching -1.00) is similarly a strong inverse relationship, and values near 0.00 indicate a little, if any, relationship.

This suggests that the share of those employed in the agricultural sector in the Central and Eastern Europe countries is more decisive for the level of their economic development than for the other EU countries. This can be explained by the fact that the processes of structural changes in the agricultural sector more or less in the mentioned "other" EU countries have largely passed the stage of intensive structural adaptation as a result of the reduction of employment in agriculture.

From what has been said, it can definitely be concluded that the relative share of the GVA and especially the share of those employed in agriculture is an indicator that gives a clear idea of how a country positions itself in terms of its level of economic development within the EU. This is quite obvious specifically for the Balkan countries, including the EU members among them.

The share of the agricultural sector on NUTS 3 regional level in Bulgaria

According to structural theories, the relatively high share of employees in the primary sector in Bulgaria should open opportunities for the transfer of labour from this sector to the industry - a sector with significantly higher productivity than agriculture.

However, the realisation of such processes in Bulgaria is very limited. The reason is that those employed in agriculture are predominantly elderly people who do not have the necessary qualifications and cannot be readjusted to participate in the labour market in the sphere of industry. At the same time, the population density in Bulgaria is much lower compared to almost all EU-28 countries, which is one of the reasons for the high relative share of employed in agriculture in our country (the picture of employment per unit of arable land in all cases will not show such large differences as when comparing the relative share of employees in agriculture).

These factors play a major role together with the unfavourable demographic characteristics for maintaining a high relative share of those employed in agriculture. Therefore, it must be assumed that the trend prevailing in countries with a high share of agricultural employment, which also has a higher population density is the increase of employment in industry and services at the expense of transfer of labour from agriculture. In the case of Bulgaria is very limited - a high extensive increase in employment in industry and services in this line cannot be expected. It is obvious that for Bulgaria the share of employees in agriculture will remain high compared to that of other EU countries, which will lead to lower relative labour productivity in the sector.

As for the regional economic differences at the level of NUTS 3 (districts) for Bulgaria, they are largely determined by the existing economic structure by main sectors and in particular by the share of the agricultural sector. The low productivity of agriculture, combined with a high share of employees in this sector, determines the unfavourable sectoral structure of a given region. The high coefficient of variation, for the relative share of those employed in agriculture by regions, results in a high coefficient of regional variation of the labour productivity, what suggests that regional differences and regional inequalities are determined by differences in agricultural participation. This is also confirmed by the correlation coefficient between the GDP per capita and the relative share of employed in agriculture for 2017 - a coefficient that is negative and high (minus 0.68). [2]

The problematic areas from the point of view of economic development are those with low indicators of the GDP per capita and a high

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[2] The information for NUTS 3 level for Bulgaria is based on data from the National Statistical Institute.

share of employment in agriculture. According to separate districts (NUTS 3) and statistical regions (NUTS 2) these are Vidin, Montana Pleven - from the North-western region, Razgrad and Silistra - from the North-central, Dobrich, Targovishte and Shumen – the Northeast region, Sliven - from the Southeast region and Kardzhali and Haskovo - from South-central region.

One characteristic of agriculture is the greater inertia in its economic development, thus changes in economic indicators do not always correspond directly to changes in economic efficiency - as an example we can cite that a change in the share of employees in agriculture does not respond to the changes in the efficiency of this sector. Thus, favourable structural changes with the existence of such conditions for certain lagging economic regions in Bulgaria could be difficult to achieve, moreover having in mind the existing social and especially demographic problems related to external migration and population aging.[3]

At district level in Bulgaria, there has been a slight decrease in the process of increasing regional economic disparities in the last decade, measured by the coefficient of variation. However, this affects the differences in general between the districts, but does not exclude the critical lag of some of them compared to the average regional indicators. The most problematic in this regard are the districts of Vidin and Silistra. Also striking is the distinction in terms of economic development of the districts in Northern and Southern Bulgaria - the first has the lowest districts indicators and the second - the highest ones.

As a rule, when there is a stagnation intra-regional economic disparities decrease. At the same time during economic crisis the

agricultural sector is generally less affected than the industrial sector and services. Following this logic, both the Covid-19 crisis and the current war in Ukraine will lead to some intra-regional convergence, at least in the short term. This is also seen from the comparison of the dynamics of employment in the last financial and economic crisis of 2009, where it had the least negative impact on the agricultural sector. Agricultural goods are products with low elasticity for replacement, this applies to both domestic and foreign markets - therefore the conditions for the sale of agricultural products on the domestic and foreign markets do not undergo significant changes in times of crisis.

The participation of the agricultural sector varies from region to region, which means that assuming that it will be least affected by the crisis, areas with a higher share of agriculture will be less affected. These are also the areas with a lower level of development, which is another reason to expect a process of convergence in the short term.

SUMMARY AND CONCLUSION

The future development of certain regions in Bulgaria can be defined as particularly problematic in the medium and long term, as it applies primarily to regions with low population density and a high share of participation in the agricultural sector. One possibility to mitigate the unfavourable situation is to increase the relative productivity of those employed in agriculture through the diversification of their activity. As an example, in Bulgaria only 1% of those employed in agriculture declare additional activity in the respective farm, this percentage in the Czech Republic and Slovenia is in the range of 19-20 percent, while in countries such as Germany and

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[3] In this relation, one report from the Royal Commission on the Population of the United Kingdom in 1949 said "It seems a possible society in which the share of young people is declining, to become dangerously non-

progressive one, lagging behind from the other communities not only in terms of technical efficiency and economic well-being, but also in terms of intellectual and artistic achievements."

Austria, every third farm has such activity, (Document of DG Agriculture and Rural Development, 2018).

The regional strategy must be aimed at achieving the highest possible diversification of economic activities in the individual regions. The diversification of economic activity, especially in regions with a high share of the agricultural sector, allows for faster adaptation to changes in the economic environment. The development of the bio economy is a direction that in many respects allows the achievement of the desired diversification at the regional level (Branzova, 2020).

The current economic problems are such that major trade-offs with economic efficiency at the expense of achieving regional convergence or sustainable regional development are not realistic. For certain regions, regional convergence, especially in terms of the existing economic indicators, cannot be expected. Priority can only be given to solving the socio-economic problems of certain municipalities, with critical social indicators.

That does not mean that there should not be a clear vision of what regional policy should be, to look for opportunities to implement it in the current economic conditions. However, if one has to set achievable goals, they must be, on the one hand, seeking to mitigate undesirable processes in the short and medium term and building the conditions that could change the current trends in the long run. Such a regional policy, if it cannot solve the economic problems of lagging regions, can at least be pointed to reduce disparities in terms of social benefits.

The problems associated with the growth of regional economic and demographic disparities lead to very pronounced social inequalities. This applies primarily to the elderly population located in the lagging and increasingly depopulated agricultural areas of Bulgaria. This is where the need for a policy of the so-called inclusive development arises. This is a development that leads to an improvement in the distribution of wealth in its various dimensions (Rauniyar & Kanbur, 2010) - in this case the efforts should be pointed to equalise the access to social benefits, such as the supply of basic necessities, health care, education and more. Such a regional policy, if it cannot solve the economic problems of lagging regions, will at least reduce social disparities.

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