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STRUCTURAL TRANSFORMATIONS OF AGRICULTURE FARMS IN BULGARIA IN THE CONTEXT OF PRODUCTION SPECIALISATION AND DIVERSIFICATION

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Abstract

The increasing capitalization, specialization and intensification of the agrarian sector leads to a number of adverse impacts on rural areas, the environment, natural resources, etc. A growing number of researchers believe that structural trends in agriculture are unlikely to be reversible. In this context, research on farmers' intentions and their development strategies is becoming increasingly relevant. This article aims to analyze and evaluate the strategic intentions of farm owners in three regions of Bulgaria with different regional product specialization and farm structure in the context of the current Common Agricultural Policy. On the basis of a conducted survey in the regions of Dobrich, Blagoevgrad and Pazardzhik,, the state and reasons for the current specialization and the direction of the future strategic intentions of the farmers towards deepening production specialization or diversification with an emphasis on their impact on the development of rural areas are assessed. The survey results reveal attitudes towards production specialization and diversification by farms of different sizes, degrees of specialization and other characteristics.

Key words*: production specialization; diversification, structural transformations, rural areas*

INTRODUCTION

The number of agriculture farms is decreasing worldwide. Following the market logic (regardless of the applied agriculture policies), agriculture farms are more and more decreasing in number while growing in size [4, 17, 21, 28]. According to Eurostat [13], 2.2 million farms disappeared as a result of the Common Agricultural Policy (CAP) for the period 2007-2013. Small and medium-sized farms are declining fastest, despite EU support measures [33]. Under the current CAP, structural change is likely to continue or even accelerate [36]. The increasing capitalisation, specialisation and intensification of the sector is leading to a number of adverse impacts on rural areas, the environment, natural resources, etc. All these have raised public concern and criticism as structural trends in agriculture are unlikely to be reversible [16]. In this context, research on farmers' intentions and their development strategies has become increasingly relevant not only for researchers and policy makers, but also for society as a whole.

In this context, the paper aimed to analyze and assess the strategic intentions of farm owners in three regions of Bulgaria with different regional product specialization and farm structure in the context of the current Common Agricultural Policy.

Literature review

Research on strategies of rural household and implications for the role of agriculture in rural areas [10, 19, 32, 38] provides valuable results on the types of farms that manage to survive and the direction in which they are changing. In their attempt to summarize structural change, the authors [41] distinguish two main approaches to farm development. The first is observed in farms that are oriented towards economies of scale in terms of farming activities. The second approach is chosen by farms that aim for "economies of scope" by diversifying income with farm-related activities [27; 38]. The use of economies of scale is seen as the most financially rewarding strategy [35]. Income diversification along with farm pluriactivity are assessed as the determinants of farm viability and the sustainability of small- and medium-sized

family farms and of slowing structural change [3; 7; 18]. Some researchers [16; 38] stress that through income diversification, farms can cope with "increasing pressure" on farming activities and ensure continuity.

There are studies in the literature [27] that assess differences between diversification activities depending on their factor intensity in terms of labor and capital. They conclude that engaging in labor-intensive activities is a typical "survival strategy" for small farms that lack the ability to grow and expand their farm activities based on land and capital-intensive non-farm activities. Hence, labour-intensive diversification is highly akin to "the search for - and ... the simultaneous deployment of a practically new model of agricultural development" [38, p. 40)] which is different from that of agricultural industrialisation and therefore a deviation from the growth paradigm.

Capital-intensive diversification complements growth in terms of scale expansion and in this sense does not deviate from the industrial logic and growth paradigm, unlike different types of income diversification ("extension") activities [39].

