

AGRICULTURE AND RURAL DEVELOPMENT: PATHS OF CHANGE AND CONSEQUENCES

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Abstract

The paper studied the impact of agriculture on rural development. The emphasis is on the changes in the development of agriculture in the conditions of Bulgaria's membership in the EU and on their impacts on the economic, social and environmental indicators for the status and development of the rural areas. The object of analysis is the South Central Planning Region of Bulgaria (BG42) at the NUTS-2 level. This study employed mixed quantitative and qualitative research design. The quantitative part presupposes the presentation and analysis of statistics on agriculture and rural development at the level of planning region, district and rural area (municipality) in the period of EU membership (2007-2017). Qualitative methods include the use of the experts evaluation method and in-depth interviews with 25 specialists from the regional office "Agriculture" and the regional office of the National Agricultural Advisory System. The conclusions of the analysis reveal that the model of agriculture in the study area is close to the characteristics of the Southern model of agriculture in Europe. Evidence for the more favorable effects of the emerging model of agriculture on rural development compared to other regions in the country (especially the three northern ones) are the slower migration processes, lower unemployment rates in some municipalities and etc.

Key words: model of agriculture, farms, rural development, rural areas, diversification

INTRODUCTION

Rural areas of Bulgaria occupy 80.9% of the territory and include 232 municipalities (87.5% of the total number of municipalities) with 38% share of the population. For the period 2010-2017, the population in rural municipalities decreased by 11%, which is more than three times faster than the 3% decrease in the urban population. As one of the main reasons for these trends are recognized the changes in the model of agriculture.

In recent decades, researchers and experts have acknowledged that the rapid concentration of agricultural production and the growing polarization of agricultural structures have led to significant problems in both intensive agricultural areas and disadvantaged areas [4], [5]. Some studies highlight the great risk that these problems will be exacerbated by significant public and private sector investment in the "knowledge-based bioeconomy" [6]. Climate change, which according to some researchers [17] change both the impact of agriculture on rural

development and its role in the development of regions, also has an impact in this direction.

From the point of view of more balanced rural development, it is essential to make structural changes in directions that promote more sustainable development in general and that contribute to tackling social, environmental and economic imbalances and challenges. Therefore, the transformation and adaptability of the agricultural sector and rural economies have become key issues [9], [8], [14]. Agriculture in a number of countries continues to be the main driving force for rural development, for increasing the incomes of the poor and for the sources from which they earn their living [1].

In this regard, rural development is regarded by a number of authors as seeking a new model for agricultural development [15]. Its main elements such as production of high-quality products, new short chains involving producers and consumers, organic farming, nature and landscape management by farmers,

agritourism and more should all be considered as key building blocks.

In the last two programming periods, these elements and trends have been supported by the Common Agricultural Policy and changed regional agricultural models by improving the market infrastructure of agricultural holdings, expanding farmers' sources of income and diversifying the rural economy.

To what extent are these elements and (or) trends in their development are characteristic for the model of Bulgarian agriculture? How is assessed the impact of these trends on rural development and viability of rural regions? To what extent does the changing agricultural model have a positive impact on the economic, social and economic aspects of rural development?

In order to answer these questions, the aim of the study is to assess the importance and impacts of the model of agriculture on rural development.

MATERIALS AND METHODS

This study employed mixed quantitative and qualitative research design. The quantitative part presupposes the presentation and analysis of statistics on agriculture and rural development at the level of planning region, district and rural area (municipality) in the period of EU membership (2007-2017). Qualitative methods include the use of the experts evaluation method and in-depth interviews with 25 specialists from regional office "Agriculture" and the regional office of the National Agricultural Advisory System in the South Central Planning Region (BG42). Respondents are from the five districts of the region (NUTS-3) and are distributed as follows: 24% from Pazardzhik, 28% from Plovdiv; 12% of Kardzhali; 24% from Smolyan and 12% from Haskovo.

To assess the importance of agriculture for rural development and the trends in its development, the experts used a five-point positive Likert scale, in which 5 indicates complete agreement and 1 indicates complete disagreement with the assessed statement.

