UNIVERSITY OF ECONOMICS - VARNA
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THE IMPACT OF DIRECT PAYMENTS IN AGRICULTURE ON THE SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS

SUMMARY
of a Dissertation the Educational and Scientific Degree "Doctor"
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The dissertation consists of 243 pages, including: Introduction (7 pages); Main body in three chapters (210 pages); Conclusion (8 pages); References (14 pages). The main text contains 12 tables and 70 figures. The list of references comprises 127 sources, including 132 literary sources and 21 internet-based sources.

The defense of the dissertation will take place on ..... at ..... in room ..... of the University of Economics – Varna, during a session of the academic committee appointed by Order No. ..... of the Rector of the University of Economics – Varna.

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

1. Relevance and Significance of the Research Problem

The role of agriculture in improving the well-being of rural populations is a key issue in both economic literature and agricultural policy. The agrarian sector plays a vital role in providing employment, business opportunities, and income, while also enhancing the quality of life for both professional farmers and rural residents across Europe. On the one hand, agriculture remains one of the main economic sectors; on the other hand, it is closely linked to supporting industries by supplying raw materials and services essential for agricultural production.

Significant changes in the socio-economic development of rural areas in Bulgaria are closely tied to the structure of its agriculture, which is characterized by a predominance of small farms and a relatively minor share of large enterprises. This structure creates considerable disparities in productivity, employment, and living conditions in rural areas, while also posing challenges for their sustainable development. Investments in production capacity, technological upgrading, and increasing industrialization often lead to job losses and outmigration of the active workforce to urban centers or abroad.

Despite substantial efforts by the European Union in recent decades to diversify the rural economy and create alternative sources of employment and income, agriculture remains the primary industry in these regions. At the same time, rural areas continue to exhibit higher unemployment rates than national averages. Agricultural managers increasingly face difficulties in securing qualified and seasonal labor, even in areas with high unemployment.

Key current issues include how changes in the production structure of Bulgarian agriculture affect employment and income growth in rural areas. Of particular interest is identifying the underlying causes of the simultaneous presence of high unemployment and labor shortages in agriculture. It is also crucial to determine the current and potential future contribution of the sector to job creation and income generation in Bulgarian rural regions.

In a market economy, wage levels depend not only on labor productivity but also on opportunity costs and labor market dynamics. Sectors that maintain competitiveness through low labor costs tend to concentrate in rural areas, reinforcing their status as low-income territories, which negatively affects their development potential. While the level of unemployment is not directly linked to production structure shifts, it remains strongly correlated with labor productivity and labor demand.

Agriculture, in both old and new EU member states, continues to be a central focus of public policy, particularly through the use of subsidies. However, structural changes in the sector have led to a considerable decline in the number of farms and agricultural workers. This has made rural areas even more vulnerable, as the limited employment and economic opportunities in agriculture force local populations to either shift to other sectors or migrate.

Since 2000, rural development policy has gained increasing importance and priority within the framework of the Common Agricultural Policy (CAP). Direct payments are regarded as a key instrument intended not only to provide direct support to farmers, but also to contribute indirectly to improving conditions in rural areas.

In this context, the relevance of the dissertation stems from the need to assess the actual impact of agricultural support policies on the socio-economic development of rural regions. The evolving structure of the agricultural sector, the labor market's sensitivity, and the uneven distribution of subsidies raise strategically important questions regarding the sustainable development of these territories.

2. Subject and Object of the Research

The subject of the dissertation research is the state and dynamics of the socio-economic development of rural areas, as well as their relationship with the income support policy for agricultural producers through direct payments.

The object of the research is the rural areas of Bulgaria, which are characterized by varying degrees of socio-economic development.

3. Aim and Research Objectives

The main aim of this dissertation is, following a systematization of the theoretical and methodological aspects related to agricultural support, to analyze the impact of direct payments on employment and the socio-economic development of rural areas; to examine the relationship between unemployment levels and the demand for labor in agriculture; and to propose possible scenarios for changes in the number of agricultural holdings in Bulgaria.

To achieve this aim, the following research objectives are set:

1. To analyze the socio-economic development of rural areas based on their typological classification.
2. To identify the effects of agricultural support policies, with a focus on direct payments, and assess their impact on agricultural production and rural development.
3. To apply regional analysis to evaluate and classify the development of rural areas, and compare them against non-rural areas in Bulgaria using selected indicators.
4. To examine the influence of key internal and external factors on the development of rural areas in Bulgaria.
5. To assess the impact of direct payments on the socio-economic development of rural areas by analyzing regional disparities, main dependencies, and effects on agriculture and the labor market.
6. To develop a classification of rural areas based on the influence of direct payments, overall agricultural support, and their socio-economic condition.
7. To propose and evaluate possible scenarios for changes in the number and structure of agricultural holdings by 2030, considering the impact of direct payment policies, as well as farm size and specialization at the local level.

4. Main Thesis and Hypotheses

The main thesis of the dissertation is that the impact of direct payments on the socio-economic development and employment in rural areas in Bulgaria is limited and ambiguous. Their effectiveness depends on the regional land-use structure, the characteristics of agricultural holdings, and the mechanism and form of support provided.

Two hypotheses are tested in the course of the research:

1. The socio-economic condition of rural areas is determined by multiple factors, with direct payments to agricultural producers playing a key role. Areas receiving higher levels of direct payments exhibit better socio-economic indicators than those with lower support. The stronger performance of farms in these areas creates conditions for longer value chains, higher value added, and increased consumption.

2. The uneven distribution of direct payments and land concentration in a limited number of holdings restricts opportunities for agricultural activity and has a negative effect on employment and labor markets in rural areas. In regions where subsidies are more evenly distributed, better socio-economic outcomes are observed, whereas those with more uneven distribution show deterioration in socio-economic indicators.

5. Limitations of the Dissertation Research

Several limitations were identified in the course of this dissertation research, with the most significant being related to the scope and definition of the central concept and object of the study—namely, the rural area. In Bulgaria, administrative-territorial units are formally designated as cities and villages. However, the classification and delineation of rural areas, even for the purposes of support policies, lacks the necessary precision and comprehensiveness to fully reflect the complexity of rural structuring.

6. Information Provision

The dissertation relies on both secondary and primary data sources. Secondary data were collected from Eurostat (the Statistical Office of the European Union), the National Statistical Institute (NSI), as well as national and regional analytical reports related to the development of agriculture and rural areas.

For the analysis of subsidies and their distribution among beneficiaries and municipalities, publicly available administrative data from the European Commission's website were utilized.

To assess stakeholder attitudes toward different forms of support, a survey was conducted among representatives of the agricultural business sector and public administration.

The theoretical foundation of the research includes a comprehensive review and analysis of Bulgarian and international scientific literature in the relevant field, including publications indexed in major academic databases.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

The dissertation is structured into an introduction, three main chapters, a conclusion, and a reference list, following a logical sequence of content development.

III. MAIN CONTENT OF THE DISSERTATION

CHAPTER ONE. THEORETICAL AND METHODOLOGICAL ASPECTS OF AGRICULTURAL SUPPORT AND THE SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS

In the first section of Chapter One, titled "*Regulatory and Interventionist Role of the State and Direct Payments for the Sustainable Development of Agriculture and Rural Areas*," a review is made of the evolution of economic thought regarding the role of the state, examining various theoretical approaches and concepts—from classical economics and Keynesianism to modern interpretations of state capitalism and state-organized business systems. The relationship between market failure, externalities, and the need for state intervention is analyzed, including through subsidies for strategic sectors such as agriculture.

The historical development of the Common Agricultural Policy (CAP) of the European Union is traced—from its inception in 1962 to the reforms in the early 21st century. The main principles of the policy are presented: free trade, market preferences, and shared financial responsibility. Attention is paid to the reasons behind the reforms, the introduction of direct payments, the shift to decoupled support, and the strategic objectives of the policy in the context of food security, economic sustainability, and adaptation to the new realities of the enlarged European Union.

The two pillars of the CAP—direct payments and rural development policy—are discussed in detail. Their transformations are tracked, including the introduction of eco-schemes and social conditionality in the 2021–2027 programming period. Various support mechanisms are analyzed: the Single Farm Payment Scheme (SFPS) and the Single Area Payment Scheme (SAPS), as well as their specific implementation model in the newly acceded EU Member States, including Bulgaria.

Scientific positions on the effects of direct payments on agricultural production, the labor market, income, investment, and the socio-economic condition of rural areas are examined. Problems related to the uneven distribution of subsidies, the concentration of support, and environmental and social challenges are also presented.

The concluding part of this section presents the concept of an integrated strategic approach within the new common CAP framework after 2023, which combines income support, agri-environmental measures, and rural development measures within national strategic plans.

In the second section of Chapter One, titled "*Conceptual Framework of the CAP and Specifics of its Implementation in Bulgaria*," the main characteristics of the Common Agricultural Policy (CAP) and the specifics of its implementation in Bulgaria following accession to the European Union in 2007 are explored. Key challenges for the socio-economic development of rural areas are examined, including dependence on agriculture, demographic and educational issues, and labor market difficulties. The significance of direct payments for income stabilization and reducing the risk of cessation of activity by farm managers is analyzed.

The main support instruments are presented—Single Area Payment Scheme (SAPS), green payments, and redistributive mechanisms applied during the programming periods 2007–2013 and 2014–2020—as well as the introduced requirements and administrative conditions. Differences in the structure of support and regulatory changes related to simplification, greening, and directing funds to vulnerable farms are highlighted.

The Rural Development Programme (RDP) is examined as a second-pillar CAP instrument, focusing on the sector's competitiveness, sustainable use of natural resources, and socio-economic development. Specific measures and compensatory payments for areas with natural constraints, agri-environmental activities, and organic farming are presented. The evolution of the support

structure during the two programming periods is followed, along with the requirements applied to farms.

A description is given of the trends after 2020, including the integration of the two CAP pillars into a unified Strategic Plan for the 2021–2027 period, aimed at improving the coordination and effectiveness of rural development policy in Bulgaria.

In the third section of Chapter One, titled "Territorial Zoning and Rural Areas: Approaches and Classification Criteria," the evolution of territorial zoning and the methodological foundations for classifying rural areas in the context of the European Union's regional policy are examined. The transition from sectoral to territorial and local approaches in regional development is presented. Models and paradigms are discussed, including the multisectoral and territorial model, as well as the Territorial Approach to Local Development (TALD) by Romeo (2016), which emphasize decentralization, integrated governance, and adaptation of national policies at the local level (Fig. 1 and Fig. 2).

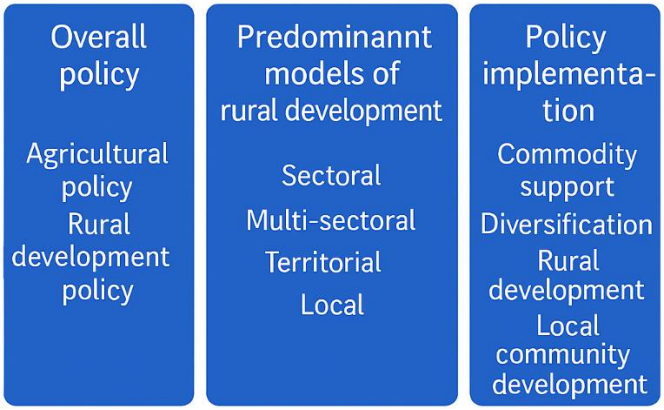

Fig. 1. Models and Evolution of Approaches to Regional Development

Source: adapted from Hodge and Midmore (2008)

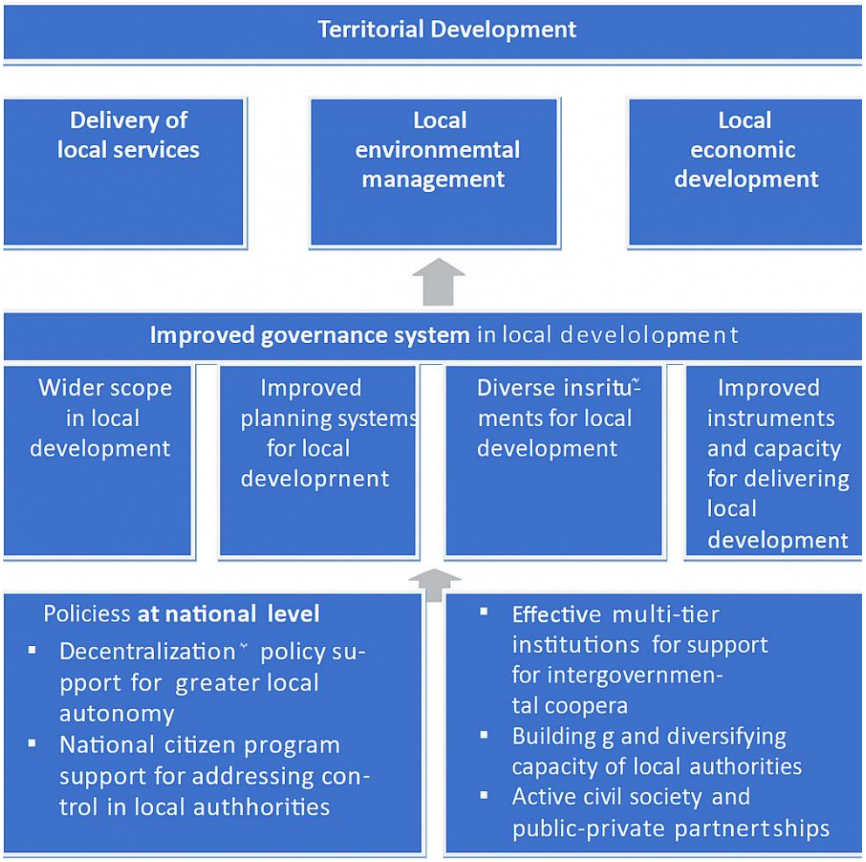

Fig. 2. Conceptual Essence of the Local Approach

Source: adapted from Romeo (2016).

The role of public policy and governance is analyzed, conceptualized by authors such as Easton (1965), Bashev (2010, 2018), Williamson (2000), and Ivanov (2021), as a set of institutions, mechanisms, and processes that influence the management and outcomes of territorial interventions.