Agricultural industrialization is limiting the social functions of agriculture [15, 20, 25, 34], as fewer residents of rural areas earn an income from it. At the same time, it has caused the "expansion" or shifting boundaries of farming [40], strengthened farm linkages with the "countryside" [38, 39] and increased the multifunctionality of rural areas and farms [8; 9, 22, 37]. The decreasing number of farms not only limits the socio-economic function of agriculture, but also has a negative impact on socio-ecological functions. A number of authors [5, 16], link the decreasing number of farms to a decreasing share of rural residents associated with agriculture. In this way the connection of regional residents to agriculture, as well as their general attachment to place, is becoming weaker. In some statistical regions of Bulgaria, this is among the main causes of negative demographic processes and depopulation [11].

MATERIALS AND METHODS

The concept of multifunctional agriculture (MFA) forms the basis of our analytical perspective. MFA has been adopted by a number of researchers as a broad frame of reference for depicting the multiple interactions between agriculture and its social, economic, and ecological environment and role in different aspects [30; 42, 43]. At the same time, it mainly focuses on the diversification of the rural economy, which is why some researchers are tending to broaden the focus to the multifunctional rural space [31].

The dynamics of structural change, as well as the multifunctionality of agriculture, are always specific in time and place and take into account the unique combination (for each rural area) of natural and climatic conditions, soil and water resources, population density, etc. [27].

In the context of regional development, some authors [6] view farms as spatially anchored organizational units that have specific resources, engage in different activities, act according to complex motivations, and as a result are deeply embedded in socio-ecological systems.

The activities include food (agricultural) production as well as farm-related activities. Thus, the growing number of farms engaged in income diversification and the implicit impact on the multifunctionality of agriculture are recognized [1, 29; 39]. The functions of agriculture are deployed through farm activities and characterize the ways in which social goals and demands are met [8, 26].

The great diversity of types of activities as well as the differences between rural areas in Bulgaria are the reason for researching transformational changes in several regions. The methodological approach of the research conducted in 2022 includes several stages, shown in Figure 1.

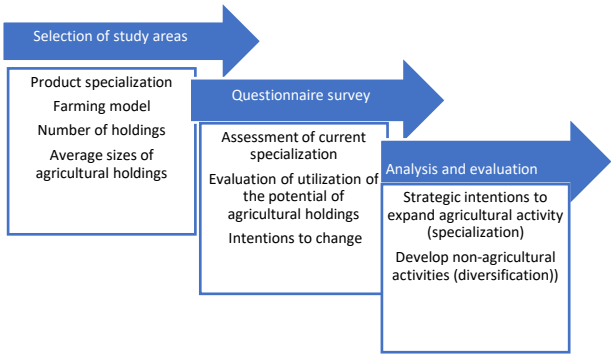

Fig. 1. Methodological approach and stages of the research
Source: own research.

In the first stage, indicators for assessment of the diversity of regions in Bulgaria were selected. Emphasis was placed on the production specialization of agriculture, the model of farming formed and the number and size of farms. Thus, three districts in the country were identified in which (in the second stage) a survey was conducted. The structure of its questions created opportunities to examine the current production structure of farms, to assess the reasons for its formation and to explore the intentions of farm owners and managers for their development over a ten-year period.

In the first stage of the research, three regions of the country - Blagoevgrad, Pazardzhik and Dobrich (Level NUT3) - were selected on the basis of statistical areas (Map 1). The first two differ significantly from Dobrich district (Table 1), both in terms of average sizes of farms and their production specialization and formed model of agriculture [23].

In the surveys and structured interviews conducted with owners of farms of different regions, production specialization and economic size, the focus was mainly on their strategic intentions and which prevails among them - attitudes towards specialization or diversification of farm activities. For this purpose, a wide range of farm development options were used.

Table 1. Indicators for selecting of regions

	Regions (Level NUT3)		
	Blagoevgrad	Dobrich	Pazardsgik
Number of holdings	13,569*	5,377	8,989
Average size of used agricultural land (ha)	9.6	76**	10.1
Farming model	Southern	Northern	Southern
Share of farms of physical persons (%)	96.9	84.3	94.5
Share of farms specialising in arable crops (%)	25.93	55.22	25.22
Share of farms specialising in the production of vegetables, fruit and grapes (%)	22.34	7.49	32.52
Share of mixed farms (%)	10.87	20.92	15.82
Share of livestock farms (%)	35.65	14.73	25.13

Source: [24].
Note: *Highest number in the country.
**The size ranks second among regions in the country.