The object of study is the South Central Region (NUTS-2), and the subject is the

model of agriculture and its impact on the socio-economic and environmental characteristics of rural areas. A number of publications are devoted to these issues, [7], [2], [3], which analyze the changes in the characteristics and results of Bulgarian agriculture that have occurred over the last decade under the influence of the Common Agricultural Policy.

The Study Area

The area of the South Central Region is 18.6% of the country's territory. The agricultural territories are 48.1%, the forest ones - 45.1%, and the urbanized territories occupy only 3.9% of its territory. The South Central region is among the richest in biodiversity in the country.

In 2018, the population was 1,310.8 thousand inhabitants (20% of the total number in the country) living in 1,316 settlements, organized in 57 municipalities and 5 districts (Fig. 1). In terms of population, the region ranks second in the country.



Fig. 1. Map of Republic Bulgaria

Source: Wikipedia,

https://bg.wikipedia.org/wiki/Южен_централен_район_за_планиране, Accessed on 20 Jan.2020 [18].

The study area ranks fourth in the country in terms of gross domestic product per capita. The data for 2017 show that it is 10,009 BGN, in the range between 12,112 BGN for Plovdiv district and 7,485 for Kardzhali district (Fig. 2). These data are significantly lower than the national average (14,280 BGN) and from leading areas.

One of the reasons for this is the structure of Gross added value, in which the share of services is 55.66% (compared to 66.86% on average for the country) and industry - 37.5%.

The lowest gross salary in the country of BGN 9,439 was formed in the region in 2017.

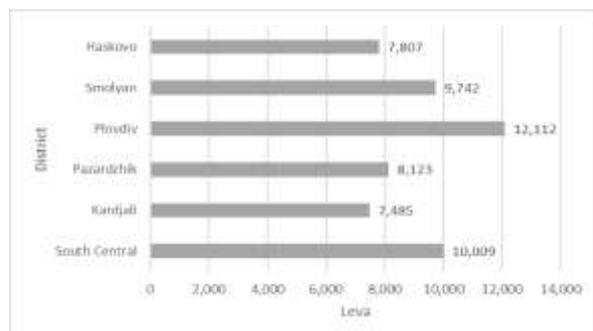


Fig. 2. Gross domestic product per capita (BGN)
 Source: National Statistics Institute, 2019 [13].

In four of the municipalities it is even below BGN 7,000. Under these conditions, the migration processes and the deteriorating age structure of the population are logical. In total for the region the relative share of the inhabitants over 60 years is 28%, and of those under 20 years is 18.8%.

The relative share of the inhabitants whose incomes are below the poverty line is high, mostly in two of the districts - Pazardzhik and Kardzhali, where in some years they exceed 50% of the population (Table 1).

Table 1. Share of the inhabitants whose incomes are below the poverty line

Regions	2008	2009	2013	2016	2017
Kardjali	36.5	29.5	60.1	39.5	37.7
Pazardzhik	32.9	27.7	50.2	44.0	41.4
Plovdiv	20.8	13.7	23.1	22.7	19.9
Smolyan	23.9	19.1	30.8	26.9	20.9
Haskovo	21.8	27.2	19.8	30.2	28.5
South Central	27.2	23.4	36.8	32.7	29.7

Source: National Statistics Institute, 2019 [13].

In the cluster analysis of the rural areas [12] made a few months ago, the municipalities on the territory of the South Central Planning Region were referred to three of the four formed groups (Table 2). None of the municipalities fell into the first group of developed municipalities, and 7.8% are in the group of "catching up" municipalities, as 3 of them are in Plovdiv district and one - in Pazardzhik. 35.3% are the municipalities in the group "municipalities in development" - half of them in Plovdiv district. These are

municipalities with high unemployment (characterized by more than 2 times higher unemployment compared to developed municipalities – in the cluster center 14.95%), low relative share of the labor force from the overall population (39.82%), significantly lower productivity of small and medium enterprises, etc.

Even more unfavorable are the indicators of the lagging municipalities - high unemployment rate (18.22%), lower share of the labor force (38.98%) and lower average gross salary (BGN 7,795) and others.

Most numerous are the "lagging behind municipalities" - 56.8% - in Haskovo district they are nine, in Pazardzhik and Smolyan districts six each.

