

SMALL AND FAMILY FARMS - A PILLAR IN RURAL DEVELOPMENT IN BULGARIA

Mihaela MIHAILOVA¹, Daniela TSVYATKOVA¹, Monika KABADZHOVA²

¹Agricultural Academy, Institute of Agricultural Economics, 125 Tsarigradsko Shose Str., 1113, Sofia, Bulgaria, E-mails: m.mihailova92@gmail.com, daniela_80@abv.bg

²Agricultural Academy, Institute of Agriculture, 1 Sofiysko shose Str., 2500, Kyustendil, Bulgaria, E-mail: monika.kabadjova@gmail.com

Corresponding author: m.mihailova92@gmail.com

Abstract

The role of small and family farms in rural development has been a cornerstone of agricultural policy and socio-economic studies in Bulgaria provoked by the constant change in social, economical and enviornmental factors. This paper aims to explore the challenges and contributions of small-scale and family farming in the context of Bulgaria`s post-1991 land reforms and integration of acquis communautaire. PESTEL analysis is combined with desk research and literature review to highlight the processes that reflect on small and family farms. Small and family farms play a critical role in sustaining rural livelihoods, preserving traditions, and fostering socio-cultural cohesion. The lack of consensus for the definition of `small farms` complicates the process of policy alignment, as definitions varies based on physical size, economic value, labor input etc. These farms often struggle under market pressures but remain essential for agro-ecology and resilience of rural areas. They are vulnerable economic units the existence of which is caused mostly by social rather than market motives. The study emphasizes the need for targeted support to boost the sustainability and socio-economic impact of small and family farms in Bulgaria.

Key words: small and family farms, rural development, PESTLE

INTRODUCTION

Small and family farms have historically been the backbone of rural economies, providing numerous social, economic, and environmental benefits, they are integral to the country's rural development, serving as a cornerstone for economic stability and cultural heritage. Despite their vital role, they often face significant challenges that threaten their viability. This research aims to explore the multifaceted contributions of small and family farms, emphasizing their importance in promoting social and economic development, reducing inequality, and fostering environmental sustainability in rural areas. Some authors (Doitchinova, 2022) [17] have found that the rate of decline in farms continues to be very high, most often this is happening to small family farms. They are high-risk because they lack significant financial resources and find it more challenging to implement risk management mechanisms. Other authors note the importance of small and family farms that are the producer of quality and authentic food,

but in small quantities, and which are seasonally dependent (Branzova, 2018) [11]. In terms of Bulgarian farms' contribution to food and social security in rural areas, smallholders are crucial to subsistence farming and provide a crucial safety net for low-income households, which is an extension of the nation's meagre social security system. Today, they provide essential livelihoods for rural populations while preserving traditional agricultural practices, making them vital to local economies and food security (Bulgaria relocation, 2024) [12]. The concentration of agricultural land in large farms, utilizing mainly someone else's land for the short-term tenement, has a negative impact on the sustainability of agricultural production structures, which in turn leads to unsustainable development and destabilization of the sector as a whole (Yanakieva, 2007) [69] which further highlights the importance of small and family farming. The significance of small and family farms extends beyond mere economic contributions; they embody resilience and adaptability in the face of modern challenges

such as market competition, climate change, and demographic shifts. These farms are characterized by their small size and focus on subsistence, often prioritizing household needs over commercial production. The authors point out that policy ought to consider the socioeconomic elements that support the continuation of subsistence farming in addition to commercial considerations, which are essential for household livelihood (Fredriksson et al., 2021) [26]. At the European level, there has never been a common understanding of “small farms”. When talking about the small farming sector, different terms such as “family farming”, “agroecological farming”, “subsistence farming”, and “peasant farming”, “small holdings” “small farms” are used. Each of them puts emphasis on different aspects of the farming system, being alternately the physical or economical size of the exploitation when having in mind the case of small farming, the main source of labour for family farming, the degree of involvement in the market or, lastly, the farmer himself with his/her rights and connection to the land - as in peasant farming (Gioia, 2017) [28]. A unified definition of farming in Europe is made more difficult by the fact that the number of small farms in the EU increased by two folds as a result of the agricultural countries of Eastern Europe joining the EU between 2004 and 2007. The most commonly used parameters to define small farms are physical size, economic size, and labour input (Gioia, 2017) [28]. Historically, small farms have been the earliest and most resilient representatives of family and small-scale businesses worldwide. In recent years, numerous studies have focused on the entry of a new generation into farm management, bringing diverse perspectives, education, attitudes, and motivations that ultimately foster the introduction of innovations in agricultural practices (Van der Ploeg, 2018; Milone and Ventura, 2019; Conway et al., 2019) [68, 45, 14]. This aligns with contemporary trends advocating for the support of small and family farms, thereby promoting the sustainable development of economic activities in rural areas. Researchers increasingly highlight the importance of integrated and sustainable practices, including