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Map 1. Researched regions on the administrative map of Bulgaria
Source: https://cadis.bg [43].

RESULTS AND DISCUSSIONS

The survey of agricultural holdings was carried out in the territory of the rural areas of Blagoevgrad, Pazardzhik and Dobrich regions. The survey covered 168 agricultural farms.

Mixed farms were the most numerous in Blagoevgrad and Pazardzhik regions - 33% and 33.5% respectively. In the first region they are followed by livestock farms - 28.57 % and crop farms - 23.81 %, and in Pazardzhik region - by crop and vineyard farms. In both regions, the relative share of farms specialised in fruit and vegetable production is the lowest.

In Dobrich region, the majority of farms is specialised in arable crops - 41.67% and livestock breeding - 33.3%. Next are mixed farms - 25%.

Regarding the legal status, in Blagoevgrad and Pazardzhik regions, the most numerous farms surveyed are those of individuals who are registered as farmers (86% and 83% respectively). In Dobrich region, half of the respondents are registered under the Commercial Law as sole traders, limited liability companies or sole limited liability companies.

Depending on their economic size, the farmers surveyed classified their farms into income groups as shown in Table 2. The first income group (up to 4,000 BGN) included 3.84% of the respondents in Pazardzhik region and no farms from the other two regions.

In Blagoevgrad region, the largest presence of surveyed farmers is in the groups between BGN 25,000 and BGN 50,000 and between BGN 50,000 and BGN 100,000, while in Pazardzhik region the majority of farms are in the groups BGN 15,000-25,000 and BGN 25,000-500,000. In contrast to these regions, in Dobrich the largest number of respondents were with farms with production volume between 50,000 and 100,000 BGN (41.67%) and above 100,001 BGN (33.3%).

Table 2. Distribution of farms by economic size.

Economic size	Blagoevgrad	Pazardzhik	Dobrich
over 100,001 BGN	4.76	5.68	33.33
50,001-100,000 BGN	30.95	11.53	41.67
25,001-50,000 BGN	33.33	25.00	8.33
15,001-25,000 BGN	19.05	28.84	12.50
8,001-15,000 BGN	7.14	15.38	4.17
4,001-8,000 BGN	4.76	9.62	
up to 4,000 BGN		3.84	
Total	100.0	100.0	100.0

Source: own research.

The average number of permanent employees in the surveyed farms from Blagoevgrad district is 2.33, including 2.05 family members. Seasonally employed workers range from 1 to 10. In Pazardzhik region, the average number of permanent employees was 3, with 2.54 family members, and seasonally employed workers ranged from 2 to 16. Respondents in Dobrich region indicated a different number of permanent employees, which formed an average of 7.3 employees, while the average number of working family members was 3.1.

On the basis of the above data we can generalize that in Dobrich region there are predominantly specialized and relatively larger in size farms in contrast to the other two studied regions.

The diversification processes of the activities of the farms have different dimensions in the three regions. In Blagoevgrad region, the highest relative share of farms is of farms conducting direct sales - 42.86%, followed by those performing activities related to environmental protection and ecosystem services - 38.1% (Table 3). Among these, the number of farms that grow bees and fruit is significant.

In Dobrich region 66.67% of farms do not develop any other activities. The next largest group with 33.3% are farms providing mechanised services and/or ecosystem services and environmental protection activities.

Tourist activities are carried out by 14.29% of the surveyed farms in Blagoevgrad region, 16.67% in Dobrich region (all in Balchik municipality) and only 3.8% in Pazardzhik region.

In Blagoevgrad region, the same relative shares (9.52%) were occupied by farmers providing mechanised services, developing crafts or renting agricultural land under lease or rental contracts. The smallest number of farms are those processing agricultural production (4.76%).