Subsequently, the evolution of statistical tools used by Eurostat and national statistical agencies for territorial classification is traced. The three main types of territorial typologies are presented – network-based, local, and regional – along with the Degree of Urbanization (DEGURBA) classification and the typology of NUTS 3 regions (predominantly urban, intermediate, and predominantly rural areas).

Methodological approaches for population mapping through 1 km² grid cells are reviewed: aggregation of geocoded data, disaggregation using spatial sources, and hybrid models. The criteria for LAU units and the hierarchy of classification

within the NUTS system are presented (including Table 1 with population thresholds for the three NUTS levels).

Table 1. Minimum and Maximum Population Thresholds for NUTS (Number of Inhabitants)

Level	Minimum Value	Maximum Value
NUTS 1	3,000,000	7,000,000
NUTS 2	800,000	3,000,000
NUTS 3	150,000	800,000

Source: Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003.

The application of the current Eurostat classification (2013 NUTS version and 2010 GEOSTAT population grid) to the territory of Bulgaria is described. On this basis, the regions are categorized as predominantly rural (e.g. Vidin, Razgrad, Smolyan), intermediate (Plovdiv, Stara Zagora, Burgas, etc.), and the only predominantly urban region (Sofia – capital).

Special attention is paid to the methodology for urban–rural typology in three stages: identification of grid cells, population ratio by grid type, and the presence of large urban centers. Specific classifications without legal basis are also examined: border, island, and mountain typologies (Regulation (EU) 2017/2391).

The importance of spatial analysis for policy planning is presented, highlighting the use of data from GISCO and GEOSTAT systems, as well as differences between countries in the definition of rural areas based on administrative, morphological, and demographic criteria (Stjernberg et al., 2023).

The fourth paragraph of Chapter One, "Methodology for Assessing the Impact of Direct Payments," presents the analytical framework used in the dissertation. The methodology is based on both quantitative and qualitative approaches for evaluating the impact of direct payments on the socio-economic

development of rural areas. One of the main tools applied is the Territorial Shift Share Analysis (TSSA), built on the principles of Shift Share Analysis (SSA)—an analytical approach widely used in regional economics, developed by Dunn (1960), Ashby (1970), and formulated as an analysis technique by Herzog and Olsen (1977). The method has also been used by other researchers focused on spatial disparities and regional competitiveness in Bulgaria (Turlakova, 2017; Sarov & Yanevska, 2022; Totev, 2018; Tomova-Zaharieva, 2018; Borisova & Bilczak, 2020).

The applied TSSA analysis evaluates socio-economic changes by type of territory—rural and non-rural—at three levels: local (municipal), regional (provincial), and national. The basic computational framework follows the classical equation:

$$\mathbf{SS = NS + IS + RS}$$

The method is supplemented by an adapted formula for intermediate shift (IS), proposed by Ivanov (2020), which considers the interaction between regional and national effects:

$$\mathbf{IS = ilocal(t-1) \times [(IS(t)/IS(t-1)) - (NS(t)/NS(t-1))]}$$

To ensure comparability between territorial units, the calculations are normalized through the TSS coefficient, which ranges between 0 and 1:

$$\mathbf{TSS\ CoefAD = |TSS - ilocal(t)| / \max |TSS - ilocal(t)|}$$

At the next stage, a determination analysis is applied to measure the degree of association between direct payments and socio-economic conditions. The evaluation is carried out using a determination coefficient (CD), calculated by the following formula:

$$\mathbf{CD = \Sigma[(xi - \bar{x})(yi - \bar{y})]^2 / \Sigma[(xi - \bar{x})^2] \times \Sigma[(yi - \bar{y})^2]}$$

To study the distribution of subsidies among beneficiaries, the methodology includes the application of the Gini coefficient, using formulas with cumulative values by classes:

$$G = 1 - \Sigma(xk - xk{-}1)(yk + yk{-}1)$$

and

$$G = 1 - 2 \times \Sigma(xk \times yk)$$

These formulas make it possible to account for the actual unequal distribution of direct payments among beneficiaries.

The research methodology in the dissertation also includes an analysis of primary data, collected through a survey conducted among representatives of public administration and agricultural producers. The survey is based on criteria presented in four sections: identification information, competitiveness, labor market development, and effects on farms.

CHAPTER TWO. STUDY OF THE SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS IN BULGARIA

The first paragraph of Chapter Two, "*Demographic Characteristics and the Structure of the Workforce in Rural Areas*" discusses key demographic and socio-economic features of rural areas in Bulgaria and the European Union for the period 2007–2023. The focus is on population decline, structural differences by age and gender, natural growth, and changes in employment and the workforce in the agricultural sector.

Rural areas, which cover more than 80% of the country's territory, are affected by persistent negative demographic trends. A significant population decrease is recorded—nearly 12% between 2015 and 2023 in Bulgaria, placing the country among the most affected in the EU (see Fig. 3 and Fig. 4).

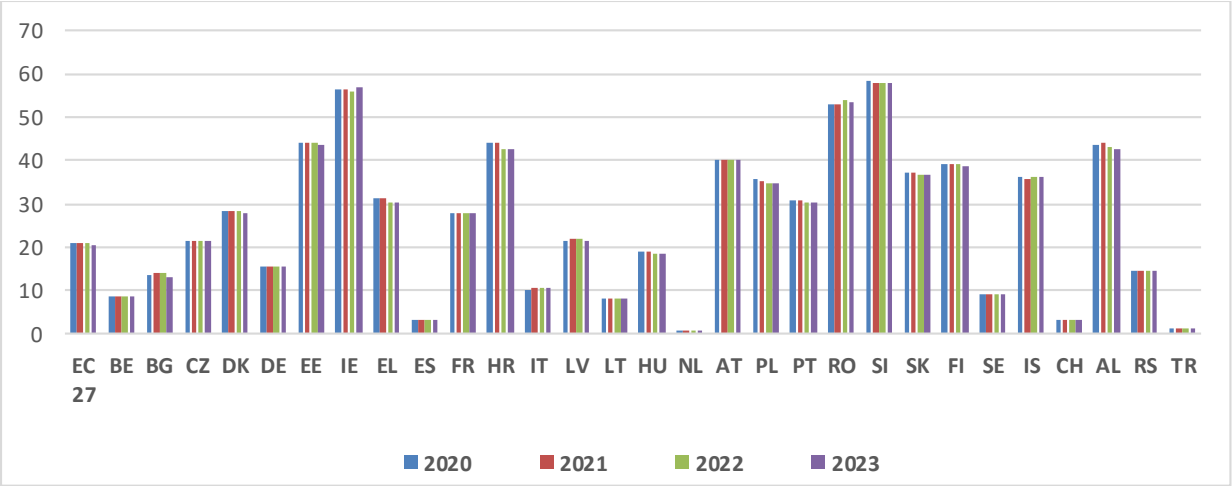

Fig. 3. Relative share of the rural population out of the total population, by country for the period 2020–2023

Source: Eurostat.

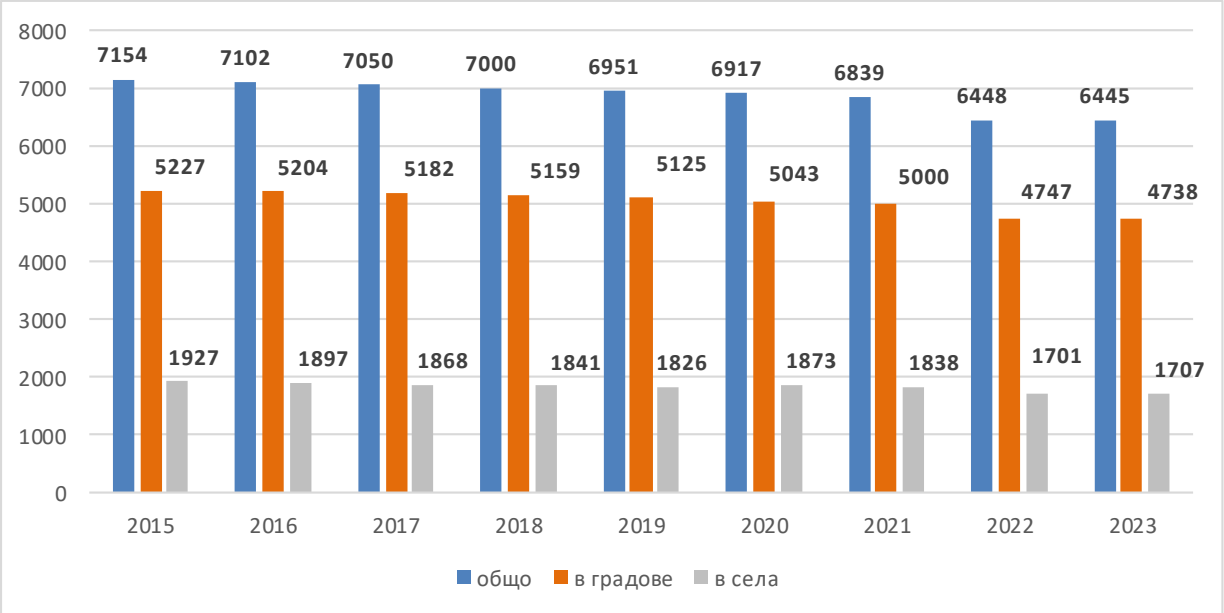

Fig. 4. Population of Bulgaria – total, urban and rural, in thousands

Source: NSI.

Similar dynamics are observed in population density, the value of which in predominantly rural areas reached only 34 people/km² in 2023, as shown in Table 2.

Table 2. Population density in Bulgaria for the period 2018–2023, persons per km²

Year	2018	2019	2020	2021	2022	2023
Predominantly rural areas	38	37	37	37	37	34
Intermediate areas	57	56	56	56	55	51
Predominantly urban areas	1,015	1,017	1,017	1,002	1,001	980

Source: Eurostat.

Birth rate is analyzed in detail, showing values consistently lower than the national average throughout the entire period, as well as mortality rate, which remains higher than the average — differences illustrated respectively in Figure 5 and Figure 6.

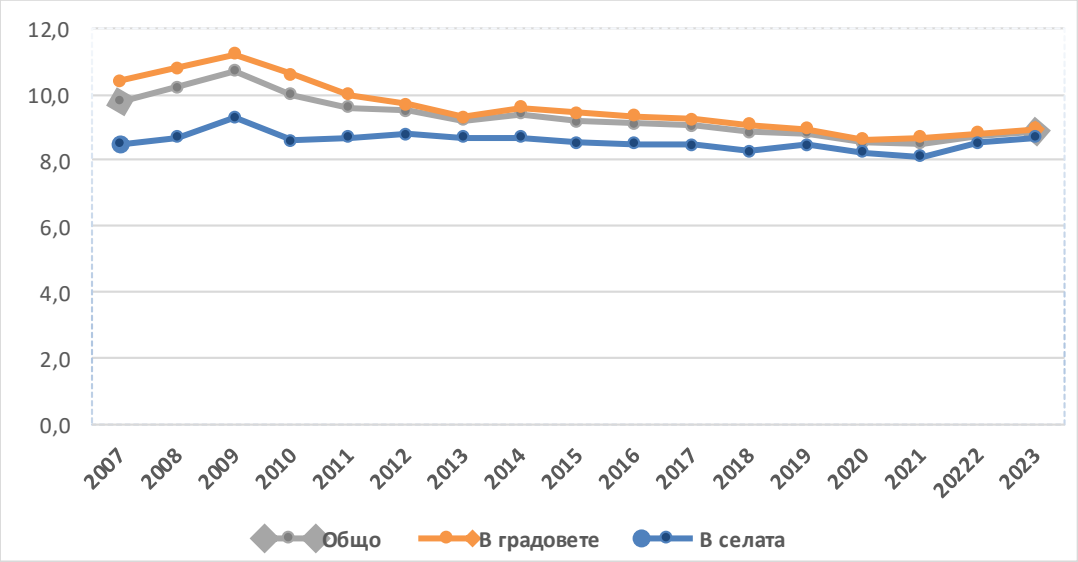

Figure 5. Birth rate of the population during the period 2007–2023 (in ‰).

Source: NSI (National Statistical Institute).

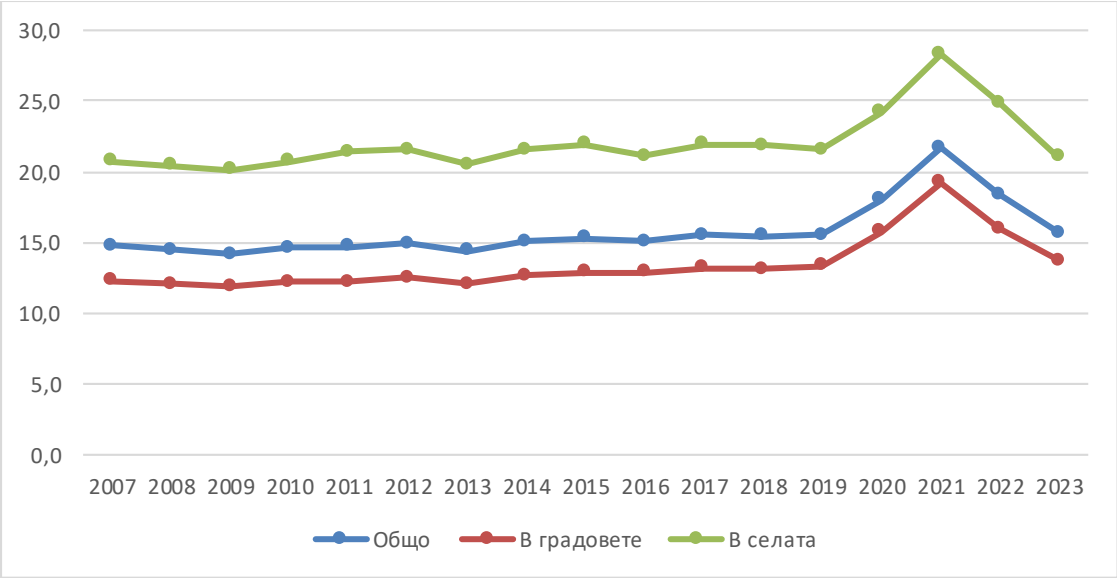

Figure 6. Mortality rate of the population during the period 2007–2023 (in ‰).