Table 2. Distribution of municipalities in the South Central Region by level of development

Regions	catching municipalities	municipalities in development	lagging municipalities	All
Kardjali		2	4	6
Pazardzhik	1	4	6	11
Plovdiv	3	9	4	16
Smolyan		3	6	9
Haskovo			9	9
South Central	4	18	29	51

Source: Own calculations.

The selected region is a major producer of agricultural products, and in recent years it is the largest producer in the country of milk, meat, vegetables, most types of fruit, fodder crops and others. Takes second place in the production of grapes, oilseeds and others.

RESULTS AND DISCUSSIONS

In 2018, 21.4% of the gross added value of the Bulgarian agricultural sector was produced in the region and 32% of the labor force in the sector was employed. At the same time, the gross added value created by agriculture and forestry is 6.85% and continues to decrease annually, varying by districts between 3.95% in Plovdiv district till 15.28% in Kardzhali district (Fig. 3).

Favorable soil and natural and climatic conditions are a prerequisite for a diverse

production structure. 9.9% of the area is irrigated, which is 51.88% of all irrigated agricultural land in Bulgaria.

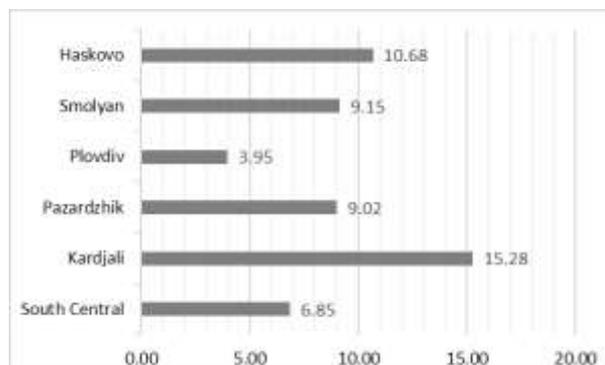


Fig. 3. Relative share of agriculture in the gross value added by districts of South-Central region
 Source: National Statistics Institute, 2019 [13].

In the years of our country's membership in the EU there is a tendency to reduce the production and income from livestock products. From a ratio between the value of crop and livestock production 55:45 at the beginning of the period, in 2018 it reached 75.6:24.4 (Fig. 4). In the studied area the observed trend is less pronounced and in 2018 the relative share of animal production in the South Central region is 36.78%. The latter is almost three times higher than the same indicator in other areas.

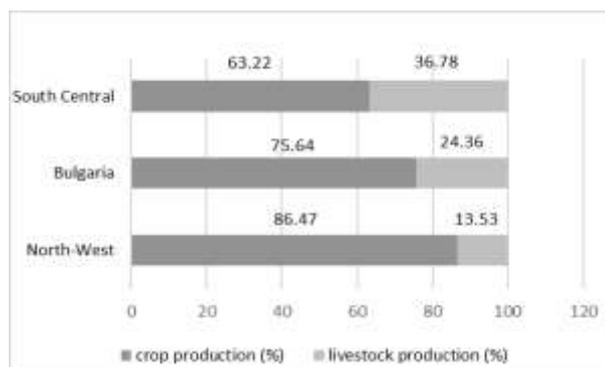


Fig. 4. Ratio between crop and livestock production
 Source: Ministry of Agriculture, Foods and Forestry, Agrostatistics [11].

The data on the number and distribution of animals by regions of the country show the leading place of the South Central Region in the country. In it are located 33.24% of the livestock units in 25.56% of the livestock farms. By species, the region ranks first in the number of raised cattle, buffaloes and sheep.

In the region are registered the largest number of functioning agricultural holdings in the country - about 30% of the total number in the country. They also account for 29.93% of annual work units in Bulgarian agriculture. In recent years, the number of agricultural holdings has continued to decline at a high rate, falling from 130 thousand (2007) to 61 thousand (Table 3). This logically leads to an increase in the average size of utilized agricultural land by 2.9 times over the ten year period 2007-2016.

