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Competitiveness of agricultural farms of different juridical types, sizes, specialization, and locations in Bulgaria

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Abstract. The competitiveness of farms is usually assessed through traditional indicators of technical and accountancy efficiency, the productivity of factors of production, the profitability of activity, farms' market position and shares, etc. A systematic approach for defining competitiveness and formulating its pillars, principles, criteria, and indicators has been rarely implemented, end the critical governance aspects have been largely ignored. The article incorporates a holistic multipillars framework, and assesses the levels of and correlations between the competitiveness of Bulgarian farms of different juridical types, economic sizes, product specialization, and ecological and geographical locations. Farm competitiveness is defined as capability (governance and production potential) of an agricultural holding to maintain sustainable competitive positions on (certain) market(s), leading to high economic performance through continuous improvement and adaptation to changing market, natural and institutional environment. Accordingly, the main "pillars" of farm competitiveness are identified as Economic efficiency (Production Pillar), Financial endowment (Financial Pillar), Adaptability and Sustainability (Governance Pillar). For assessing the level of competitiveness of Bulgarian farms, a system of 4 criteria for each Pillar and 17 particular and 5 integral indicators are used. The study has found out that the level of competitiveness of agricultural holdings in the country is at a good level, but there is significant differentiation in the level and factors of competitiveness of holdings with different juridical types, sizes, product specialization, ecological and geographical location. The low adaptive potential and economic efficiency to the greatest extent contribute to lowering the competitiveness of Bulgarian agricultural producers. Especially critical for maintaining the competitive positions of farms are the low productivity, income, financial security and adaptability to changes in the natural environment, in which directions the public support of farms and their management strategies for development should be directed. A large share of farms of different types have a low level of competitiveness, and if measures are not taken in a due time to increase competitiveness by improving the management and restructuring of farms, adequate state support, etc., a large part of Bulgarian farms will cease to exist in the near future. The suggested approach for assessing the competitiveness of farms should be improved and applied more widely and periodically. The precision and representativeness of the information used should also be increased by increasing the number of farms surveyed, which requires close cooperation with other interested parties, and improving the system for collecting agro-statistical information in the country and the EU.

Keywords. Competitiveness; Production; Financial, and governance pillars; Farms.
JEL. Q10; O31; O33; Q01; Q16; Q18.

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1. Introduction

The issues related to proper assessments of the competitiveness of agricultural farms in general and of different type and locations has been among the most topical for academicians, agro-business managers, interests-groups, administrators, politicians, international organizations, and public at large (Falciola & Rollo, 2020; Dresch *et al.,* 2018; Westeren, *et al.,* 2020; Wisenthige & Guoping, 2016). Furthermore, increasing the viability and competitiveness of agriculture and farms has been also identified as one of the strategic policy objectives of the EU in the current programming period of 2021-2027 CAP implementation (EU, 2018).

In other countries there have been multiple publications on the competitiveness of farms of different sizes (Alam *et al.,* 2020; Berti & Mulligan, 2016; Latruffe, 2010, 2013; Lundy, *et al.,* 2010; Mmari, 2015; Ngenoh *et al.,* 2019; Orłowska, 2019), agricultural industries and subsectors (Alam *et al.,* 2020; Benson, 2007; FAO, 2010; Jansik & Irz, 2015; Kleinhanss, 2020; Marques *et al.,* 2011; Marques, 2015; Nivievskyi, *et al.,* 2011; Ngenoh *et al.,* 2019; Oktariani, Daryanto, & Fahmi, 2016; Ziętara & Adamski, 2018), farming and agri-food-chain systems (Marques, 2015; Orłowska, 2019), regions (Marques *et al.,* 2011; Nowak, 2016; Lundy, *et al.,* 2010; Ngenoh *et al.,* 2019), organifactors for farm competitiveness enhancments (Berti & Mulligan, 2016; Mmari, 2015; Ngenoh *et al.,* 2019; Oktariani, Daryanto, & Fahmi, 2016; OECD, 2011), etc. Likewise, in Bulgaria, there have been numerous publications on levels and factors of farm competitiveness (Andonov, 2013; Alexiev, 2012; Borisov, 2007; Bashev, 2010, 2011, 2017; Ivanov *et al.,* 2020; Koteva & Bashev, 2010, 2021; Koteva, 2016; Koteva *et al.,* 2018; Slavova *et al.,* 2011; Bachev, 2010).