Source: NSI (National Statistical Institute).

As a result, the natural population growth in most rural municipalities is consistently negative, with only seven municipalities reporting a positive value. This territorial disproportion is at the core of the deepening demographic inequalities in the country.

The distribution of the population is examined according to the European typology of areas (predominantly rural, intermediate, and urban). Tables 3 and 4 demonstrate the declining population values in rural areas and its concentration in intermediate areas.

Table 3. Population of Bulgaria by the European urban-rural typology for the period 2018–2023, million people

	2018	2019	2020	2021	2022	2023
Predominantly urban areas	1.325	1.328	1.329	1.308	1.307	1.280
Intermediate areas	4.811	4.767	4.722	4.699	4.638	4.338
Predominantly rural areas	0.914	0.905	0.901	0.909	0.894	0.829

Source: Eurostat.

Table 4. Distribution of the territory and population of Bulgaria according to the European typology of urban–rural areas in 2023

Type of Area	Number of Regions	Population (thousands)	Population (%)	Territory (thousand sq. km)	Territory (%)	Population Density (2022, people/sq. km)
Predominantly rural areas	7	829.1	13%	24.48	22.1%	37.1
Intermediate areas	20	4,338.2	67%	85.16	76.7%	56.3
Predominantly urban areas	1	1,280.3	20%	1.34	1.2%	998.6
Bulgaria (total)	**28**	**6,447.7**	**100%**	**110.98**	**100%**	**60.4**

Source: Eurostat.

An analysis was conducted on the structure of employment. Although predominantly rural and intermediate regions account for nearly 27% of total employment in the country, the number of people employed in agriculture has decreased significantly — from 656 thousand in 2013 to 559 thousand in 2021, as shown in Tables 5 and 6.

Table 5. Persons employed in agriculture, forestry, and fisheries, 2013–2021 (in thousands)

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Predominantly urban areas	11.7	11.9	9.9	10.7	15.4	14.9	12.4	12.6	15.0
Intermediate areas	509.7	519.8	504.7	482.9	514.3	481.7	462.5	461.9	430.7
Predominantly rural areas	134.8	134.8	134.5	131.4	135.0	127.8	121.9	121.2	113.6
Total	656.2	666.5	649.1	625.0	664.7	624.4	596.8	595.7	559.3

Source: Eurostat.

Table 6. Share of Persons Employed in Agriculture, Forestry, and Fisheries, 2013–2021 (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Predominantly urban areas	1.8	1.8	1.5	1.7	2.3	2.4	2.1	2.1	2.7
Intermediate areas	77.7	78.0	77.8	77.3	77.4	77.1	77.5	77.5	77.0
Predominantly rural areas	20.5	20.2	20.7	21.0	20.3	20.5	20.4	20.3	20.3

Source: Eurostat.

The economically active population in rural areas remains lower compared to other areas, while the unemployment rate is higher – Table 7 visualizes these differences between the area typologies.

Table 7. Structure of the labor force across different types of regions

Year	Population, million people		Unemployment rate, %		Share of active population (aged 20–64), %	
	Urban and intermediate	Predominantly rural	Urban and intermediate	Predominantly rural	Urban and intermediate	Predominantly rural
2014	6.29	0.96	9.3	14.9	46.0	43.2
2015	6.25	0.95	7.2	12.5	45.7	42.1
2016	6.22	0.94	6.1	10.4	45.0	40.9
2017	6.18	0.92	4.8	8.6	46.3	43.1
2018	6.14	0.91	3.9	7.9	46.0	43.7
2019	6.09	0.91	3.1	7.1	46.9	44.1
2020	6.05	0.90	4.1	7.5	46.0	43.9
2021	6.00	0.91	4.3	7.0	45.9	42.6
2022	5.95	0.89	3.5	5.7	43.6	40.4
2023	5.62	0.83	3.6	6.4	46.0	42.8

Source: Eurostat.

The characteristics of the agricultural labor force are examined—family-based models prevail, with a significant share of farm managers being over the age of 65. Young people and female farmers are underrepresented, while employment in the sector is increasingly part-time and seasonal.

Opportunities and challenges for the development of rural areas are emphasized, with the analysis pointing out that structural economic lag,

demographic pressure, and the shortage of qualified labor require a more targeted policy for territorial cohesion and support.

The next, second section of Chapter Two, titled "Structure and Dynamics of Income in Agriculture in Rural Areas," explores the contribution of agriculture to the economy, income levels, subsidy flows, and economic disparities among different types of farms.

Incomes in rural areas are directly related to the structure of the local economy. While the services and industrial sectors are growing, agriculture still occupies a significant share—approximately 13% of the rural economy, which is more than twice the national average. Despite this, labor compensation in the sector remains consistently lower—by approximately 25% compared to other industries.

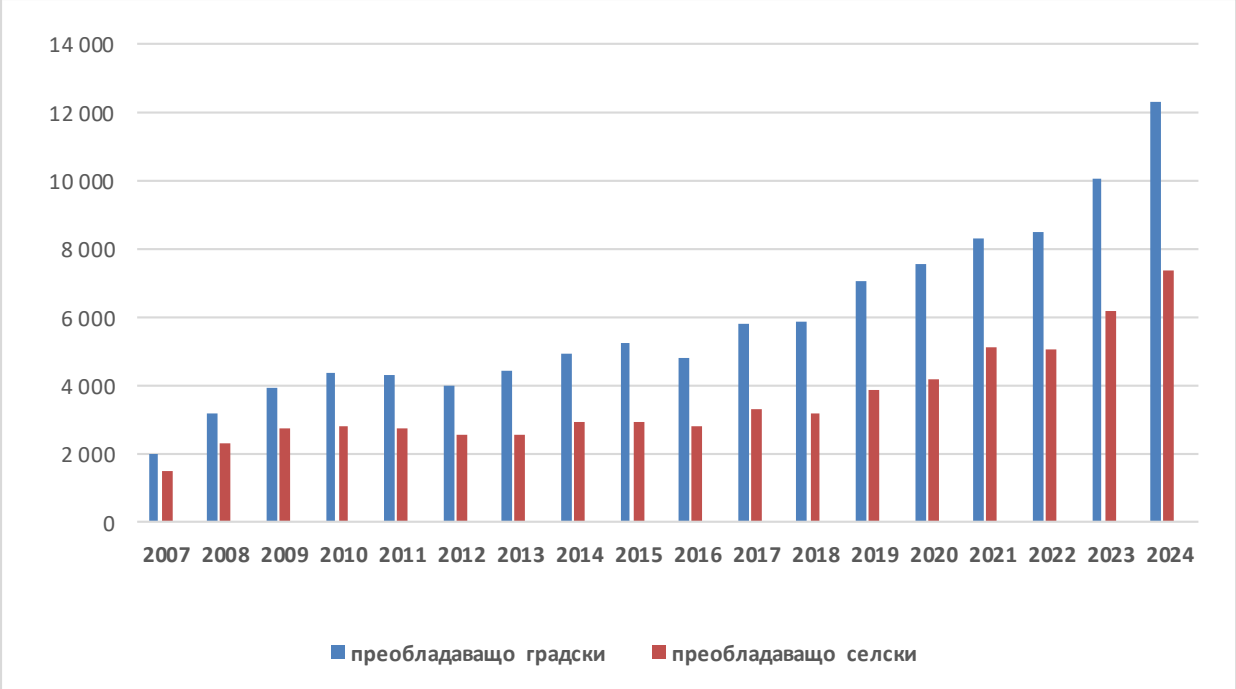

Fig. 7. Average Net Income in Predominantly Urban and Predominantly Rural Areas, BGN '000

Source: Eurostat.

Figure 7 presents comparative data on average net income in urban and rural areas, clearly showing a persistent lag in rural zones of approximately 30% (according to Eurostat data). This discrepancy is attributed both to the lower

added value generated by agriculture and the demographic profile—higher shares of elderly population and fewer economically active activities.

The CAP contributes to income growth through subsidies, but its impact on actual wage increases is limited. Although gross output in agriculture has risen in nominal terms, when examined at real prices, the growth is weak. Figure 8 illustrates the imbalance between crop and livestock production, with the latter steadily losing ground since 2007, while cereal production has shown relative advancement.

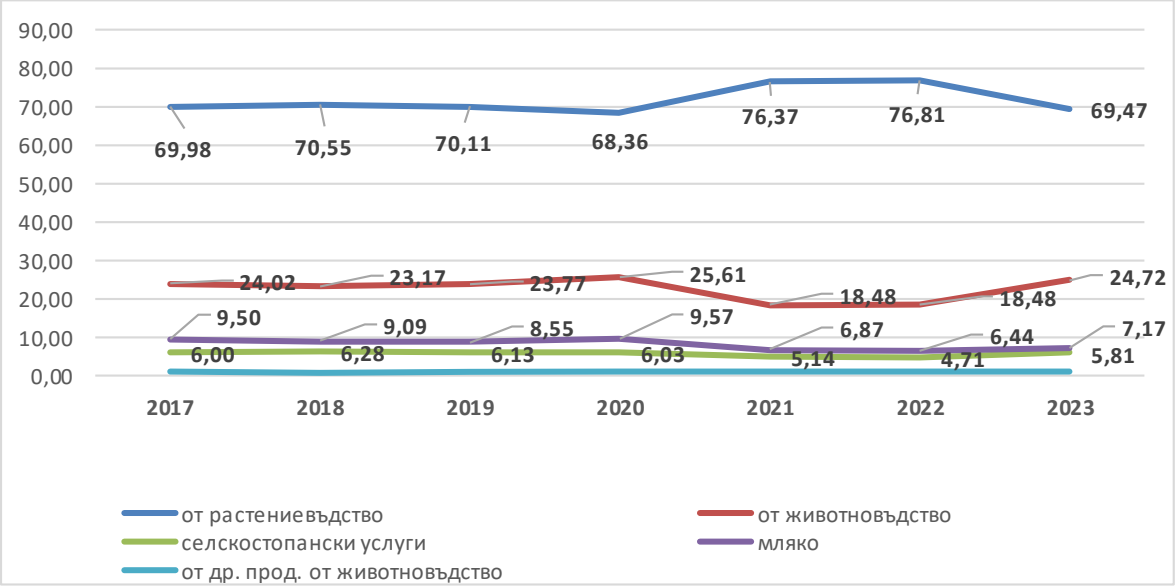

Fig. 8. Development of the Share of Output from Crop and Livestock Sectors in Agriculture, %

Source: NSI (National Statistical Institute).

The subsidies under the SAPS scheme play a crucial role in agricultural income—in 2023, they accounted for nearly 70% of net value added (NVA) and 35% of factor income. This confirms the sector's high dependency on support mechanisms. When disaggregated by farm type, clear differences emerge: the highest incomes are generated by large farms specialized in cereal crops, while small and vegetable farms remain with lower income potential.

Table 8 illustrates the dynamics of gross farm income based on the economic size of farms, confirming the highest growth in the largest farms—nearly a threefold increase between 2007 and 2022, primarily due to subsidy concentration and access to capital.

Table 8. Gross Farm Income by Economic Size of Holdings, in Euro

Gross Income by Class Size	€2,000–8,000	€8,000–25,000	€25,000–50,000	€50,000–100,000	€100,000–500,000	Over €500,000
2007	3,363	8,185	17,735	37,464	136,837	490,228
2008	3,636	10,130	24,442	47,982	207,145	633,462
2009	4,442	9,818	19,717	41,615	139,443	488,613
2010	4,148	11,081	26,094	62,300	248,164	855,864
2011	3,983	11,707	29,296	62,431	261,733	918,412
2012	4,001	11,877	25,117	47,049	186,237	849,190
2013	3,006	14,307	26,377	43,302	178,997	888,912
2014	8,181	11,881	31,352	56,425	184,150	944,393
2015	4,125	13,598	30,138	47,990	149,725	866,170
2016	3,584	12,844	27,705	44,806	148,509	819,936
2017	6,013	14,384	31,851	50,668	177,339	928,161
2018	6,921	15,083	27,239	54,598	168,647	927,679
2019	7,151	14,808	32,617	49,910	163,129	927,293
2020	7,748	15,727	36,197	59,678	169,575	901,035
2021	7,483	18,452	37,578	64,881	241,432	1,427,211
2022	7,942	21,938	42,969	77,620	278,590	1,593,976

Source: FADN.

A key conclusion reached is that the actual increase in income within the sector remains limited, due to rising production costs, inflation, and low added value per unit of land. This hinders the ability of agriculture to play a leading role in the socio-economic development of rural areas.

In subsection 2.3. “Role and effects of direct payments on the income of agricultural holdings”, direct payments are presented as a key instrument of the Common Agricultural Policy (CAP) for supporting agriculture. In Bulgaria, they account for between 55% and 70% of the total policy budget in the two programming periods following the country’s accession to the EU.

In the period 2007–2022, the average amount of subsidies per farm increased by 5.5 times, reaching over 13 thousand euros, while the number of beneficiaries declined from around 79 thousand to below 60 thousand.