agroecology, examining gender roles in farming and rural development approaches. According to them, this change indicates a rising awareness of how family farming supports environmentally friendly farming practices, tackling global issues, and creating a food-secure environment for future generations (Suman et al., 2025) [63]. In Bulgarian rural areas, around 45% of the population covers 85% of the territory but the main decline in population is seen exactly as in this areas which hinders the development and sustainability of small farms (Marinov, 2019) [41]. Over the coming decades, rural areas are poised to emerge as increasingly attractive destinations for settlement, driven by a confluence of natural, ecological, and socio-economic factors. Beyond their traditional roles in agriculture and forestry, these regions hold significant potential for diversifying economic activities, particularly through the expansion of non-agricultural enterprises that foster employment opportunities for the working-age and reproductive-age population. A particularly distinctive feature of rural economies is the small agricultural holding, which embodies a unique organizational structure. It functions not merely as a site of production but as an integrated economic unit that simultaneously serves as a workplace, a territorial asset, and a mechanism for securing household sustenance. Moreover, it represents a nexus where economic imperatives intersect with cultural traditions, social continuity, and the broader dynamics of rural development. As such, the evolution of these agrarian structures is crucial for shaping the future trajectory of rural economies, influencing both livelihoods and broader socio-economic stability.

The widely used definition in Bulgaria for a small farm is related to the size of the farm expressed in hectares or the number of animals, which cannot be applied as independent criteria. The production capacity of a small farm varies significantly due to differences in the quality of arable land, access to resources, market, technological development and opportunity costs of capital and labor in the economy. In the categorization of small farms, a combination of the criteria of utilized agricultural area (UAA) and labour input on

the farm can be applied. These indicators are highly dependent on the specialization of the farm. Additionally, as a generalizing criterion, information about the farm's financial status may be utilized. The most often used method of classification is based on the farm's economic size, which is determined by the standard output in euros. While some definitions are based on several requirements, others just include one. There is therefore no agreed definition, on the international stage or among academics. As Nagayates (2005) [50] correctly points out, the primary consensus on small farms may be the lack of a single definition. According to some Bulgarian authors (Harizanova-Bartos & Terziyska, 2020) [32], the criteria for determining farms as small are as follows: UAA; annual work units invested in the farm; market participation; economic size or a combination of criteria. The authors share that the size of the standard output is applicable to all types of farms and allows for their comparison. When it comes to family farms the United Nations' Food and Agriculture Organisation (FAO) defines a family farm as '... an agricultural holding which is managed and operated by a household and where farm labour is largely supplied by that household'. Agricultural family holdings range from small, semi-subsistence farms with only family workers and farms that must rely on other gainful activities for a diversified source of income to much larger, more productive farms that are still primarily managed by family members. Family farms are by far the most common type of farm in the European Union (EU). By Eurostat data and research the average size of family farm in Bulgaria is around 0-7 ha.

MATERIALS AND METHODS

The research begins with detailed theoretical overview of the problem. The idea is based on literature review to understand the process that is the focus of this article and highlight the state of small and family farms. The study uses both qualitative and quantitative approaches as well as graphic method of representation. The classification used in the study is the administrative division of the territory of

Bulgaria according to the NUTS classification from Regulation 2023/674, the

P	E	S	T	E	L
Government policy Political stability Corruption Foreign trade policy Tax policy Labor law Trade restrictions	Economic growth Exchange rate Interest rates Inflation rates Disposable income Unemployment rate	Population growth rate Age distribution Career attitudes Safety Health consciousness Lifestyle attitudes Cultural barriers	Technology incentives Level of innovation Automation R&D activity Technological change Technological awareness	Discrimination laws Antitrust laws Employment laws Consumer protection laws Copyright and patent laws Health and safety laws	Weather Climate Environmental policies Climate change Pressures from NGO's

Fig. 1. Schematic of the components of the PESTEL analysis

Source: Author's adaptation by Marmol, T., Feys, B., Probert, C. (2015) [43].

Commission upgraded the NUTS classification from 1 January 2024. Based on the literature review and statements that are part of our introduction to the topic the scope of the small farms is farms with UAA of 0-2 ha for small farms, since a big portion of family farms are included in this scope with medium size of 0-6.5 ha (Eurostat, 2020) [71], they are as well object of our research. The chosen PESTEL analysis is used to highlight the role of the small and family farms and their state and development in the Bulgarian rural areas. This PESTEL is based on research that is specifically of small farms in Bulgaria and official statistical reports. This research firstly conducts a research based on literature review on other Bulgarian authors and then based on this conduct a desk Research, logical, expert method, to reveal the state and problems of small and family farms in rural areas. PEST analysis is an analysis of the influence of political, economic, socio-cultural, and technological indirect environments (Aguilar, 1967) [1], with indirect effects on the object of study. At the beginning of the new millennium, there are authors who, in perfecting management theory (Carr & Nanni, 2009) [13] that define PESTEL and its various variations in relation to the environment. In strategic management, this type of analysis is used to identify, track and assess the changes that will occur in these environments and the underlying factors and the severity with which they affect it. This is done because these changes can

change the whole competitive situation in the industry.

Figure 1 presents the components of PESTEL analysis.

Political factors (P) include analysis of: government regulation of business, commercial law, labor legislation, tax legislation, legislation in the field of import and export regulation, competition protection, consumer protection, environmental protection law, etc.