The competitiveness of farms is usually assessed through traditional indicators of technical and accountancy efficiency, the productivity of factors of production, the profitability of activity, farms' market position and shares, etc. and predominately based on macro (aggregate) statistical data. A systematic approach for defining competitiveness and formulating its pillars, principles, criteria, and indicators has been rarely implemented. What is more, the critical governance aspects of farm competitiveness, requiring first-hand farm micro-data, have been largely ignored by most of the assessment frameworks.

A novel comprehensive approach for assessing the competitiveness taking into account production, financial and governance aspects of farms ("competitive") potential was suggested, operationalized, experimented and gradually improved in the last decade (Башев и Котева, 2021; Башев Х. и др., 2022; Котева и Башев, 2011; Котева, 2016; Котева и др.,2021; Bachev 2010; Bachev, Ivanov, Sarov, 2020; Bachev & Koteva, 2021). In recent years, that new approach has been applied for the assessment of competitiveness levels of Bulgarian farms in general and farms with different specialization using both macro (agro-statistical) and micro (survey) economic data (Котева, Анастасова-Чопева, Башев, 2021; Башев Х. и др., 2022; Bachev & Koteva, 2021). The later evaluations have shown similar results and found that the overall competitiveness of Bulgarian farms is at a good level with great variations for holdings with different product specializations (Котева, Анастасова-Чопева, Башев, 2021; Bachev & Koteva, 2021). Furthermore, a significant share of all agricultural farms in the country are not competitive and most likely cease to exist in the near future.

There are no comprehensive assessments of the competitiveness of Bulgarian farms of different juridical types, economic sizes, and ecological and geographical locations at the current stage of development and EU CAP implementation. Neither there are studies for revealing the specific relations between the legal, operational, specialization, and territorial dimensions of farm competitiveness in the country. *The goal of this study is to fill the existing gap, incorporate a holistic multipillars framework, and assess the levels of and correlations between the competitiveness of Bulgarian farms of different juridical types, economic sizes, product specialization, and ecological and geographical locations.*

2. Methods and data

In this study a comprehensive and holistic framework for assessing the competitiveness of Bulgarian farms is incorporated including their production, financial and governance ability to compete. According to the suggested (more adequate) "new" understanding, the competitiveness of a farm means the capability (governance, production and financial potential) of an agricultural holding to maintain sustainable competitive positions on (certain) market(s), leading to high economic performance through continuous improvement and adaptation to changing market, natural and institutional environment (Котева и др., 2021; Bachev & Koteva, 2021).

Accordingly, the main "pillars" of farm competitiveness are Economic efficiency (Production Pillar), Financial endowment (Financial Pillar), Adaptability (Governance Pillar for current efficiency) and Sustainability (Governance Pillar for long-term efficiency) (Figure 1). Subsequently, Good competitiveness refers to the state in which a farm (1) produces and sells its products and services efficiently on the market, (2) manages its financing efficiently, (3) is adaptable to the constantly evolving market, institutional and natural environment, and (4) is sustainable in time. On the other hand, a low or lack of competitiveness means that the farm has serious problems in efficient financing, production and sale of products due to high production and/or transaction costs, inability to adapt to evolving environmental conditions and/or insufficient sustainability over time.

For assessing the level of competitiveness of Bulgarian farms, a system of 4 criteria for each Pillar and 17 particular and 5 integral indicators are used (Figure 1). Detail presentation and justification of applied framework has been done in our previous publications (Башев и др., 2022; Bachev & Koteva, 2021).