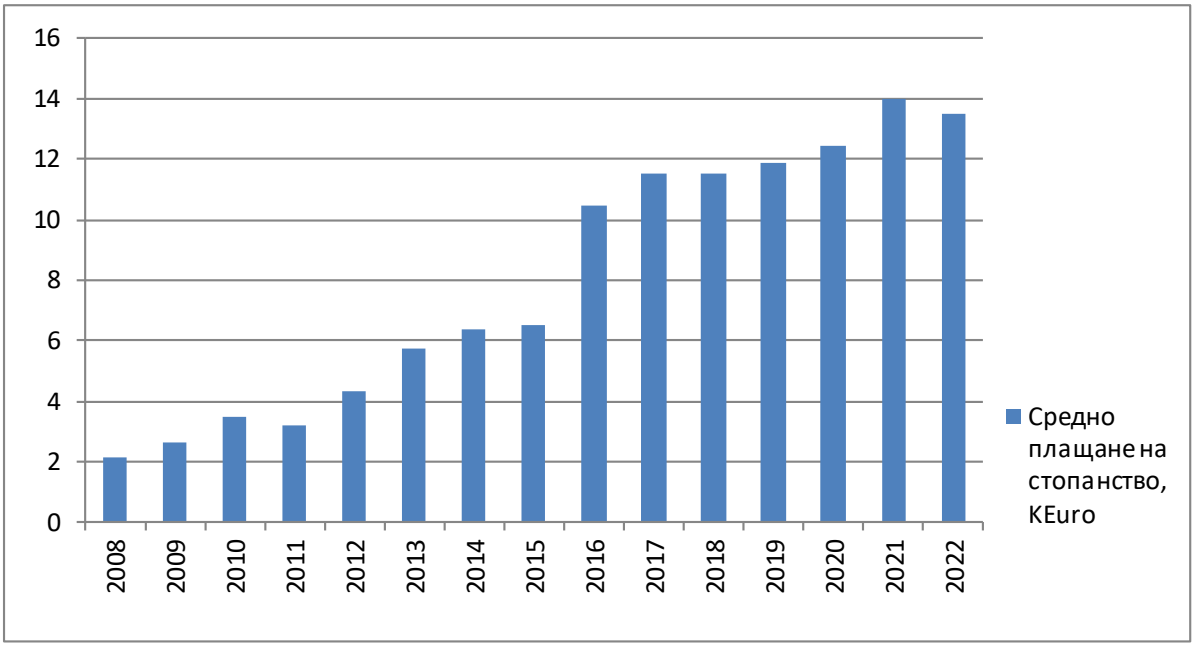

Fig. 9. Average payment per holding, euros for the period 2008–2022

Source: DG "Agriculture", European Commission and own calculations.

Figure 9 illustrates the increasing value of the average payment per holding between 2008 and 2022, which confirms the concentration of support in larger beneficiaries. At the same time, a change in the structure of holdings is observed – in 2007, 85% of them had an area of up to 100 decares, while by 2022 this share had decreased to 45%.

Direct payments contribute to the stabilization of farms in rural areas, increase rents and the value of agricultural land (with a growth of between 7 and 10 times over the period), and reduce uncultivated land. At the same time, the implementation of the Single Area Payment Scheme (SAPS) leads to structural imbalances, as it disadvantages cost-intensive sectors such as vegetable and fruit production, where subsidies represent less than 5% of total costs.

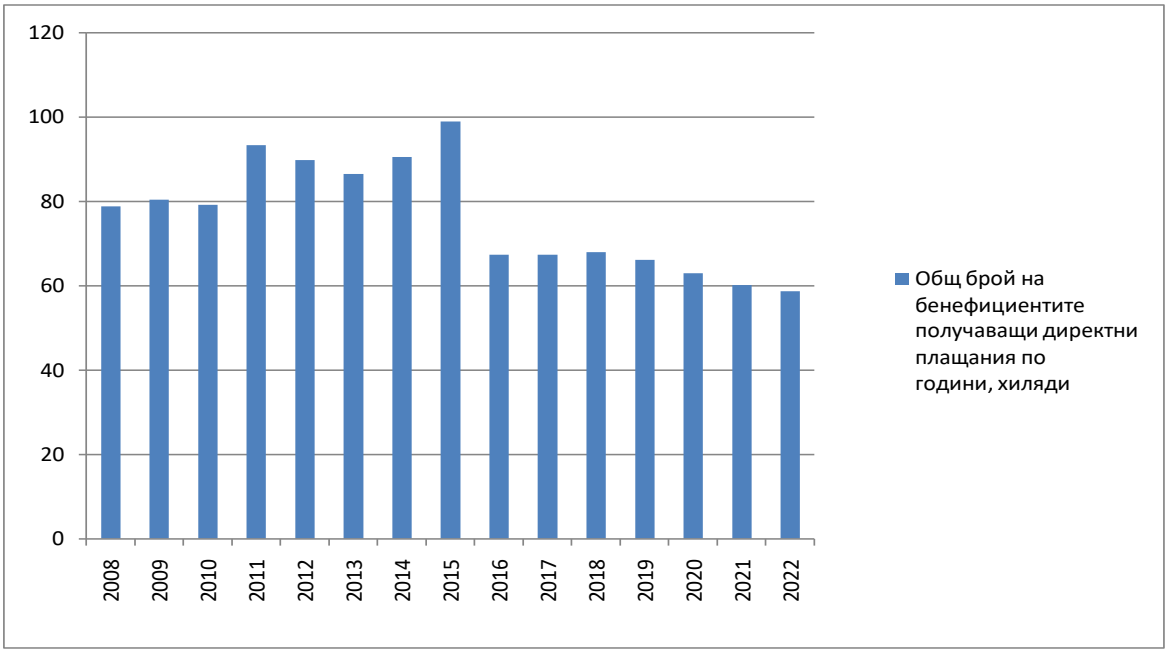

Fig. 10. Total number of beneficiaries authorized and receiving direct payments annually, in thousands

Source: DG "Agriculture", European Commission and own calculations.

Figure 10 illustrates the decrease in the number of authorized beneficiaries and outlines a trend toward increased inequality in the distribution of funds, with a Gini coefficient of around 0.7.

The most dependent on direct payments are livestock and mixed farms, which play an important role in creating employment in rural areas but remain vulnerable due to market difficulties and lower competitiveness.

Table 9 presents the net farm income per hectare for specialized farms by type, with the strongest income growth per hectare observed in permanent crops and vegetable production – with more than a fourfold increase. Mixed farms show a decline, which signals problems in the sustainability of this category of agricultural producers.

Table 9. Net Farm Income of Specialized Farms, average in euro/ha

Type of Specialized Farm	2007	2012	2017	2022
Arable crops	112	180	158	489
Vegetable production	2,077	1,289	1,742	4,647
Viticulture	42	52	1,114	1,086
Fruit-growing and permanent crops	160	293	770	1,501
Dairy	538	451	807	1,051
Non-dairy ruminant livestock	398	510	610	687
Pig and poultry farming	3,137	482	5,250	23,477
Mixed farms	196	613	536	468

Source: FADN.

Although direct payments have undoubtedly contributed to farmers' incomes and, by extension, to the stability of the sector, they have not fully achieved broader socio-economic effects—particularly in terms of supporting small, intensive, and socially significant farms. There is a need to transition toward more targeted, results-oriented, and differentiated support, tailored to the specific contribution of different types of farms to the economy and society in rural areas.

Section 2.4: *"Socio-economic Factors in the Development of Rural Areas".* This section examines the socio-economic development of rural areas through a comparative and dynamic analysis relative to non-rural regions, covering two reference periods: 2008/2009 and 2016/2017. A modified territorial Shift-Share Analysis (SSA) is applied, which enables the tracking of internal development potential of the territories by isolating external influences.

The analysis covers eight main factors grouped into three dimensions—economic, demographic, and social. Each factor is represented by a specific indicator reflecting the status and changes in the respective domain.

Economic Factors

The study examines the Gross Value Added (GVA) from agriculture, overall economic development, and unemployment levels at the municipal level. Rural areas achieved a higher growth rate in agricultural GVA compared to urban areas,

albeit with greater internal disparities. This progress is attributed to better resource endowment in rural areas and a favorable environment following EU accession.

At the same time, internal economic heterogeneity within rural regions is significant—some municipalities demonstrate strong economic dynamics, while others lag considerably.

Unemployment is notably higher in rural areas. It has been found that rural municipalities recover more slowly from economic crises, resulting in structural unemployment and demographic outflows. The gap in average unemployment rates between the two types of areas is considerable.

Demographic Factors

Rural areas are more severely affected by population decline and negative natural growth compared to urban regions. Although EU membership has improved economic conditions, this has not been sufficient to reverse the negative demographic trends.

Internal differentiation is also pronounced—some municipalities experience sustained depopulation, while others show a positive migration balance, though these are exceptions rather than the norm.

Figure 11 presents a summarized assessment of unemployment changes across the regions, highlighting the more unfavorable socio-economic situation in rural territories.

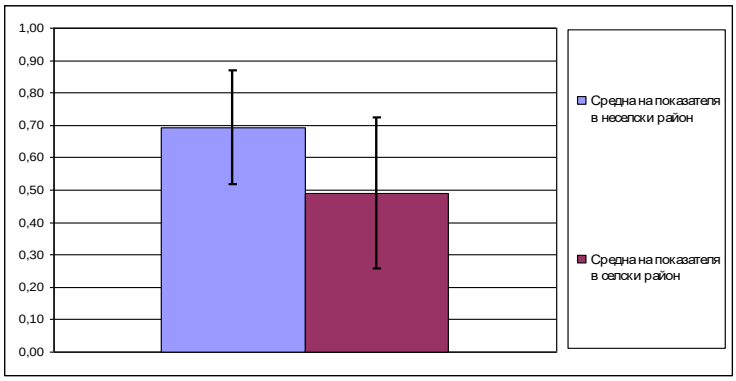

Figure 11. Average Score of Unemployment Change by Region

Source: Own calculations based on data from the National Statistical Institute (NSI).

Social Factors

The development of social, healthcare, and educational infrastructure also shows marked differences between the two types of regions. Medium-term progress in social infrastructure is weaker in rural areas, where access to services remains limited—especially in remote and small municipalities.

Healthcare infrastructure demonstrates a relative parity between rural and urban regions. However, educational infrastructure continues to show high disparities across municipalities, including the existence of significantly lagging territories.

The composite socio-economic index (SYSES), illustrated in Figure 12, indicates that all predominantly rural regions in the country are significantly below the national average—by approximately 35%. This reveals serious challenges regarding regional convergence.

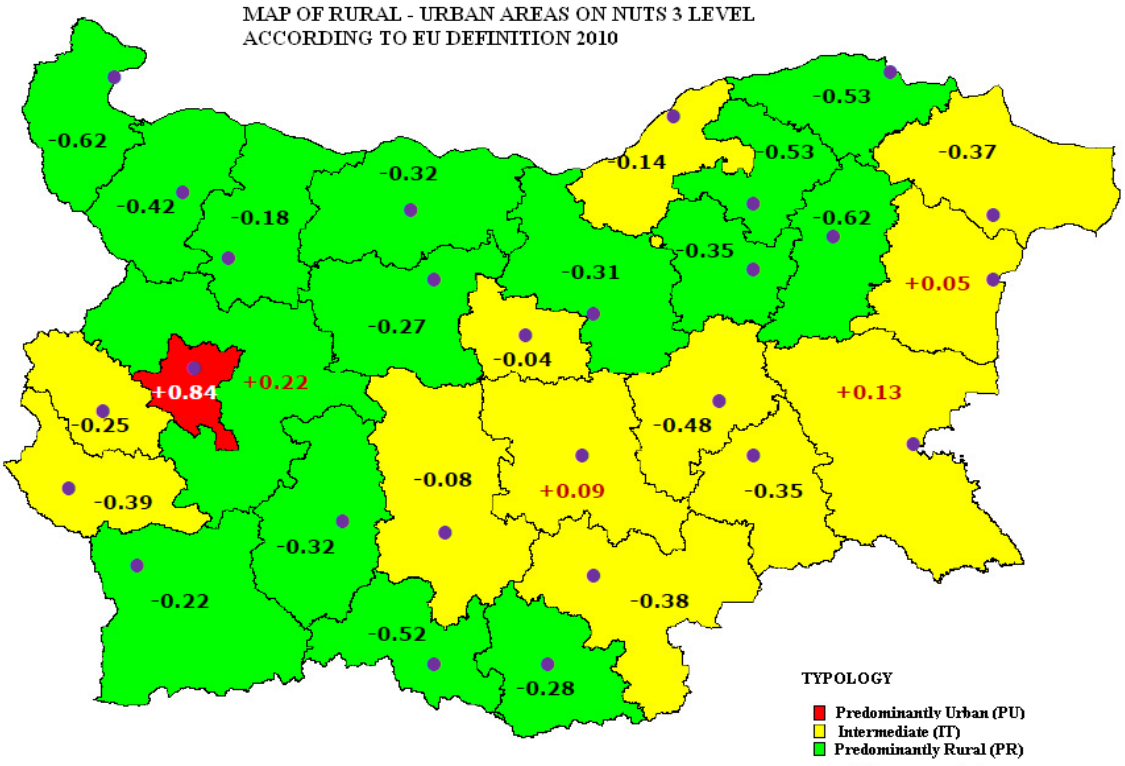

Fig. 12. Map at NUTS 3 level showing the Synthetic Socio-Economic Development Index (SYSES)

Source: NSI.

Despite the fact that rural areas receive the majority of funding under Pillar II of the CAP, its impact on their socio-economic conditions remains limited. Spatial analysis reveals a weak correlation between the amount of funding and improvements in key indicators, which calls into question the effectiveness of support as a tool for sustainable development.

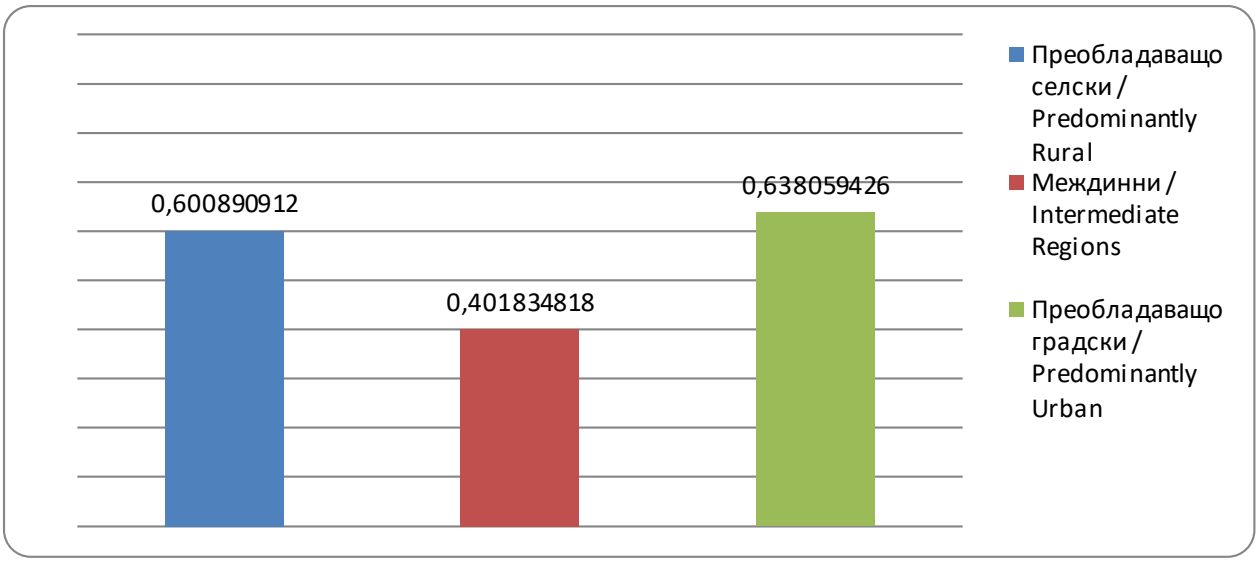

Fig. 13. Homogeneity Coefficient (HOSES)

Source: NSI.