In Pazardzhik region, the highest proportion of farms is in processing (48.1 %), followed by direct sales. 33.3% of producers do not carry out any other activities.

The above data show that in comparative terms the greatest interest in diversification of production is in the surveyed farms from Pazardzhik region, followed by Blagoevgrad region. The last place is occupied by Dobrich

region, where only one in three farms develops some activity outside agriculture.

Table 3. Agricultural farms with non-agricultural activities (%)

Regions and non-agricultural activities	Dobrich region	Pazardzhik region	Blagoevgrad region
I do not develop other activities	66.7	21.2	33.3
Crafts	8.33	3.8	9.5
Renting or leasing of land	0	1.9	9.5
Environmental protection and ecosystem services	33.3	11.5	38.1
Processing of agricultural production	16.7	48.1	4.8
Direct sales	25.0	19.2	42.9
Mechanised services	33.3	7.7	9.5
Tourism services	16.7	3.8	14.3

Source: own research.

The object of research interest are the reasons and the evaluation of the chosen production specialization of farms. A five-point positive scale was used for this purpose. In Dobrich region the owners rated the role of markets in the choice of production specialization of farms 3.8, while the ratings of other regions were lower - Blagoevgrad region with 3.07 and Pazardzhik region with 2.8, respectively (Table 4). In general, the role of direct payments and other Common Agricultural Policy instruments in shaping production specialisation is rated higher. It is rated 3.85 in Pazardzhik, 3.8 in Blagoevgrad and 3.4 in Dobrich.

More significant are the differences in the assessments of the importance of direct payments and production specialisation for the stability of the financial situation of the farm. In Dobrich the score is the highest 4.0, in Pazardzhik 3.36, and in Blagoevgrad only 3.0.

Production specialisation and participation in network structures are not perceived as prerequisites for sustainable farm development. The scores are very low, ranging from 2.0 in Dobrich to 3.7 in Pazardzhik and 2.93 in Blagoevgrad. The higher score in Pazardzhik district is related to the experience over the last two programming periods in establishing the different network structures in this part of the country.

Table 4. Farmers' assessment of the reasons for the production specialization of their holdings

Reasons for the production specialization and regions	Dobrich region	Pazardzhik region	Blagoev-grad region
The main reason for the current production specialisation of my farm are the markets for agricultural products and the raw materials for their production.	3.8	2.8	3.1
The main reason for the current production specialisation of my farm are the direct payments and other instruments of the EU Common Agricultural Policy.	3.8	3.9	3.4
Production specialisation and direct payments are prerequisites for the stable financial situation of your farm.	4.0	3.4	3.0
Production specialisation and participation in various network structures are prerequisites for the sustainable development of your farm.	2.0	3.7	2.9
To what extent the plant and animal production technologies used have a beneficial impact on the environment.	2.8	3.9	3.6
To what extent the production specialisation of my farm ensures that its production potential is fully exploited (I obtain maximum income from the production factors at my disposal).	4.0	3.6	2.9
To what extent the current production specialisation of your farm exploits the comparative advantages of the area (my specialisation is appropriate to the conditions of the area).	4.5	4.1	3.8

Source: own research.

A higher score was formed in Pazardzhik district in terms of the favourable environmental impacts of the applied technologies. It is 3.9 in Pazardzhik region against 2.8 in Dobrich region. In Blagoevgrad the score is 3.6.

Of particular interest are the estimates of the extent to which the production specialisation of farms ensures that the production potential is fully exploited. Obtaining maximum

income from the production factors available to the farm is rated highest in Blagoevgrad region (4.0). This is followed by Pazardzhik region (3.63) and Dobrich region (2.93).

The extent to which the current production specialisation of the farm exploits the comparative advantages of the region (the specialisation is suitable for the conditions of the region) is rated lowest in Blagoevgrad region - 3.8, followed by Pazardzhik region - 4.09 and highest in Dobrich region - 4.5.