Economic factors (E) include an analysis of the general state of the country's economy (inflation, gross domestic product, interest rates, exchange rate, unemployment, etc.) and the ratio between small, medium and large businesses, between private and state property, the intensity and the type of competition, etc.

Socio-cultural factors (S) cover the study of demographic trends (age, sex, number, natural increase, birth rate, mortality, population migration), level of education and social groups among the population, cultural beliefs and values (traditions, customs, beliefs, religion, culture), the individual needs of people (career aspiration, way of spending free time, etc.)

Technological factors (T) analysis covers innovation and innovation, technology transfer, the availability and access to patents, the attitude towards copyright of researchers, the availability and access to the services of research institutes.

Environmental factors (E) environmental factors related to the applied technological solutions and policies in order to preserve the potential of the ecological resource in agriculture. This is a condition for the sustainability of economic systems.

Legislative framework (L) European, national, sectorial legislation forming an institutional framework that develops into business environment and operates in the primary sector of agriculture.

PESTLE as an analytical method has its advantages as well as certain disadvantages, which we will discuss briefly.

Advantages of PESTLE analysis are: • Easy to do, the costs are only time spend on the analysis; • Provides insight into the broader business environment; • Promotes the growth

of strategic thinking; • Increase awareness of project threats; • Can assist the organization in anticipating future challenges and taking steps to mitigate or lessen their effects; • Can assist the organization in identifying and seizing opportunities.

Disadvantages of PESTLE analysis: • Usually provides a simple list without critical presentation; • The rapid pace of change in society makes it increasingly difficult to predict events that may affect the organization in the future; • Gathering a large amount of information can make it difficult for us to see the "forest behind the trees" and lead to "analysis paralysis"; • The analysis may be based on assumptions that may be unfounded. Given the objectification of the analysis and the achievement of reliable results, the presence of high expertise by those applying the PESTLE analysis is an imperative require.

RESULTS AND DISCUSSIONS

The empirical data reveal a profound structural transformation in Bulgarian agriculture, characterized by a sharp decline in the number of small farms across all size categories. Between 2010 and 2020, holdings with 0 ha declined from 13,148 to 5,564, reflecting a significant contraction in non-market-oriented agricultural activities. A more pronounced decline is observed in farms between 0 and 1 ha, which decreased from 248,015 to 37,452, marking a six-fold reduction. Similarly, holdings within the 1 to 2-hectare range contracted from 46,944 to 19,276, further underscoring a process of consolidation favoring larger-scale agricultural enterprises (Figure 2). These findings align with broader trends of land concentration observed across the EU that is especially pronounced in Eastern Europe, suggesting that Common Agricultural Policy (CAP) instruments have contributed to an uneven distribution of benefits, disproportionately favoring larger landholders over small-scale farms. The structural decline of small farms can be understood through the lens of CAP-induced market distortions and institutional incentives. The CAP's direct payment system, which allocates subsidies based on the Single Area Payment Scheme

(SAPS), inherently favors farms with larger landholdings. Given that direct payments are predominantly area-based, farms below a critical threshold of land ownership receive minimal financial support, undermining their long-term viability and with that hindering, further the sustainability goals of the EU.

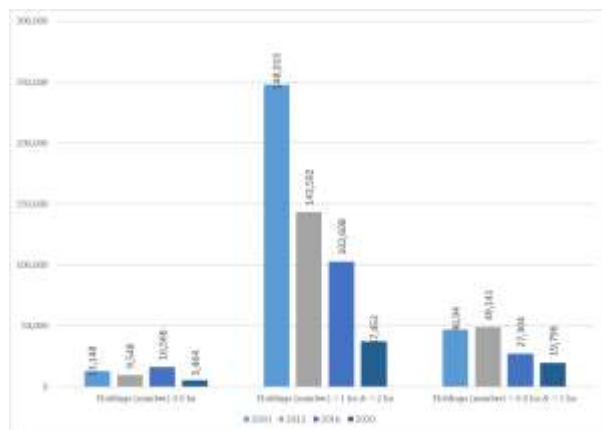


Fig. 2. Number of farms by physical size classes in Bulgaria (2020)

Source: Ministry of Agricultural (2020) [46].
Agricultural Census 2020.

This process is further exacerbated by land market dynamics, where access to CAP funding facilitates the expansion of large agricultural enterprises at the expense of smaller farms. The incentivization of land consolidation, coupled with the declining competitiveness of smallholders in CAP-subsidized markets, has led to accelerated land absorption by more capital-intensive actors. This is particularly evident in Bulgaria, where the absence of strong counterbalancing mechanisms - such as targeted small-farm support or redistributive CAP policies—has reinforced patterns of agricultural concentration. The existing threshold for small farms participation in market activities in Bulgaria is very high, combined with EU CAP policy makes the existence of small and family farms highly unsustainable, as they face structural disadvantages in accessing subsidies, markets, and investment opportunities, leading to their gradual marginalization and eventual exit from the agricultural sector. Beyond direct subsidies, CAP's investment programs have further constrained smallholder resilience. Many small farms struggle to access modernization grants due to administrative

complexities, high co-financing requirements, and bureaucratic barriers, disproportionately favoring well-organized, large-scale farm enterprises. While CAP's rural development programs theoretically provide a corrective mechanism, the empirical evidence suggests that a significant proportion of funds have been allocated to larger farms with greater institutional capacity to navigate the funding process. A corresponding decline in the UAA of small farms is evident. Farms in the 0–1 ha category experienced a sharp reduction in UAA, from 81,628 ha in 2010 to 16,212 ha in 2020. A similar trend is observed for farms between 1 and 2 ha, where UAA declined from 62,550 ha in 2010 to 28,124 ha in 2020 (Figure 3).