Figure 13, reflecting the homogeneity coefficient of socio-economic indicators, shows that rural areas predominantly exhibit similarly low results. This consistency in unfavorable conditions is an alarming signal, as it indicates a systemic and widespread socio-economic lag that could hinder the sustainable development of these areas.

CHAPTER THREE. ASSESSMENT AND POSSIBLE DEVELOPMENT SCENARIOS FOR RURAL AREAS IN THE CONTEXT OF CHANGES IN THE CAP AND DIRECT PAYMENTS

As part of the dissertation research, a survey was conducted among two target groups – representatives of public administration (RLAD, NASS, SFA,

etc.) and agricultural producers. The results are presented in **Section 3.1** *"Perceptions of the Impact of Direct Payments in Rural Areas."*

The aim of the primary research is to identify attitudes toward direct payments as a support instrument and their impact on the socio-economic development of rural areas. The online survey was carried out between September and October 2022, with the participation of 84 administrative representatives and 65 agricultural producers.

The profile of the surveyed agricultural producers demonstrates a high degree of representativeness – the majority are registered as business entities, and more than half manage over 500 hectares of land (see Table 10). Over 90% of the farms use their own funds and subsidies as main sources of financing. Nearly one-fifth of the respondents are also involved in additional activities related to processing or trade.

Table 10. Capacity of Surveyed Agricultural Producers by Size of Utilized Agricultural Area

Utilized Agricultural Area	Average Size of Land per Farm (ha)	Share (%) of Farms from Total Number	Share (%) of Land from Total Surveyed Area
up to 10 ha	2.4	19.2%	0.1%
10.1–100 ha	35.0	11.5%	0.6%
100.1–500 ha	190.1	19.2%	5.8%
500.1–1000 ha	845.0	23.1%	30.8%
over 1000 ha	1472.9	26.9%	62.7%

To assess business competitiveness, 12 operational variables (in the form of statements) were used from the administration's perspective, and 10 from the business perspective. To ensure the reliability of the constructed toolset, Cronbach's Alpha was used.

The competitiveness assessments reveal significant differences between the self-assessments of agricultural holdings and the opinions of the administration (Fig. 14). Administrative representatives are more critical—particularly

regarding market access, distribution network efficiency, and the quality of the workforce. The producers' self-assessments are higher but also highlight challenges in the same areas.

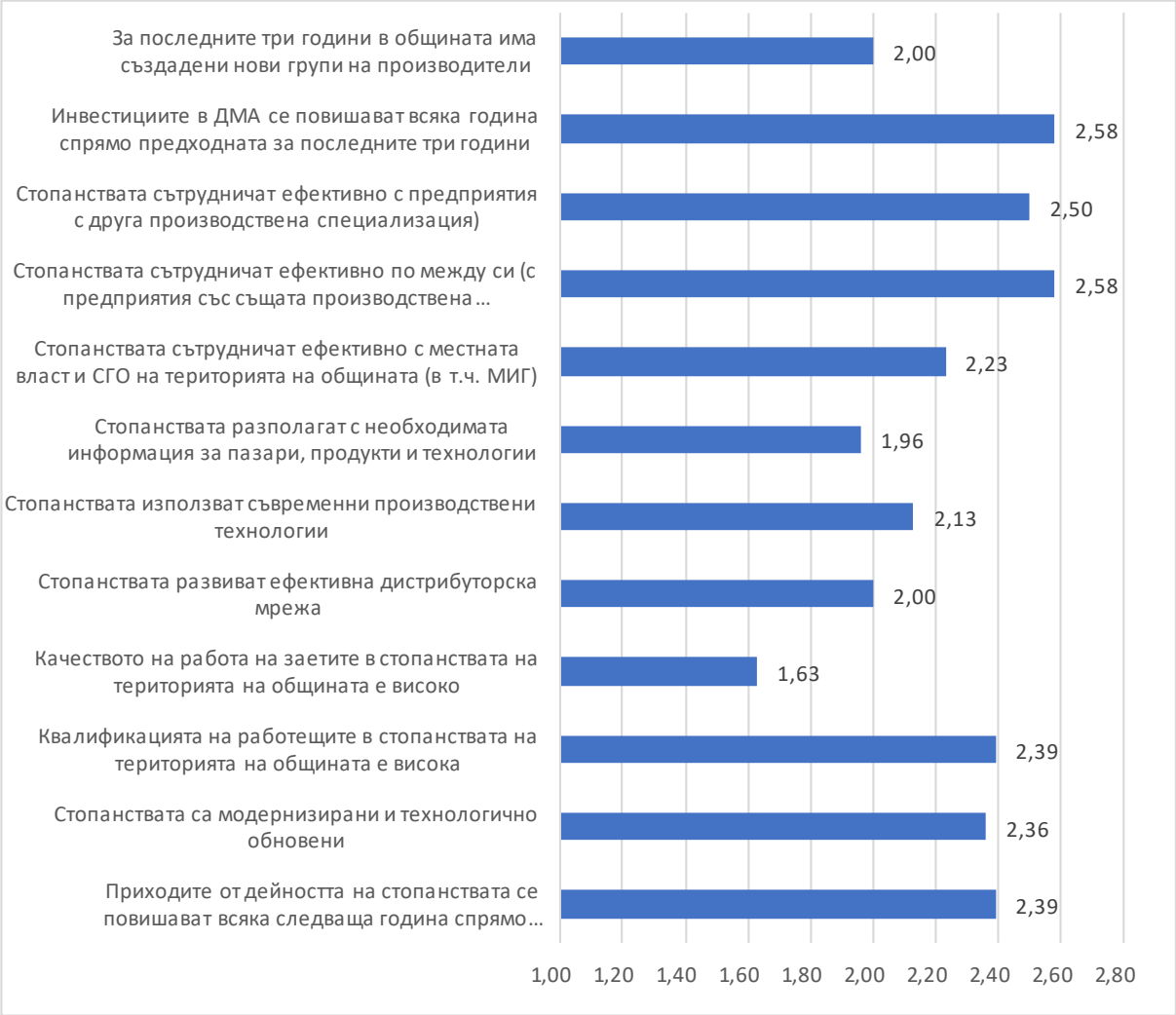

Figure 14. Business Competitiveness Assessment by the Administration

The administration's assessment of the given statements is presented in Figure 14. A 4-point scale was used, where 1 represents the most negative and 4 the most positive response. For interpreting the average scores: 1 to 1.75 – definitely does not apply; 1.76 to 2.5 – rather does not apply; 2.51 to 3.25 – rather applies; above 3.26 – definitely applies.

The analysis reveals that larger farms are less likely to engage in cooperative forms of collaboration and assign lower importance to developing external sales channels. At the same time, there is a correlation between access to external financing and planned expansion—farms relying mainly on internal resources demonstrate a higher willingness to expand their production capacity.

An important component of the study is the self-assessment of farmers regarding their own competitiveness. A block of ten indicators was used, framed as statements to which respondents indicated their level of agreement. The analysis shows that farmers exhibit a higher self-assessment compared to the views of the administration (see Figure 15). The highest-rated aspects include: investments in fixed assets, vertical and horizontal cooperation, and the ability to adapt to market conditions. At the same time, relatively lower ratings are given to indicators related to the distribution network and awareness of new technologies and markets.

Figure 15. Farmers' Self-assessment of Business Development

As part of the survey, a set of variables was included to assess the perceived development of the labor market in rural areas. The reliability of the instrument

was confirmed using Cronbach's Alpha – 0.852 for the administration and 0.677 for the farmers.

Respondents from both groups recognize the importance of labor market development indicators but provide differing evaluations. Farmers report moderate progress, mainly in terms of remuneration and decreasing unemployment, while expressing doubts about the effectiveness of training and awareness of such opportunities. The administration, on the other hand, provides more positive assessments.

The summarized average values indicate that perceptions of labor market development remain below expectations in both groups, with farmers assigning slightly higher scores than the administration.

The evaluation of the support process (Figure 16) reveals pronounced discrepancies between the two groups. Farmers are more critical of the administration's capacity, the level of awareness, and access to consultations. At the same time, the administration provides more favorable assessments of its own performance. Particularly negative is the perception of the availability of staff who understand the specificities of different types of farms.

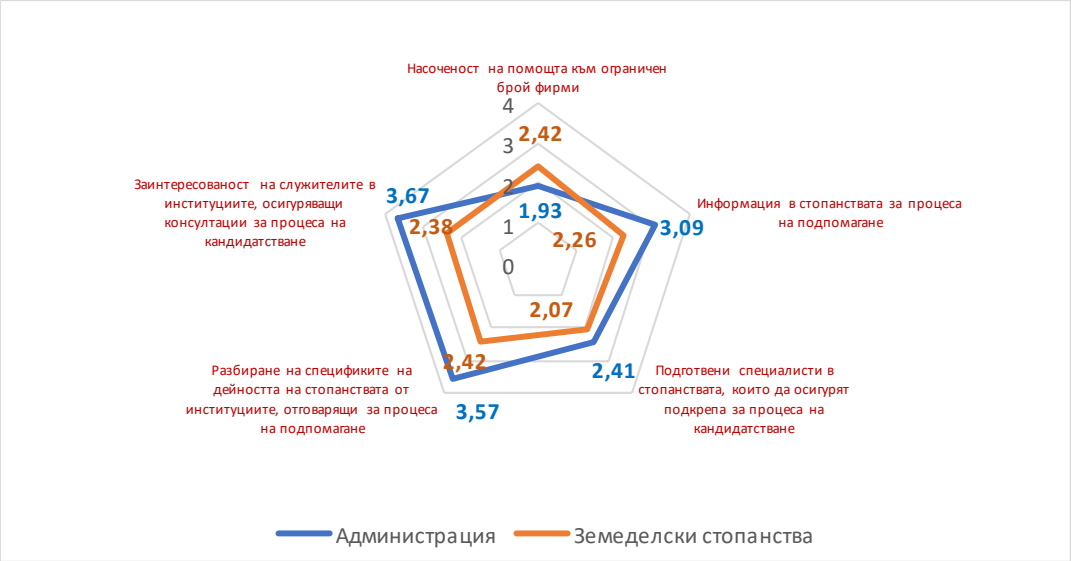

Figure 16. Assessment of the Support Process by the Administration and Agricultural Producers

Overall, the evaluations of the significance of direct payments and the measures under the second pillar of the CAP vary depending on previous application experience and the perceived effects. Most of the surveyed farmers plan to continue their participation in the new programming period, despite existing administrative and informational barriers.

In Section 3.2 of Chapter Three, "*Impact of Direct Payments on the Economic and Demographic Development of Rural Areas*," the effects of CAP direct payments on economic and demographic dynamics in rural areas are analyzed. Although rural areas are the main recipients of CAP funding, they continue to lag behind national average levels across key socio-economic indicators.

The analysis identifies four major problem groups: demographic decline, high unemployment, lower incomes, and elevated poverty levels. For example, the rural population decreased by 15.7% between 2007 and 2019, while incomes remain significantly lower than in urban centers.

The distribution of direct payments is extremely unequal – the Gini coefficient exceeds 0.8 in certain years (Figure 17), indicating a concentration of subsidies in a small number of large farms. This limits their effect on the broader range of rural households.