Table 3. Agricultural holdings by legal status (2007-2016)

Type of farming	Number of holdings				2016/2007 (%)
	2007	2010	2013	2016	
Natural persons	129,453	104,772	75,588	59,509	45.97
Sole traders	232	336	327	342	147.41
Cooperatives	233	157	151	136	58.36
Companies	369	734	813	1,006	2,726.3
Civil associations	36	55	44	40	111.11
South Central Region	130,323	106,054	76,923	61,033	46.83

Source: Ministry of Agriculture, Foods and Forestry, Agrostatistics [11].

The data in Table 2 show significant changes in the organizational structure of agriculture in the area. The largest decrease was recorded in holdings of individuals (by 43.2%), followed by associations and cooperatives. At the same time, the number and importance of trading companies (by 37%) and sole traders is increasing.

The average size of the holdings by legal status is in the range from 389.31 ha in the cooperatives to 3.66 ha in the holdings of individuals. The latter have the lowest average size of utilized agricultural land compared to all other regions of the country.

Nevertheless, the average farm size remains low - 7.96 ha compared to the national average of 20.58 ha (Fig. 5). The reasons for this are related to the production specialization and the considerable number of produced products, which require high labor costs, as well as family character of the

holdings. Evidence for the latter is that in 2016, 90% of the workforce in the South Central region is family.

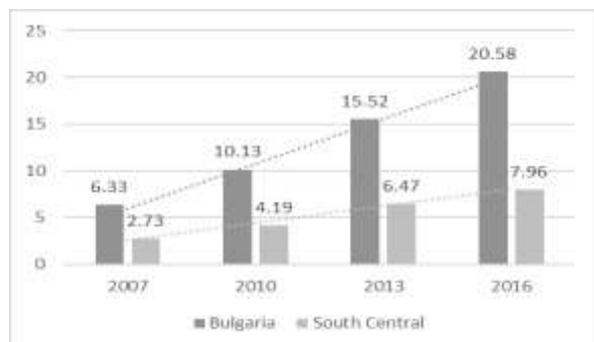


Fig. 5. Average size of utilized agricultural areas (hectares)

Source: Ministry of Agriculture, Foods and Forestry, Agrostatistics [11].

There are big differences between the number and the average size of utilized agricultural land by districts of the country. According to data from the last census held in 2010, the average size ranges from 1.12 ha in Kardzhali to 7.58 ha in Haskovo. Moreover, between the two censuses, this amount increased 2.4 times in Plovdiv district and 2.3 times in Haskovo and only by 73.9% in Smolyan and 79.4% in Kardzhali. The reasons are both the significant reduction in the number of agricultural holdings and the increase in the amount of utilized agricultural land in the years after the accession to the EU.

In the years of our country's EU membership, the number of agricultural enterprises registered under the Trade Act has gradually increased (Table 4). From 1,652 in 2008, at the end of the period, their number reached 4,127. The deepening of the analysis on regional level shows significant differences between the five districts. The most significant is the increase in the districts with favorable agricultural areas - Plovdiv, Pazardzhik and Haskovo and the retention of the number in the districts with semi-mountainous and mountainous areas - Kardzhali and Smolyan.

Most significant is the increase in the number of companies and sole traders in the Pazardzhik region (6.1 times), followed by Haskovo (2.1 times) and Plovdiv. The

changes in the districts of Kardjali and Smolyan are minimal.

Table 4. Number of agricultural enterprises in South Central Region (2008-2017)

District	2008	2011	2014	2017	2017/2008 (%)
Kardjali	84	86	70	88	105
Pazardzil	260	1287	1356	1608	618
Plovdiv	697	1141	1334	1437	206
Smolyan	243	229	199	208	86
Haskovo	368	589	680	786	214
South Central	1652	3332	3639	4127	250

Source: National Statistics Institute, 2019 [13].

The structure of holdings by economic size (Fig. 6) shows the strong predominance of small holdings up to 2 economic units (56%) and between 2 and 4 economic units (20%). This data, together with the legal status information, shows the importance of family farming for the development of the South Central Region. 40.23% of these farms consume more than 50% of the production, and 38.42% make direct sales.