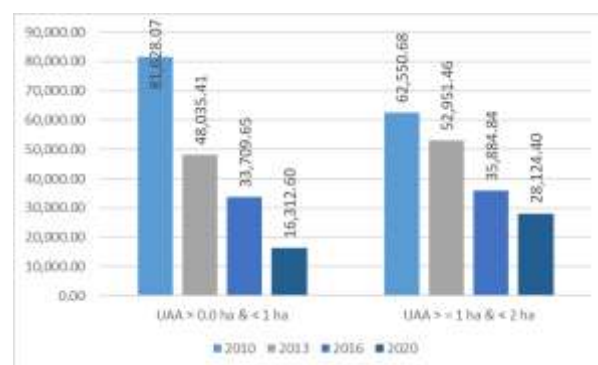


Fig. 3. Number of farms by UAA classes in Bulgaria (2020)

Source: Ministry of Agricultural (2020) [46].
Agricultural Census 2020.

This reduction in cultivated land by small farms is indicative of land abandonment, economic pressures, or transfer of land to larger agricultural holdings.

The consolidation of farmland has encouraged large-scale, export-oriented agribusinesses, favoring intensive cereal and oilseed production over diversified, locally oriented farming. In the Bulgarian case, rural labor displacement has not been accompanied by a proportional expansion of alternative employment opportunities in the rural areas. Small farms contribute to local economic diversification, particularly in agro-processing, niche organic production, and short food supply chains. Their decline reduces the multiplier effects of rural entrepreneurship, leading to a more homogenized and externally dependent rural economy and rural areas. With

land increasingly concentrated in fewer hands, rural governance structures have shifted toward oligopolistic patterns, where large-scale landowners exert disproportionate influence over local economic and political decision-making. This power asymmetry risks exacerbating social inequalities and reducing participatory governance.

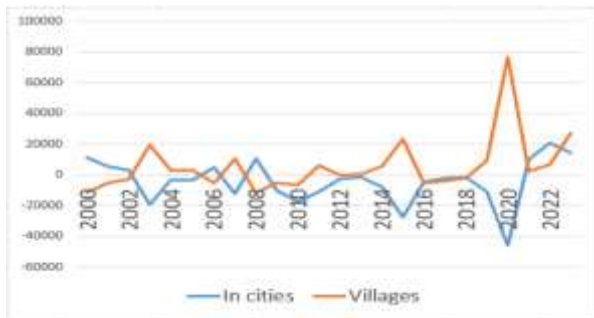


Fig. 4. Mechanical movement of population by location
Source: National Statistics Institute Bulgaria [72].

The interplay between agricultural restructuring and demographic trends has influenced, rather than uniformly exacerbated, rural depopulation and labor market imbalances. While the declining viability of smallholder farming has traditionally accelerated the migration of younger cohorts to urban centers or abroad, this process has not been linear. Fluctuations in migration patterns, particularly in 2020, likely due to external reasons such as the COVID-19 pandemic (Figure 4). While rural depopulation remains a structural issue, short-term economic and social movements can temporarily alter migration flows. As noted in the Harris-Todaro (1970) [33] migration model, rural to urban migration is driven by income differences, even if urban employment opportunities remain uncertain. However, recent patterns indicate that external factors such as health crises, housing affordability, and remote work opportunities had significant influences on these trends, with potential policy implications for rural development.

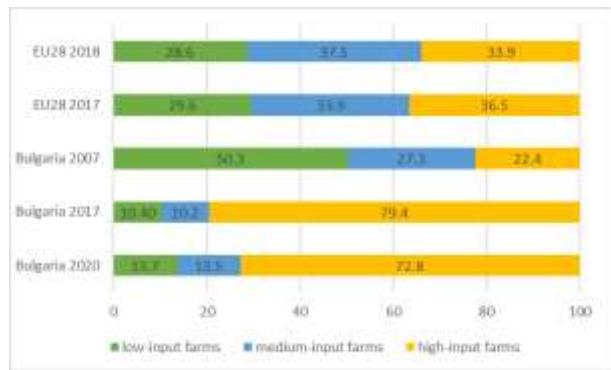


Fig. 5. Farming intensity by input type (%)
Source: EC Europe [19].