6.67% of the farms in Blagoevgrad region have implemented projects under the SAPARD programme and the first Rural Development Programme (2007-2013). Their number doubled in the period of implementation of the second Rural Development Programme (2014-2020) - 13.33%. The activity of producers in Dobrich region is higher. There, 16.67% of the farms surveyed had implemented modernisation projects in the period of the first Rural Development Programme (2007-2013) and 25.0% in the period of the second national Rural Development Programme (2014-2020).

Comparatively, the lowest percentage of those who implemented projects was in Pazardzhik - only 7.7% in the first and 11.5% in the second Rural Development Programme.

Of particular interest are the answers about the future development intentions of the farm owners. Expected changes in farm specialisation and diversification are of research interest. In all three areas, the highest proportion of farmers will invest in environmental protection activities and the provision of ecosystem services. Such are the intentions of 47.62% of respondents in Blagoevgrad region, 55.5% of those in Pazardzhik region and 33.33% in Dobrich region.

In the next place with the same relative share (14.47%) in Blagoevgrad region are the intentions to develop rural and ecological tourism and to conclude long-term contracts with processing enterprises. In Pazardzhik district, farmers are most likely to invest in primary processing activities and in activities related to preparation and/or marketing of production (11.5%).

The relative share of farmers intending to develop tourist activities or offer rooms to tourists in Dobrich region is significantly lower - 8.35% and 4.17% respectively.

Plans to invest in collective processing facilities were not reported by respondents in Blagoevgrad region, while in Pazardzhik and Dobrich districts they were measured at 7.7% and 8.35% respectively.

In Pazardzhik region, there is a high relative share of farmers who intend to retire from the business and hand it over to the next generation to manage. This answer was chosen by 23% of respondents. Some of them (3.85%) also indicated the likelihood of the farm being closed down.

In terms of maintaining or changing the production specialization of farming, there are differences among respondents in the three regions. Farmers in Dobrich region are the most numerous who intend to keep their production specialization (58.34% of respondents). The majority of those with grain specialization and mixed farms intend to increase the concentration of production (33.33% of all respondents). Second are the farmers who intend to move towards organic farming (16.67%) and only 8.33% are targeting a significant change of production specialization mainly in the direction of reducing the types of animals produced.

In Blagoevgrad and Pazardzhik regions, 33.34% and 28.84%, respectively, plan to change their production specialization. In both regions the predominant intention of producers is to develop organic crop and livestock production.

Of particular interest are the responses to the question on farmers' intentions to participate in producer organisations (Table 5). The answer "very likely" was chosen by 19.05% of respondents in Blagoevgrad and 15.38% of those in Pazardzhik.

In Dobrich region the answer "very likely" was not indicated by any respondent. The next level "likely to participate" was indicated by 28.84% of respondents in Pazardzhik region, 16.67% of those in Dobrich region and 14.29 of respondents in Blagoevgrad region.

38.1% of farmers in Blagoevgrad region, 28.84% of those in Pazardzhik region and

25% of those in Dobrich region categorically expressed that they would not participate.

Overall, the comparison by regions shows that there are no significant differences by region between those who are willing to do so and those who are firm in their non-participation or did not answer the question.

The problem of creating producer organizations is more significant for Blagoevgrad and Pazardzhik districts, where small farms predominate with serious problems in selling their products.

They are also the districts with the lowest average size of agricultural land used per farm.

Table 5. Future intentions to participate in producer organisations (%)

Regions and	Blagoevgrad	Pazardzhik	Dobrich
Very likely	19.05	15.38	
Likely	14.29	28.84	16.67
Unlikely	33.3	32.69	41.67
I will not do it	38.1	28.84	25.00
No answer provided	14.76	11.53	16.67

Source: own research.

Respondents' answers about the ecosystem services provided by their farms were mixed (Table 6).