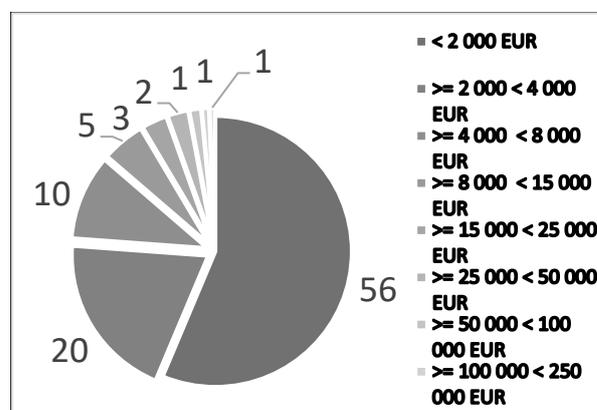


Fig. 6. Structure of agricultural holdings by economic size in South Central Region

Source: Ministry of Agriculture, Foods and Forestry, Agrostatistics [11].

This structure and the average size of the farms also determine the lower performance indicators - net income and net added value per annual work unit. According to the first indicator, the South Central Region ranks last among the regions of Bulgaria (Fig. 7), and for the second is on a penultimate place lagging far after the three northern regions and the Southeast.

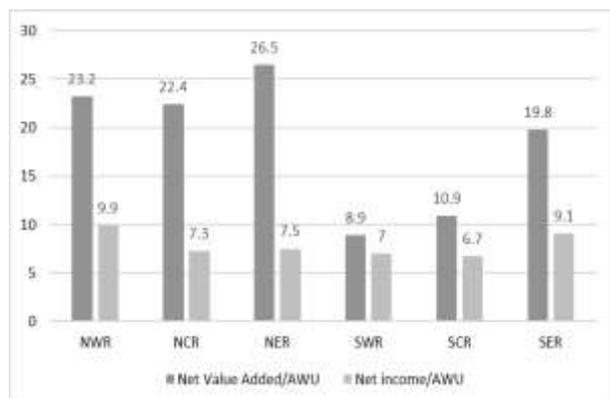


Fig. 7. Net income and net value added per annual work unit in thous. leva (2015)
 Source: Ministry of Agriculture, Foods and Forestry, Agrostatistics [11].

The characteristics and trends outlined above have been analyzed and evaluated by 25 experts with average professional experience between 11 and 20 years and qualifications in agriculture (84%), social sciences (12%) and technical sciences (4%).

The importance of agriculture in all five districts is highly evaluated by most experts. (Table 5).

Table 5. Experts evaluation of importance of agriculture

Regions	Agriculture			
	Importance in rural areas	provides income	provides jobs	positive impact on the environment
Pazardzhik	3.8	3.67	3.5	3.33
Plovdiv	4.6	4.0	3.58	3.28
Haskovo	4.6	4.36	4.33	4.0
Smolyan	4.0	4.0	3.83	5.0
Kardjali	3.0	2.6	2.66	4.0
South Central	4.04	3.72	3.56	3.88

Source: Own study.

Overall for the planning region, the estimate is 4.04 (max 5), ranging from 4.6 for Haskovo and Plovdiv districts to 3 for Kardzhali district.

The social function of agriculture is rated lower. The average mark is 3.72 for his ability to generate income, the highest in the district of Haskovo, followed by Plovdiv and Smolyan. Similarly are arranged job creation estimates.

The positive environmental impact of agriculture is estimated to be 3.88. The maximum score was chosen by the experts from the region of Smolyan, in Plovdiv it is only 3.28.

Experts do not appreciate that farm specialization is appropriate in the context of the competitive advantages of rural areas. According to them, the average score for the South Central region is only 2.96 (Table 6). Even in the regions with high scores, it is only 3.5 for Pazardzhik and 3.33 for Plovdiv.

Table 6. Experts evaluation of specialization of the farms

Regions	Specialization of the farms is appropriate for the rural area	Insufficient irrigation areas cause vegetable and fruit production to be curtailed	Labor shortages are a reason for limiting labor-intensive industries
Pazardzhik	3.5	3.82	4.16
Plovdiv	3.33	4.28	4.58
Haskovo	3	4	3
Smolyan	3	5	5
Kardjali	2.33	5	4.33
South Central	2.96	4.4	4.16

Source: Own study.