The decline of small farms has significant environmental implications (Figure 5), as land-use patterns shift in response to policy frameworks. Small farms traditionally maintain heterogeneous landscapes, incorporating diverse crops, agroforestry, and mixed livestock systems and are the last stronghold for diverse specialization. The rapid decline of low-input, farms corresponds to the loss of agrobiodiversity and landscape diversity. This has critical ecological consequences, as their replacement by large monocultural operations reduces genetic diversity, disrupts pollinator ecosystems, and increases vulnerability to climatic shocks. The transformation of Bulgarian agriculture from a predominantly small, low-input model to an industrialized, high-input system represents a shift in land use, resource allocation, and rural socio-economic structures. The empirical data presented indicate a pronounced departure from the traditional, diversified agricultural landscape toward a capital-intensive, monocultural paradigm, with profound consequences for rural sustainability. Bulgaria's shift has been rapid, policy-driven, and disproportionately shaped by external economic incentives.

Regional differences in Bulgaria

The restructuring of Bulgaria's agricultural sector has followed a highly uneven regional trajectory, with smallholder decline and land concentration manifesting differently across the country's planning regions. The empirical data provided illustrate significant regional disparities in farm structure, land use, and farm size distribution, reinforcing the argument that the decline of small farms is not only a function

of market incentives and CAP policies but also of deeply embedded spatial inequalities. This section explores the regionalized impact of land consolidation, farm structure transformation, and rural economic marginalization, contextualizing these trends within broader theoretical frameworks of agricultural transition. The contrast between capital-intensive, mechanized commodity farming in the north and labor-intensive, diversified production in the south explains the regional divide in land consolidation.

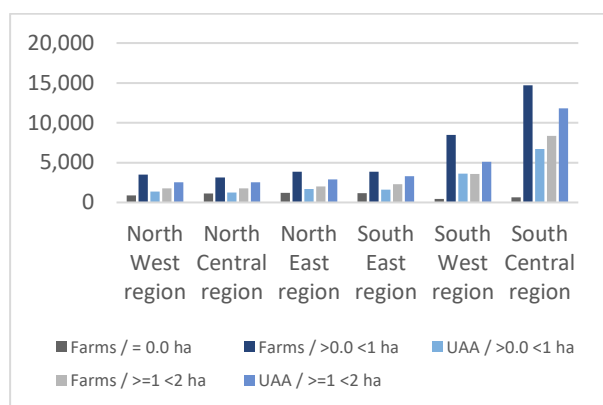


Fig. 6. Regional distribution of small farms by utilized agricultural area classes (2020)
Source: Ministry of Agricultural (2020) [46].
Agricultural Census 2020

The main trends and changes throughout this period are related to the decline in the number of small and family farms, which has hindered substantially over the course of the period in all the regions of Bulgaria (Figure 6). Farms of less than 2 ha are declining due to migration to larger farms or economic reasons such as many small farmers' incapacity to compete with larger and more advanced farms. Some small farmers sell their land or merge with others to benefit from economies of scale and better access to financing, subsidies, and technologies. In addition, small farms benefit greatly from increased mechanization and modernization. However, small and family farms frequently fail to meet the qualifying requirements or struggle to participate in European funding. A significant issue for small and family farms is migration and demographic shifts. As the population in Bulgaria's rural areas continues to decline many small farms face challenges despite efforts to boost agriculture. The agricultural

workforce is weakened, and the will to expand small farms is diminished due to many young people moving to cities or overseas.

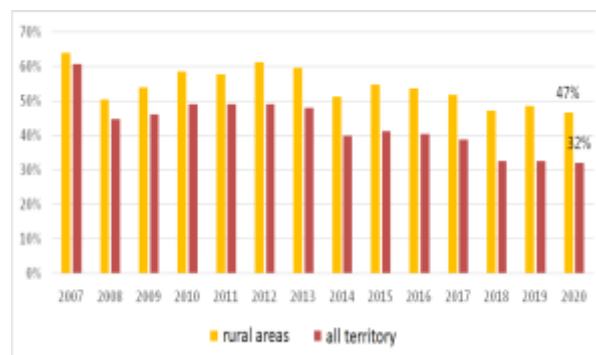


Fig. 7. Family farms in Bulgaria
Source: Eurostat [71].

Family farms makeup significant portion of farms in all territories of the country but are predominant in rural areas they are essential to the survival of family holdings and rural areas (Figure 7). Many small farms in Bulgaria continue to operate as family farms, founded on traditional production practices and frequently maintaining close relationships with the local community despite the pressure from huge agribusinesses. Nevertheless, they still have few prospects for growth and deal with economic and demographic issues.

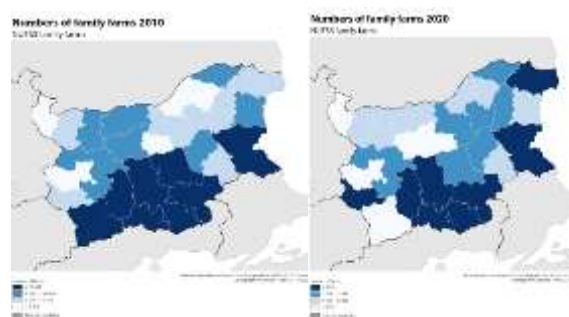


Fig. 8. Number of family farms in Bulgaria by region (2010-2020)
Source: Eurostat data [71].