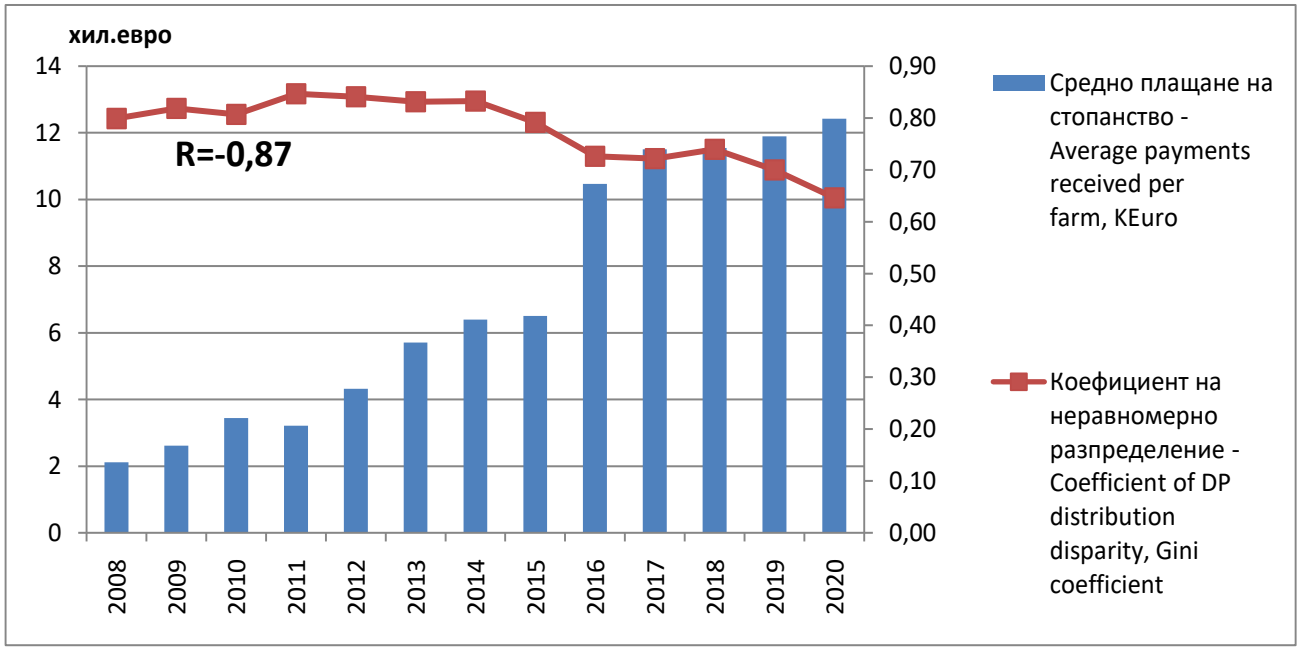

Figure 17. Distribution of Average Direct Payments Among Farms

Source: DG Agri

Through spatial analysis conducted on 54 rural municipalities, the extent to which direct payments affect the following was measured:

Development of agriculture – a low coefficient of determination (CD = 0.13), indicating a weak relationship between subsidies and local agricultural development (Figure 18);

Demographic processes – a relatively higher, yet still weak effect (CD = 0.32), with some regions showing that lower subsidies coincide with poorer demographic indicators (Figure 19);

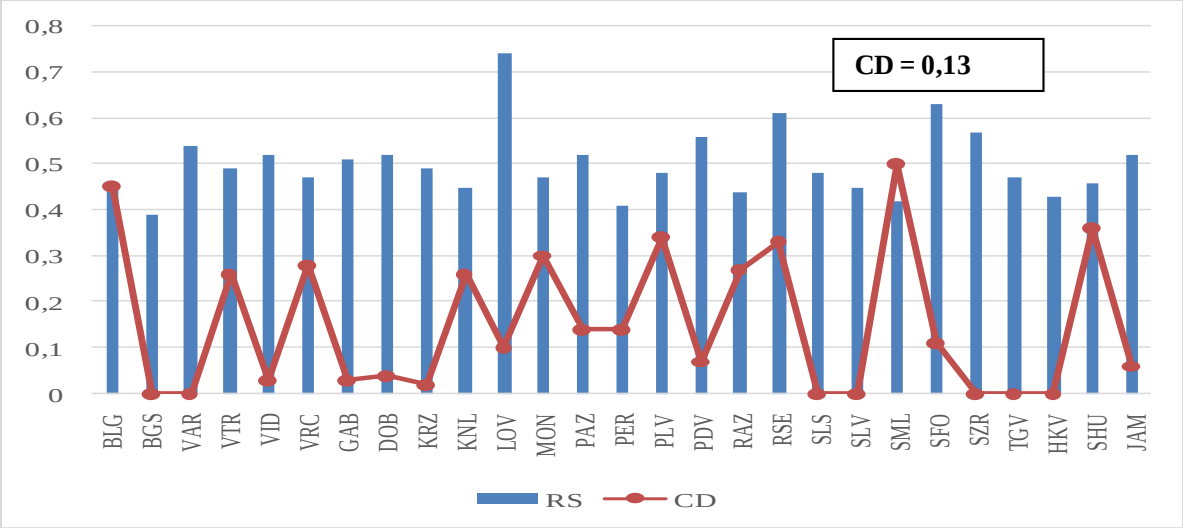

Figure 18. Coefficient of Determination (CD) for Rural Municipalities and the Development of Agriculture Based on Received Subsidies in 2019

Source: DG Agriculture and own calculations based on NSI data

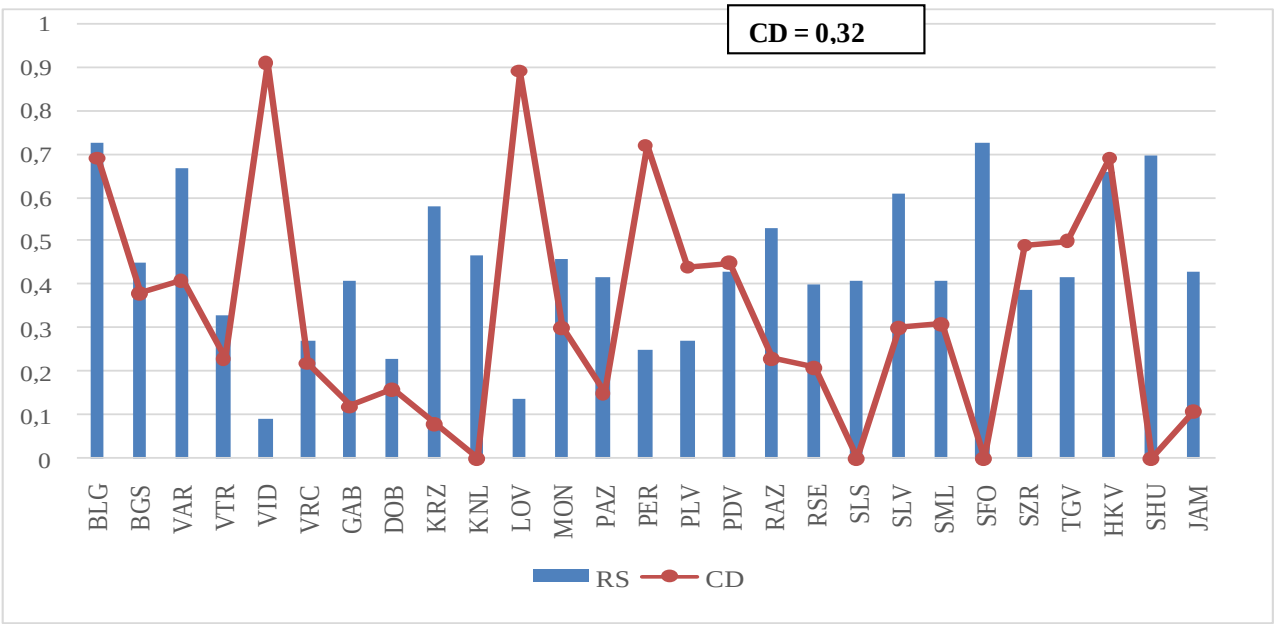

Figure 19. Coefficient of Determination (CD) for Rural Municipalities and the Development of Demographics Based on Received Subsidies in 2019

Source: DG Agriculture and own calculations based on NSI data

Economic development – again shows a weak effect (CD = 0.15), with exceptions noted in certain less developed areas (Figure 20).

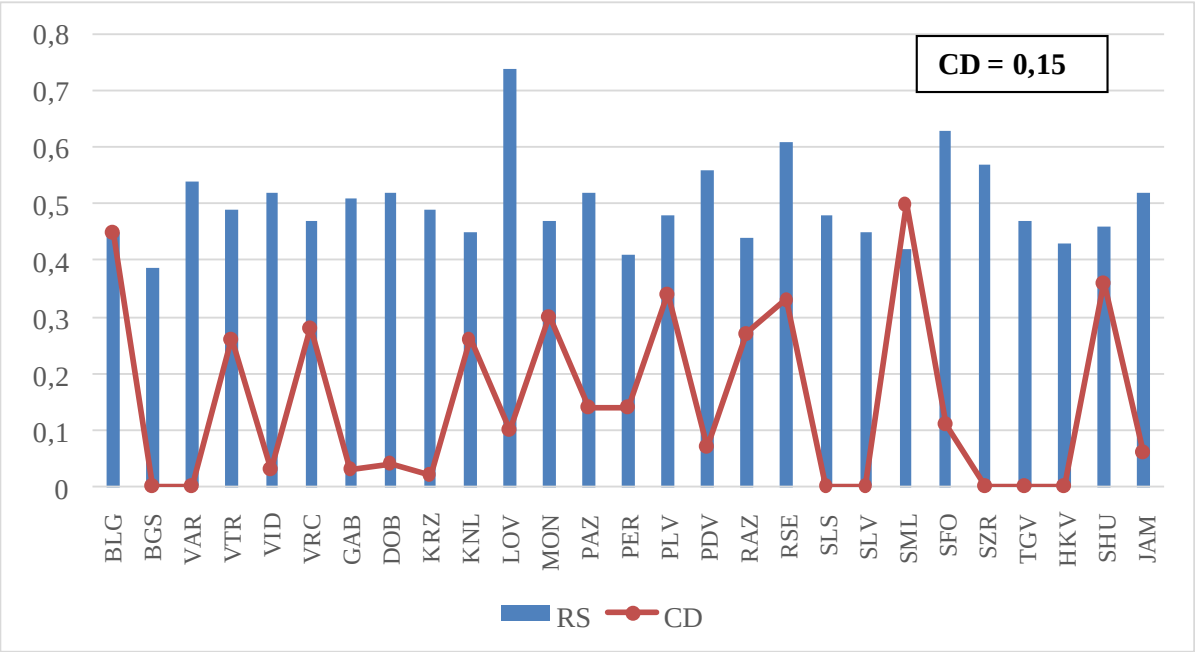

Figure 20. Coefficient of Determination (CD) between Rural Municipalities and Economic Development Based on Received Subsidies in 2019

Source: DG Agriculture and own calculations based on NSI data

The results emphasize that the effects of direct payments are not fully realized at the local level—often because beneficiaries are registered outside the respective municipality. This hinders the retention and circulation of funds within the local economy.

The study confirms that direct payments have limited impact on the economic and demographic sustainability of rural areas, especially under conditions of strong territorial concentration and weak integration with the local economy.

This leads to the conclusion that there is a need for more targeted, territorially adapted policies, which combine agricultural support with local development and stronger ties to urban centers.

Paragraph 3.3 of Chapter Three, titled "*Cluster Analysis and Socio-Economic Differences in the Development of Municipalities in Bulgaria*", presents

the results of a classification analysis of 265 municipalities, based on an integral index of socio-economic development (TSS) derived through territorial shift-share analysis (TSSA).

The aim of the analysis is to identify development typologies among municipalities and examine the link between received direct payments and levels of territorial development.

Based on TSS index values, municipalities were grouped into six clusters, revealing a clear territorial differentiation:

Cluster 1: Highest TSS values (>0.60); includes 22 municipalities, mostly urbanized with favorable indicators (see Figure 21).

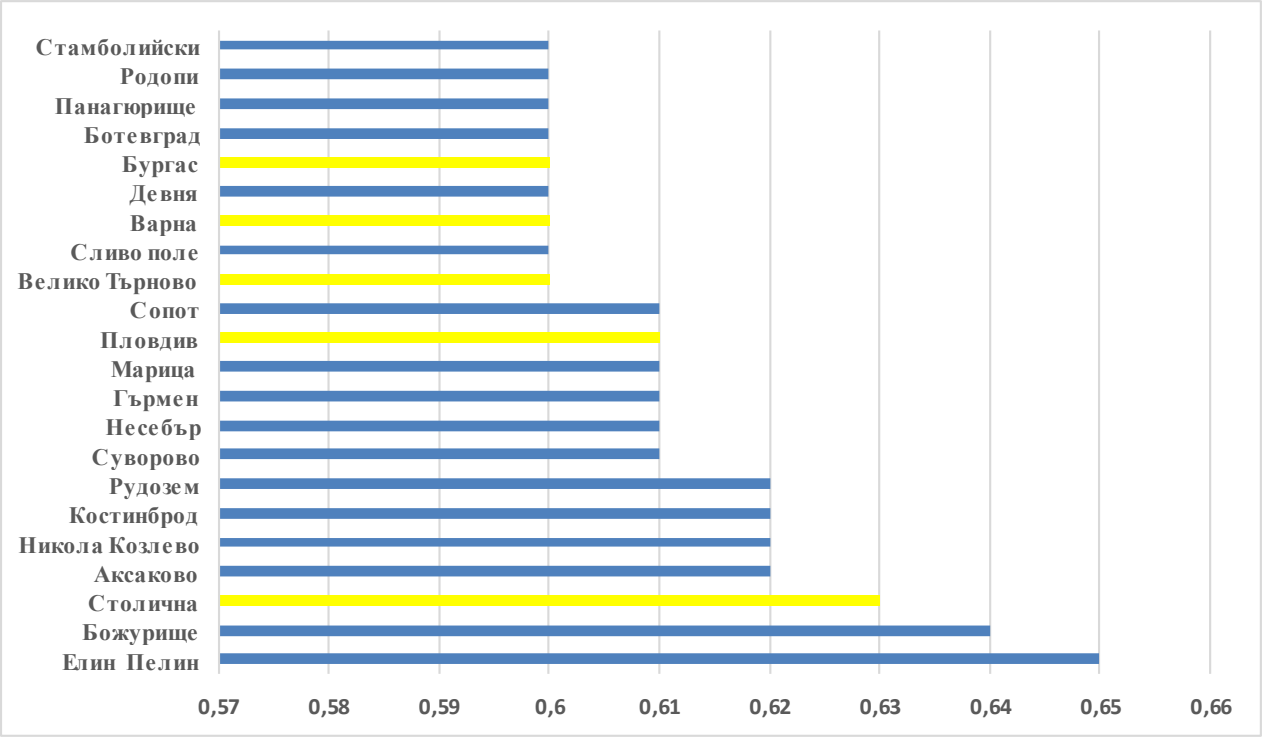

Figure 21. Cluster 1: Municipalities with the Highest Improvement in Socio-Economic Development Measured by the TSS Coefficient

Source: Author's calculations based on NSI data

- Cluster 2: Moderately high values (0.53–0.59); includes 76 municipalities, with a significant share being urbanized (see Figure 22).