Table 6. Ecosystem services provided by farms (%)

Regions and ecosystem services provided by farms	**Dobrich region**	**Pazardzhik region**	**Blagoevgrad region**
Landscape	25.0	26.1	40.0
Biodiversity	31.2	13.0	26.7
Water quality	12.5	4.4	13.3
Soil quality	18.7	32.6	26.7
Food security	56.2	15.2	40.0

Source: own research.

For producers in the Blagoevgrad region, the highest relative proportion of farms considered this to be landscape (40%) and food security (40%). Soil quality and biodiversity came next at 26.67%.

In Pazardzhik region, soil quality (32.61%) ranked first, followed by landscape impacts (26.09%) and food security (15.22%), while in Dobrich region the highest number of farmers chose food security (56.25%), biodiversity conservation (31.25%) and landscape impacts (25.0%).

Water quality was chosen by the least number of farmers, with scores ranging from 4.35% in Pazardzhik to 13.33% in Blagoevgrad.

In summarizing the results by region and comparing them, the following trends and expected directions for strategic change emerge:

-For Dobrich region, economies of scale and the development of specialised farming are of leading importance. Over the last 15 years, the vast majority of farms have increased the amount of agricultural land used, modernized their farms, and shifted to growing crops with higher production potential and income. One possible explanation is the relatively high self-assessment of larger farms of their income from their activities. Those that have expressed plans to diversify are focusing on ecosystem services and capital-intensive diversification (building renewable energy sources), etc. Even in coastal municipalities, farmers' interest in agro-tourism is limited.

-The diversity of the topography, the border character of some of the rural municipalities, the natural assets, etc. in the rural areas of Blagoevgrad region are the basis of the farmers' plans for structural transformations. Producers consider that their current production specialisation is largely determined by the Common Agricultural Policy and that it does not allow them to make sufficient use of the comparative advantages of the area in which they operate.

The future plans of producers are dominated by producers who are likely to turn to environmentally friendly practices and organic production, as well as to the development of tourism services. These intentions are more strongly expressed in the areas with mineral springs and near traditional tourist routes in the mountains of Rila, Pirin, Osogovo, etc. Therefore, there is a predominance of farms that will apply labour-intensive diversification and contribute to the development of the rural communities in which they operate.

-Farmers in Pazardzhik region have also increased the amount of used agricultural land and modernized their farms. Compared to the other two regions, the largest number of

respondents here have changed their production specialization in the last 15 years.
A number of small farms have stopped producing fruit and vegetables and raising animals. The strategic plans of a significant proportion of them are to invest in environmental protection activities and the provision of different ecosystem services, organic production, and to build processing facilities.
A multifunctional agricultural sector that contributes to the realisation of multiple objectives is at the heart of the European Union's agricultural model [14]. It affirms not only the various functions of agriculture, but also tries to develop additional activities and productions in specialized farms [12]. On the basis of the benefits of farm specialisation and diversification that have been repeatedly studied, this study confirms the results of other authors that the type of agricultural production, the size and legal status of farms influence their choice of development. Among the larger specialised farms, attitudes towards deepening production specialisation and continued concentration of production (economies of scale) prevail. Thus, whole regions (in our case the Dobrich region) are developing specialised industries. Although relatively rare, farms are diversifying their activities, often in the direction of the capital-intensive diversification encouraged by the current Common Agricultural Policy.
In the other two studied regions, there is increased interest in diversification, and mainly labour-intensive diversification. It provides employment not only to household members but also to residents in the rural area. In this way, as some authors rightly point out [27] socio-ecological and socio-cultural functions are strengthened. Tourism offerings from farms and ecosystem services have a positive effect on the recreational value of the region, as well as on the transfer of knowledge about agriculture and sustainable rural development [2, 3]. Labour-intensive diversification is a means for farms to expand their importance in the local economy.
The results of the present study are a challenge for future research aimed at changes in the behavior of agricultural holdings and their impact on the rural areas in which they operate. These changes are particularly important for municipalities with low population density, mountain municipalities and areas with unfavorable natural conditions.

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