The changes in these farms are related to several economic, social, and political factors that we have mentioned previously. The regional analysis reveals that the decline in family farms is not uniform across Bulgaria similarly to those of family farms. The number of family farms has decreased in all regions, with northern Bulgaria experiencing a more pronounced reduction. The maps illustrate that areas with traditionally high densities of family

farms, such as the central and western regions, have also undergone substantial contraction (Figure 8). The decline in UAA for family farms follows a similar pattern, further reinforcing the trend of increasing land consolidation (Figure 9).

The PESTEL Analysis

This analysis is done based in the literature review and is presented in Table 1.

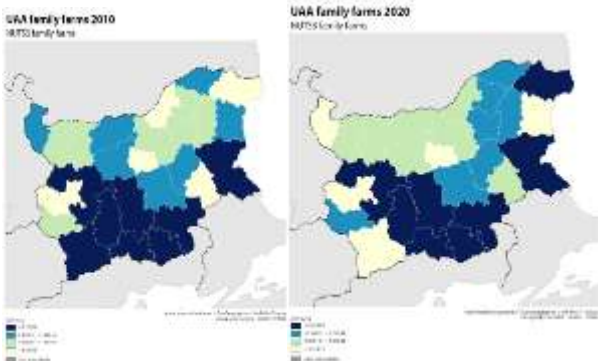


Fig. 9. UAA of family farms in Bulgaria by region (2010-2020)
Source: Eurostat data [71].

Table 1. PESTEL analysis of small and family farms based on literature review

Factors	Analysis of Small and Family farms in Bulgarian rural areas by FACTOR
Political factor	Small farms in Bulgaria are heavily influenced by government policies, particularly those linked to the European Union's Common Agricultural Policy (CAP). The CAP aims to provide financial support to farmers, but it has historically favored larger farms due to economies of scale and bureaucratic requirements (European Commission, 2021) [19]. the new CAP 2023–2027 mandates a redistributive payment (at least 10% of direct subsidies) targeted at small and medium farms (The Greens/EFA, 2018) [65]. The new EU plan is capping large farm subsidies to allocate more resources to small farms (European Parliamentary Research Service, 2022) [22]. Financial aid to small farms has often been ineffective or unequal, with larger farms (Beluhova-Uzunova et al., 2019) [9]. Administrative obstacles pose challenges for small farmers seeking CAP subsidies, as complex application processes and lack of support services hinder their ability to secure funding (Harizanova-Bartos & Stoyanova, 2023) [30]. Frequent political shifts in Bulgaria lead to policy instability, affecting the predictability of agricultural regulations and subsidy programs (Doitchinova, 2022) [17]. Post-1991 land reforms in Bulgaria led to significant land fragmentation, making it difficult for small farms to consolidate and remain competitive (Yanakieva, 2007) [69]. Bulgaria's agricultural regulations and compliance are challenging for small farms (Fredriksson et al., 2021) [26]. CAP second pillar for rural development includes measures like the Small Farmers Scheme but has complex application procedures (European Parliamentary Research Service, 2022) [22]. Insufficient tailored support for small-scale farmers affects rural communities and biodiversity, targeted financial programs for small farms enhance sustainability and competitiveness (Koteva, 2020) [37]. Promoting cooperation among small farms improve market access and resource-sharing opportunities (Bachev et.al, 2024) [5].
Economic factor	Bulgaria's agriculture is highly polarized, with small farms controlling a minor share of agricultural land, while large farms dominate the sector (Nikolov et al., 2015) [54]. Small farms struggle to enter large retail chains, making them reliant on local markets for sales (Nikolova, 2020) [55]. Economic pressures, including market competition from large agribusinesses and imported agricultural products, limit smallholders' market share and profit margins (Branzova, 2018) [11]. In times of economic crisis, such as during the COVID-19 pandemic and the war in Ukraine, small farms have played a vital role in ensuring food security by supplying local markets with fresh produce (Kabadzhova et al., 2024) [34]. Small farms have a crucial societal function in providing jobs and a means of subsistence for their owners' households, but they have little opportunity of improving their market positions in regional marketplaces (Todorova, 2023) [66]. Access to financing remains a critical issue for small farms. Due to their limited assets, small farmers struggle to secure loans, leading to underinvestment in modern technology and infrastructure (Fredriksson et al., 2021) [26]. Small farms struggle to accumulate capital for reinvestment, due to low profitability (Koteva & Fidanska, 2018) [38]. Lack of financial resources prevents investment in modernization and innovation, restricting competitiveness (Ahmedova, 2015) [2]. Economic challenges represent a significant weakness for small farms by limiting their ability to compete with large farms. Lack of financial resources, restricted market access, and difficulties in obtaining funding contribute to instability (Nikolova, 2020) [55] due to limited collateral and high perceived risk from banks (Dirimanova & Ivanova, 2014) [16]. They have limited market integration due to weak competitiveness and difficulty accessing value chains dominated by large agribusinesses (Fredriksson et al., 2021) [26]. Small farms in Bulgaria operate with low market output and profit margins, as they produce primarily for family consumption and sell only small surpluses (Fredriksson et al., 2021) [26]. Public support is crucial for the economic sustainability of small farms, as there is a strong correlation between subsidies and small-farm incomes (Kirechev, 2024) [35]. Small farms develop new production in unconventional agricultural activity by introducing and establishing new production, which depends on nonagricultural activity to increase profits (Nikolova & Linkova, 2011) [56]. NAAS provides free advisory support in crop production, livestock farming, agrarian economics, and access to rural development programs (National Agricultural Advisory Service, 2024) [51]. NAAS organizes training sessions and seminars to improve farmers' skills and helps small farms prepare project applications for rural development funding (European Commission, 2024) [19].
Social factor	Demographic shifts present a significant challenge for small farms. Bulgaria's rural areas have experienced severe depopulation, with younger generations migrating to urban centers or abroad (Aleksandrova & Kabadzhova, 2020) [3]. The labor shortage in agriculture are exacerbated by rural depopulation, making it difficult for small farms to operate efficiently (Marinov, 2019) [41]. Aging farmer demographic combined with the decline in workforce threaten the sustainability of small farms and rural development (Bachev et al., 2024) [5].