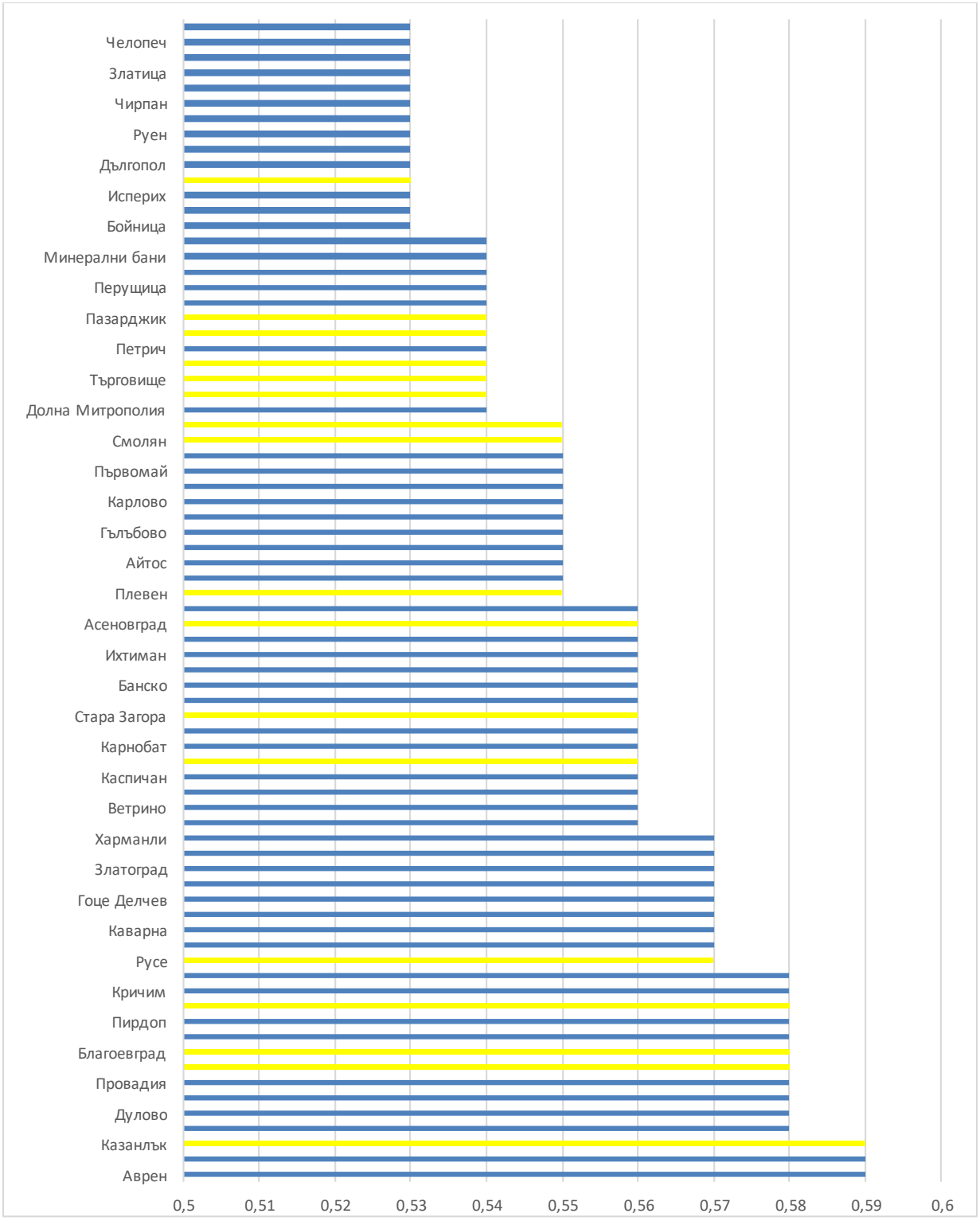

Figure 22. Cluster 2: Municipalities with Positive Trends in Socio-Economic Development Measured by the TSS Coefficient

Source: Author's calculations based on NSI data

- Cluster 3: TSS around the national average (0.47–0.52); the largest number of municipalities (96), characterized by stabilized development (Figure 23);

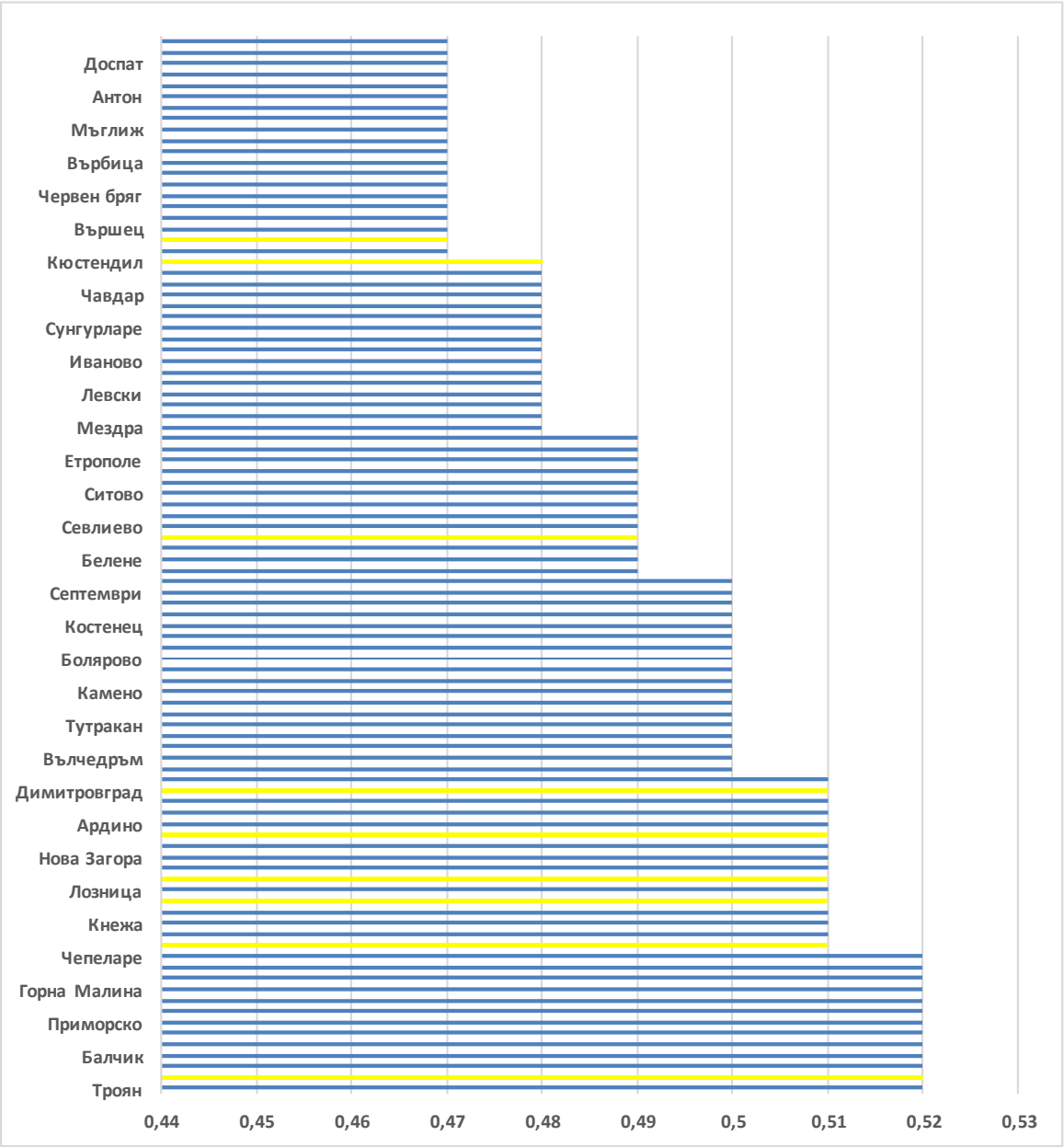

Figure 23. Cluster 3 – Municipalities with trends close to the national average in socio-economic development measured by the TSS coefficient

Source: Author's calculations based on NSI data

- Cluster 4: Deteriorating trends (0.40–0.46); 53 municipalities, almost all of them rural (Figure 24);

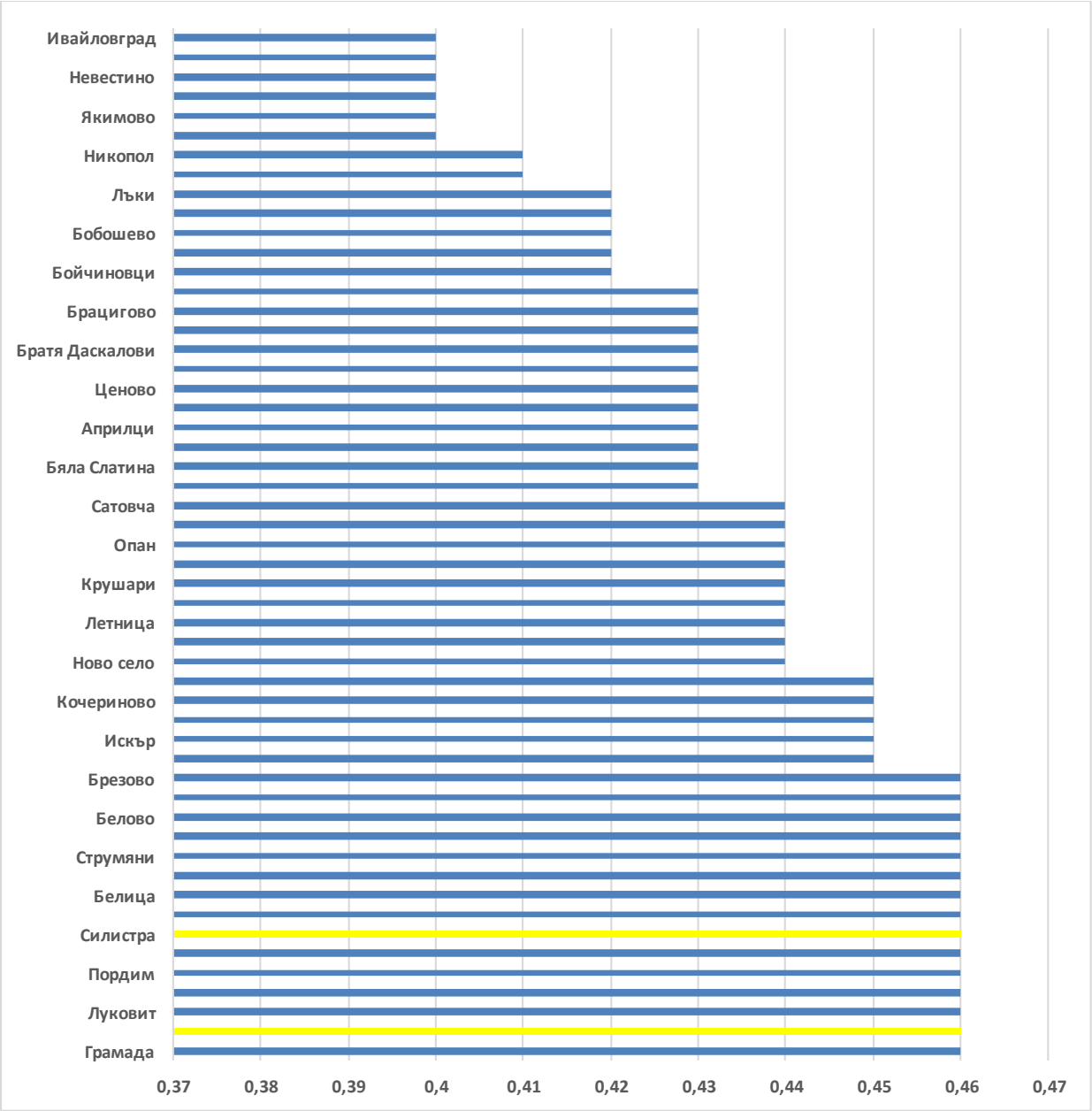

Figure 24. Cluster 4 – Municipalities with deteriorating conditions in socio-economic development measured by the TSS coefficient

Source: Author's calculations based on NSI data

- Clusters 5 and 6: Severe socio-economic conditions (TSS < 0.39); 18 municipalities, predominantly rural, located in isolated or peripheral regions of the country (Figures 25 and 26).

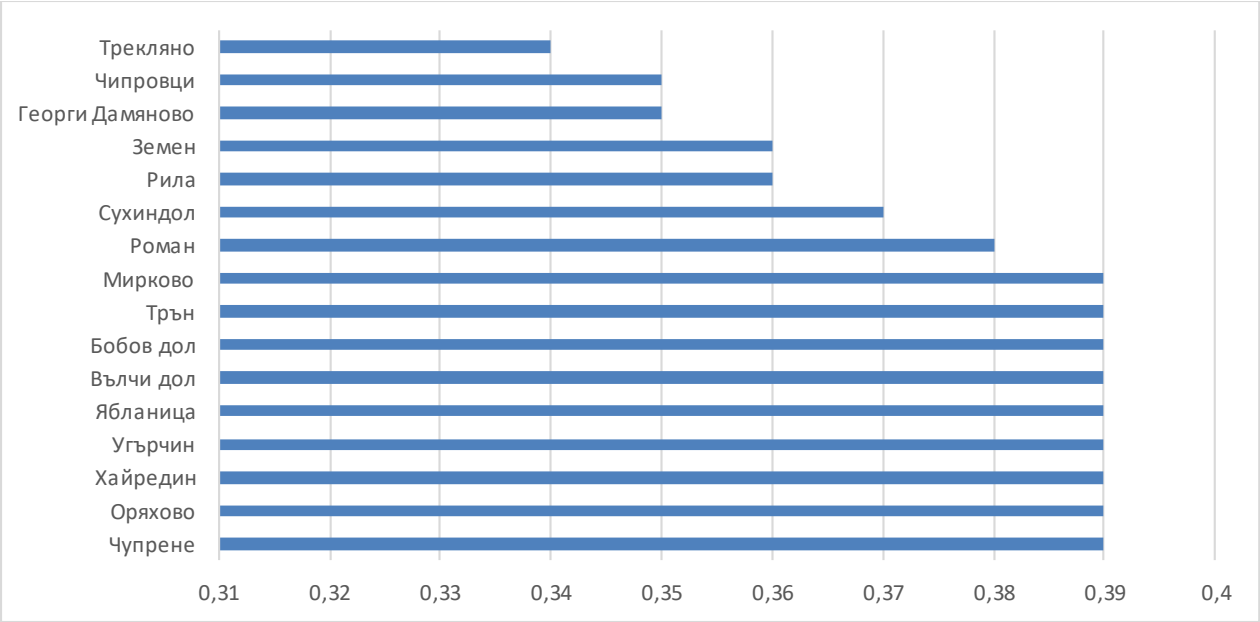

Figure 25. Cluster 5 – Municipalities with negative performance in socio-economic development measured by the TSS coefficient