These values are explained by:

-labor shortages for the development of intensive labor-consuming industries. The experts selected a rating of 5 for Smolyan district, 4.58 for Plovdiv, 4.33 for Kardzhali and 4.16 for Pazardzhik.

-insufficient irrigation areas and unmaintained irrigation facilities are the reason for the limitation of vegetable and fruit production, according to experts (4.4). In the districts of Smolyan and Kardzhali the highest rating was chosen, and only in Pazardzhik district the rating was below 4 (3.82).

-High support (4.16) has received the claim that labor shortages are the main reason for limiting the cultivation of labor intensive crops.

-the attitude of farmers to their creation and participation in cooperatives and other network structures with the potential to shorten the chains for the sale of products and supplies.

There is low support for the claim that there is an increase in the number of farmers aiming at producing better quality produce, not just to increase their quantity (average score of 2.88). Experts in the districts of Plovdiv and Haskovo scored the highest marks of 3.33, followed by Pazardzhik and Smolyan (with a score of 3), and it is not observed this trend in Smolyan and Kardzhali (grade 2).

The trend of increasing the number of agricultural holdings that diversify their activity with tourist activities is estimated by 2.75. The highest is the rating of experts in the region of Smolyan (4) and the lowest in Pazardzhik and Plovdiv (2.32).

The same support of 2.75 was received by the claim that farms applying agri-environment practices are growing. Here again, the assessments in the three districts with favorable agricultural conditions is higher, while the lower ones are for districts in which the semi-mountainous and mountainous municipalities predominate.

Although farmers in the South Central Region are among those active in setting up producer organizations and they continue to operate a significant number of cooperatives, experts claim that is difficult for farmers to associate or cooperate. The number of producer organizations established during the SAPARD program and continue to operate is small.

Table 7. Assessment of agricultural holdings development trends

Indicators	Max	Min	Average
The number of farms aiming at providing livelihood to the household has increased	4.5 Kardzhali	3 Haskovo	3.47
The number of farms with non-agricultural activities increased	4.67 Plovdiv	2 Kardzhali	3.13
The number of holdings making direct sales has increased	4.75 Plovdiv	2 Kardzhali	3.5
The number of farms processing agricultural products increased	3.33 Haskovo	1 Kardzhali	2.08

Source: Own study.

Particular attention should be paid to the expert opinion on the changing importance of farms that have diversified their activities with non-agricultural activities, direct sales and

which carry out processing of agricultural products. The first two trends are highly appreciated in the Plovdiv district (Table 7). At the same time, the number of farms providing livelihoods to households in Kardzhali has increased. The lowest is the support of the claim that the number of farms processing agricultural products increased.

CONCLUSIONS

The following conclusions and summaries can be drawn from the made analysis:

-In the structure of agricultural holdings in the South Central Region of Bulgaria, family farms producing a large number of agricultural products dominate strongly. They use mainly family labour, and only part of the work processes are mechanized. They have many of the characteristics of the Southern European agricultural model [3].

-The specialization of production of the prevailing part of the agricultural holdings is not considered to be the most suitable for the area. The main reasons for not using all potential opportunities of the region are the limited number of labour force and the greatly reduced relative share of irrigated areas in the region.

-Evidence for the more favorable effects of the emerging model of agriculture on rural development compared to other regions in the country (especially the three northern ones) are the slower migration processes, lower unemployment rates in some municipalities and etc.

-Despite the ongoing processes of increasing production of high quality products, the construction of new short chains involving producers and consumers, the development of organic agriculture, the management of nature and landscape by farmers, the diversification, the expansion of agritourism, in the South Central region these trends are only observed in some of the districts. In addition, farm diversification and direct sales are observed in municipalities and regions close to large settlements (mainly near Plovdiv, Haskovo and Pazardzhik). There is a development of tourist activities in the mountain regions of Smolyan.

The findings strongly confirm the results of a number of authors on the differences and the gradual polarization of agriculture in two types of areas: (1) favorable agricultural areas in which farmers produce and trade with agricultural products which are competitive; and (2) areas with limited agricultural development conditions, which need to be supported by a number of subsidy programs in order to maintain the importance of agriculture [19], [10], [16].

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