	Youth migration to bigger cities and foreign countries reduces rural workforce and weakens social support for small farms. Economic downshifts and change in family structures affect small farms' ability to sustain long-term operations (Touch et al., 2024) [67]. Small farms maintain traditional farming techniques, local crop varieties, and livestock breeds, contributing to agricultural and biodiversity conservation (FAO, 2022) [23]. Small farms strengthen rural communities by helping local cooperation, maintaining traditions, and fostering a sense of belonging among residents. They contribute to rural economic stability and reduce dependence on external markets by providing employment and producing local goods (Bachev et al., 2024) [5]. Greater adoption of innovation in small-scale farming are facilitated by increasing access to training programs and technological subsidies could facilitate (Barducz & Jitea, 2024) [8]. The increase in demand for organic and locally produced food by fostering change in consumer preference, provides opportunity for small farmers to engage in short supply chains and direct-to-consumer sales (Korpelainen, 2023) [36]. A great contribution to regional economic development is seen thanks to rural tourism initiatives, where small farms serve as eco-tourism destinations, (Harizanova-Bartos et al., 2020) [31].
Technological factor	Small farms in Bulgaria face challenges in adopting new agricultural technologies. Investments in modern irrigation systems, automation, and precision farming technologies are hindered by limited financial resources (Sun et al., 2024) [64]. Small farms in Bulgaria lag in technology adoption and mechanization, as many use outdated machinery and techniques (Fredriksson et al., 2021) [26]. Automated systems optimize resource use, improve yield quality, and reduce environmental impact. Bulgarian companies like Ondo offer automated irrigation and climate control solutions (Para Expert, 2025) [57]. Drones assist in monitoring crop health, assessing soil conditions, and improving pesticide application, as ProDrone Sys provides aerial surveying services for Bulgarian farmers (Para Expert, 2025) [57]. Additionally, digitalization in the agricultural sector is lagging, with few small farmers utilizing e-commerce platforms to sell their products (Madureira et al., 2024) [40]. That leads to fewer opportunities to adopt cost-saving technology or expand, as instead, farmers try to cope by diversifying production to spread risk (Mihailova, 2020) [44]. The intergenerational knowledge transfer related to farming practices is hindered by depopulation trend results in an aging agricultural workforce and a decline (Zobena, 2023) [70]. The development of pest-resistant and climate-adapted crop varieties enhances sustainability in small farms (Regional Development Union, 2022) [59]. Agricultural apps provide farmers with weather forecasts, market information, and farming best practices, aiding decision-making. Modern technologies help reduce costs and labor input (Doitchinova & Stoyanova, 2024) [18]. Technological advancements enhance the quality of agricultural output, making products more competitive in the market (NIK Agriculture, 2024) [53]. Many small farms struggle to afford advanced agricultural technologies (Aleksiev, 2023) [4] and have limited training opportunities hinder effective adoption of modern farming techniques (Branzova & Dimitrova, 2023) [10]. Technological advancements in organic farming, such as low-input and sustainable agricultural techniques, present an opportunity for smallholders to align with EU environmental policies while improving productivity (Dimitrova, 2024) [15]. The digital revolution in agriculture marginally touched Bulgaria's small farms, reason is limited internet connectivity and digital skills in many rural areas (Dirimanova & Ivanova, 2014) [16].
Ecological/ Environmental factor	In Bulgaria, the Ministry of Agriculture and Food provides training initiatives for improving farmers' knowledge of sustainable practices, soil health, and climate adaptation (Ministry of Agriculture and Food, 2025) [47]. Farmers are showing cautious but growing interest in precision agriculture technologies, recognizing benefits for efficiency and sustainability, despite concerns over cost and complexity (Sarof et al., 2024) [61]. Small farms often utilize diverse cropping systems and traditional farming practices that promote biodiversity and ecosystem resilience (National Agricultural Advisory Service, 2025) [52]. Climate change represents a significant threat to small farms in Bulgaria, with increasing droughts, extreme weather events, and soil degradation reducing agricultural yields (Stoyanova, 2022) [62]. They are more exposed to climate change effects, such as droughts and extreme weather, making sustainable farming harder to maintain (FAO, 2024) [25]. Local farmers play a key role in maintaining environmental knowledge and sustainability within their communities (FAO, 2024) [25]. Small farms, however, often employ traditional and ecologically friendly farming methods that support the EU's Green Deal objectives, such as crop rotation, permaculture, organic farming, and low pesticide use (Suman et al., 2025) [63]. Limited financial resources restrict the adoption of sustainable farming technologies, leading to reliance on conventional methods (Bailly, & Muro, 2024) [6]. Maynard, H., & Nault, J. (2005) [42] think that the ability of life support systems to maintain the quality of the environment while contributing to other sustainability objectives. Enhancing financial incentives for agroecological practices could help mitigate the negative impact of climate change on small farms (Ricciardi et al., 2018) [60]. Bulgarian small farms being eligible for subsidies to adopt or maintain sustainable practices allocated by EU funding to encourage organic farming (European Court of Auditors, 2024) [21]. Implementation measures to minimize greenhouse gas emissions primarily impacted small farmers and farms that were unable to adapt to climate change (Petkov et al., 2017) [58]. The emphasis on sustainable farming presents both a challenge and an opportunity. While EU environmental policies promote biodiversity and low-carbon farming, compliance costs may be prohibitive for smallholders. Bulgaria's National Strategy for Biodiversity Conservation acknowledges the role of small farms in preserving biodiversity and promotes incentives for conservation-oriented agriculture (European commission, 2023) [20]. Compared to large-scale industrial farms, small farms generally have a reduced environmental impact, producing fewer emissions and maintaining ecological balance in rural areas (Lin et al., 2011) [39].
Legal factor	The post-socialist land restitution policies resulted in highly fragmented land ownership, complicating efforts to consolidate plots into economically viable farm sizes (Food and Agricultural Organization of the United Nations, 2002) [24]. Restitution for the reinstatement of private property and its subsequent acquisition by the former owners and their heirs have been fraught with issues and had lasting effect on small farms and their decline (Georgiev, 2024) [27]. Strict food safety and organic certification requirements place a disproportionate regulatory burden on small farms compared to large agribusinesses (Guarin et al., 2020) [29]. The implementation of CAP measures favors large farms, as smaller farmers often lack the administrative capacity to comply with funding requirements (Harizanova-Bartos & Terziyska, 2020) [32]. Simplifying bureaucratic procedures and offering tailored legal support to small farmers could improve their competitiveness within the agricultural sector (Băluță et al., 2024) [7]. Small farms have access to CAP funding, but complex application processes limit participation