Source: Author's calculations based on NSI data

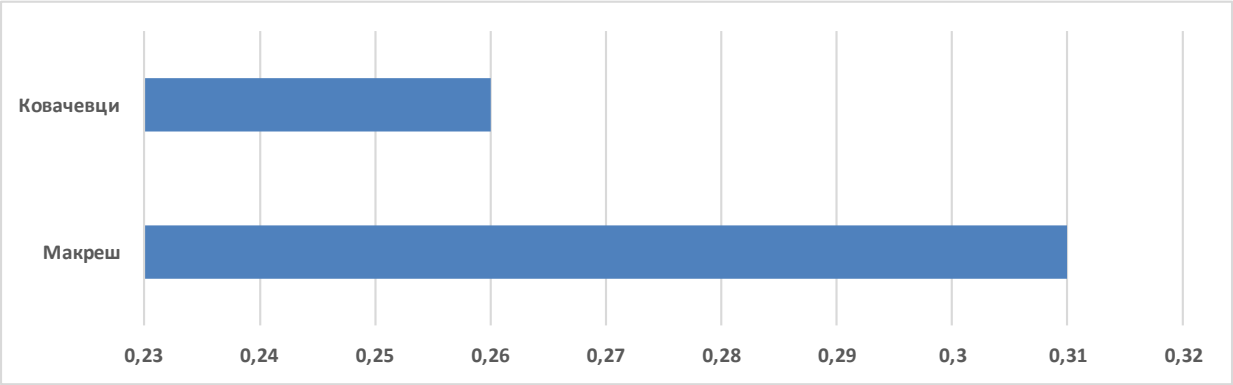

Figure 26. Cluster 6 of municipalities experiencing highly adverse socio-economic processes, measured by the TSS coefficient

Source: Author's calculations based on NSI data

The six identified clusters reveal a clear correlation between municipality type, geographic location, and socio-economic profile, highlighting the heterogeneity of territorial development in Bulgaria.

This part of the study tests the main hypothesis of the dissertation — that direct payments under the Common Agricultural Policy (CAP) contribute to the socio-economic development of municipalities in Bulgaria. The analysis is

conducted at LAU 1 (municipal) level, examining the relationship between the amount of subsidies received — under the Single Area Payment Scheme (SAPS), and coupled support for large and small ruminants — and the values of the Territorial Socio-Economic Index (TSS).

The results indicate that while there is a moderately positive correlation between SAPS payments and TSS, the strength of the relationship is low (coefficient of determination CD = 0.35), meaning that only about one-third of the variation in socio-economic development can be explained by the amount of these subsidies. For coupled support payments, the CD is 0.34 for large ruminants and even lower (0.28) for small ruminants, indicating a limited impact of these payments on territorial development.

These findings confirm that despite the growth of direct payments over the analyzed period, they have not led to significant improvements in the socio-economic condition of municipalities. The cluster analysis further demonstrates that rural municipalities dominate among those with the lowest development indicators, while the best-performing areas are mainly urban and situated near established urban centers.

Additionally, geographical remoteness from economically active regions proves to be a more significant factor in lagging development than the amount of subsidy received. This underlines the limited effectiveness of direct payments as a tool for balanced territorial development — while they contribute to farm incomes to some extent, they fail to trigger sustainable socio-economic impacts at the municipal level.

The main conclusion is that despite the allocation of substantial public resources through the CAP, territorial disparities persist, and rural municipalities show only weak progress. The cluster approach using the TSS index offers a systematic tool for targeted territorial programming, emphasizing the need for integrated policies that combine economic stimulation with territorial connectivity and sustainable resource management.

Section 3.4 of Chapter Three, titled "*Scenario Analysis of the Change in the Number of Agricultural Holdings by 2030*", aims to explore the future structure of the sector under the continued implementation of the CAP. The study is based on extrapolated data from the 2010 and 2020 agricultural censuses and the assumption that key economic and policy factors will remain constant.

The long-term trend of declining farm numbers, observed since 2000, is confirmed in all three scenarios — baseline, optimistic, and pessimistic. Under the baseline scenario, the number of farms is projected to reach around 76,000 by 2030, representing a 70.3% decrease compared to 2010 and an 83.1% drop compared to 2020 (Figure 27). This decline is driven by the shrinking number of small and semi-commercial farms and the increasing concentration of land use.

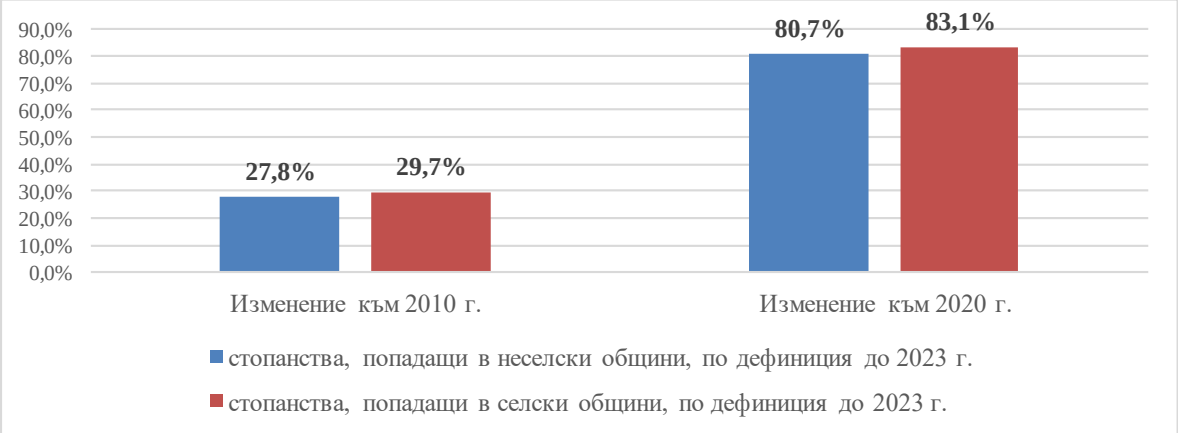

Figure 27. Percentage change in the number of farms under the baseline scenario in rural and non-rural municipalities according to the Ministry of Agriculture's definition up to 2023

Source: Own calculations based on data from the Ministry of Agriculture's 2020 and 2010 Agricultural Census

Similar dynamics are observed in both the optimistic and pessimistic scenarios — with a projected number of farms at 85,000 and 65,000 respectively. A common feature across all scenarios is that the definition of "rural area" introduced after 2023 has only a minor impact on the overall picture, but it does alter the distribution of farms between administrative categories (Figure 28). In

less developed and undiversified rural areas, the rate of decline is likely to slow down, due to the exhaustion of the most vulnerable groups.

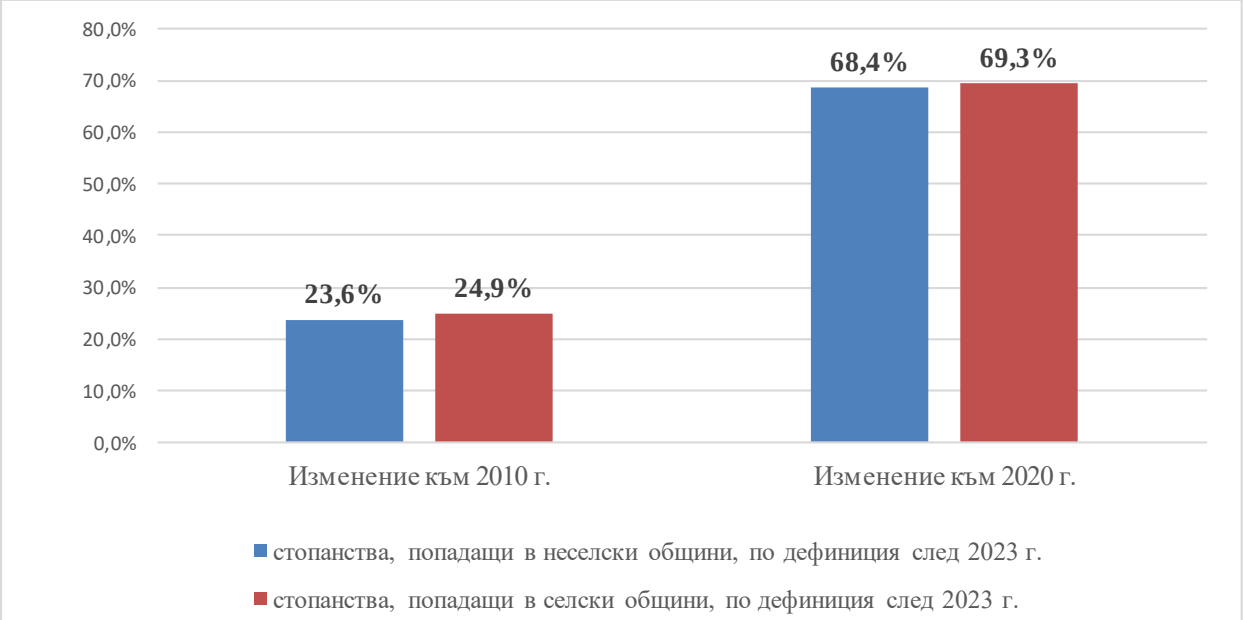

Figure 28. Percentage of farms under the pessimistic scenario by 2030 in rural and non-rural municipalities according to the post-2023 definition

Source: Own calculations based on data from the Ministry of Agriculture, Agricultural Census 2020 and 2010

The analysis highlights that although direct payments under the CAP are the most significant public instrument for agriculture, their role in halting or reversing the trend of farm reduction remains limited. The main support scheme — SAPS (Single Area Payment Scheme), as well as eco-schemes, continue to focus primarily on land and crop farming, which does not incentivize transformational change in the number or type of farms.

CONCLUSION

The conclusion of the dissertation systematizes the main findings and outcomes of the conducted study on the role of CAP direct payments in the socio-economic development of rural areas in Bulgaria. It notes that the analysis is based on a developed integrated indicator — the TSS coefficient — which

measures the internal development potential of territories based on key dimensions such as employment, demography, economy, social infrastructure, and human capital. The results reveal a clear differentiation between rural and non-rural areas, with the former lagging behind, especially in demographic and infrastructural indicators.

The survey conducted among farmers and public administration representatives reveals significant discrepancies in perceptions regarding the competitiveness of farms and the effectiveness of policies. The administration rates the sector's capacity lower, while producers show higher self-assessments, highlighting distrust and weak institutional connectivity. The labor market analysis points to partial improvements, but also deficiencies in awareness and access to training.

The first hypothesis — that direct payments lead to a concentration of extensively oriented agricultural production, limiting value creation — is not unequivocally confirmed. While resource concentration in larger farms is evident, this has not resulted in a sustainable economic impact at the territorial level. The potential for economies of scale has not translated into transformational growth, and smaller and medium-sized farms remain vulnerable.

The second hypothesis — that areas with a more equitable distribution of subsidies achieve better socio-economic development — is also not empirically confirmed. The calculated coefficient of determination between the volume of received subsidies and socio-economic trends is weak, indicating no causal relationship between the amount of support and the level of regional development. This weak correlation can also be explained by the scale of the support — around 1–1.5% of GDP — which is insufficient to trigger lasting territorial transformation.

The scenario analysis of the number of farms up to 2030 shows a persistent downward trend, driven by economic, demographic, and structural factors.

Although direct payments remain significant for individual farm incomes, they are not capable of altering this trajectory. Their influence on territorial resilience and the diversification of the rural economy remains limited.

In conclusion, the dissertation emphasizes the need to redirect the CAP's focus — from being predominantly agricultural toward a balanced policy with a clear territorial dimension. Rural development policies should increasingly prioritize investments in social infrastructure, improving access to services, and support for diversified economic activities. Without such a transformation, direct payments will remain a tool with limited impact on the socio-economic sustainability and attractiveness of rural areas.

IV. CONTRIBUTION STATEMENT OF THE DISSERTATION

1. An integrated methodology has been developed for assessing the socio-economic development of rural areas, which considers the linkages between CAP support and the dynamics of socio-economic processes at the territorial level.
2. A comprehensive analysis has been conducted on the demographic and labor characteristics of rural areas in Bulgaria, with emphasis on employment, labor force changes, and regional disparities in social development.
3. The structure and dynamics of agricultural income have been examined, tracing key interdependencies between the structure of agricultural activity, public support, and income sustainability.
4. The impact of direct payments on the structure and functioning of agricultural holdings has been analyzed, focusing on the distribution of support, the degree of concentration, and the effects on economic efficiency and equity.
5. A methodology has been designed and tested to study the perceptions of agricultural producers and administrative structures, identifying differences in views on competitiveness, access to information, and institutional support.
6. A scenario analysis has been developed for the future evolution of the number and structure of agricultural holdings by 2030, outlining the limited transformational effect of direct payments under the current support model.

V. LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

Articles

1. **Todorov, I.** (2021). *Socio-Economic Differences between Rural and Non-Rural Areas. Bulgarian Journal of Agricultural Economics and Management,* 66(1), 11–20. https://journal.jaem.info/page/en/details.php?article_id=512
2. **Todorov, I.**; Stanimirova, M. (2022). *Impact of Direct Payments of CAP on the Economic Situation of Rural Areas. Bulgarian Journal of Agricultural Economics and Management*, 67(4), 35–44. https://journal.jaem.info/page/bg/details.php?article_id=570

Conference Proceedings

1. **Todorov, I.** (2010). *The Common Agricultural Policy of the EU and Its Impact on Bulgarian Agriculture: Changes after 2013*. Proceedings of the Scientific-Practical Conference "Challenges for Agribusiness and Rural Areas," University of Economics – Varna, 5–15. https://eclipse.ue-varna.bg/catalog/view/8W9DFKP54G
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VI. DECLARATION OF ORIGINALITY

I hereby declare that the present dissertation is entirely my own original work and that no external publications or works have been used in violation of copyright during its development.