	(European Commission, 2024) [19]. The "National Strategy for Small and Medium Enterprises 2021–2027" outlines measures to improve small farms' competitiveness (Ministry of Economy, 2020) [48]. The "National Program for Action" focuses on combating land degradation and promoting sustainable land use (Ministry of Environment and Water, 2015) [49]. The "Farm to Fork" strategy under the European Green Deal promotes fair, sustainable, and eco-friendly food systems, emphasizing support for small-scale farmers (European Commission, 2020) [19]. Local and regional markets supply a large part of the agricultural sector, which most private farms in Bulgaria are small (Todorova, 2023) [66]. The "Thematic Sub-programme for the Development of Small Farms" (Rural Development Program 2014–2020) provides financial aid and starting, development and investment support to small farms (Ministry of Agriculture and Food, 2017) [46]. Strengthening agro-environmental measures in rural development programs to enhance sustainability and resilience in small farms (European Commission, 2020) [19].
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Source: Summarized based on literature review.

CONCLUSIONS

Small and family farms in Bulgaria play an essential role in food security, rural employment, and biodiversity conservation. However, they face significant challenges in accessing financing, overcoming regulatory barriers, and adapting to technological and environmental changes. Targeted policy reforms, financial support, and digitalization initiatives are necessary to ensure the long-term sustainability of smallholder agriculture in Bulgaria. This raises critical questions regarding the long-term implications of CAP on rural socio-economic diversity, land ownership concentration, and food system resilience. Future policy reforms must consider redistributive mechanisms, such as progressive area-based payments and targeted support for small farms, to mitigate the unintended consequences of CAP-induced land consolidation. The structural decline of small farms in Bulgaria is not merely an agricultural transition but a broader rural transformation with far-reaching socio-economic and environmental consequences. The evidence suggests that CAP's existing policy framework has disproportionately favored land concentration, reinforcing economic polarization, rural depopulation, and environmental degradation. If left unaddressed, these trends will irreversibly reshape Bulgaria's rural landscape, leading to a long-term loss of rural economic diversity, environmental sustainability, and social cohesion. Future policy adjustments must therefore prioritize inclusivity, resilience, and sustainability, ensuring that rural development is not merely a byproduct of agricultural modernization but a central objective in its own right. Future research should explore

longitudinal econometric analyses of CAP's impact on rural income distribution and land tenure dynamics, providing a data-driven foundation for evidence-based policy reform.

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