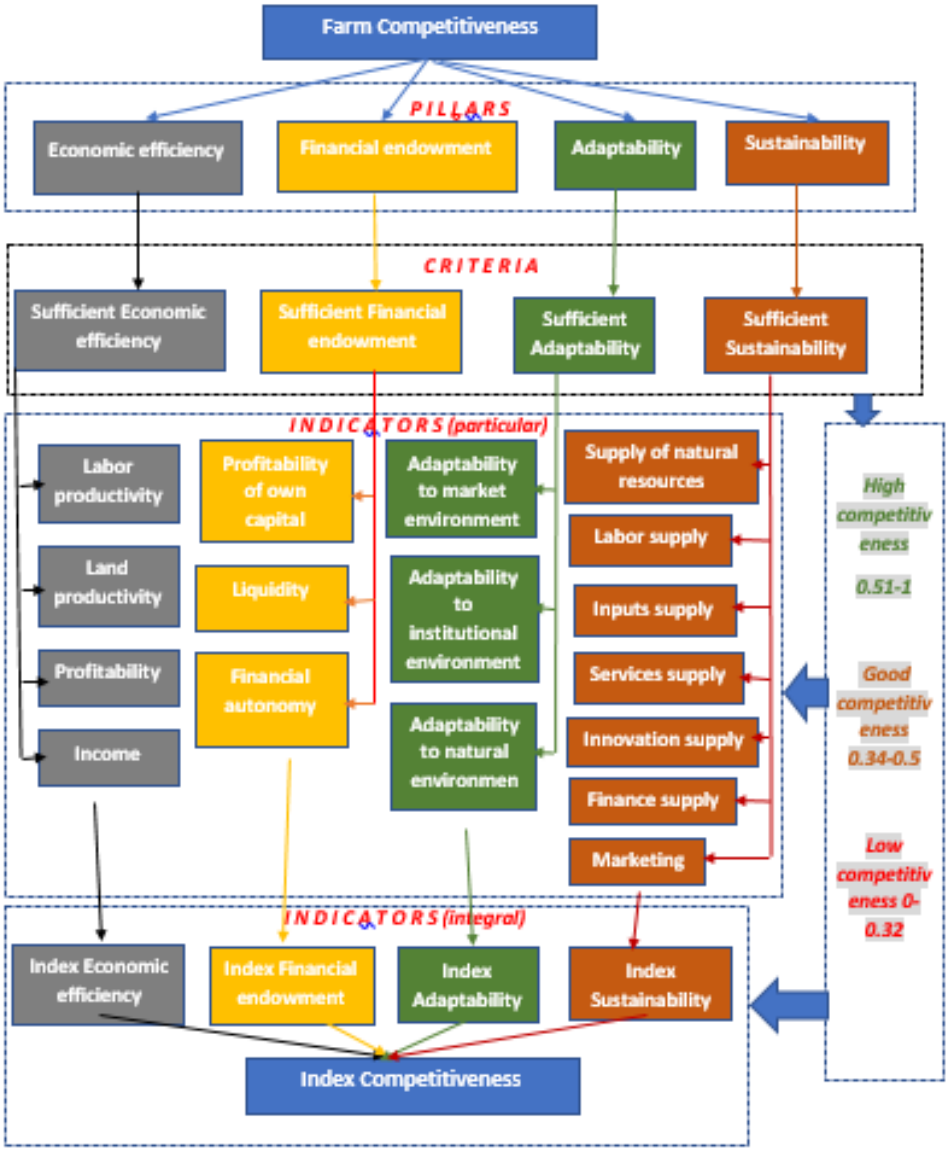

Figure 1. *Framework for Assessing Completeness of Bulgarian Farms*

The distinct governance structures of contemporary farming activity in Bulgaria (supported by different Laws and Regulations such as Trade Law, Cooperative Law, Regulation for Registration of Agricultural Producers, etc.) are Physical persons (91.4%), Sole traders, Cooperatives, Corporations, and Associations, which in 2020 account for accordingly 91.4%, 1.3%, 0.54%, 6.5% and 0.21% of the total number of farming enterprises in the country (M3X, 2021)

There are no available statistical, report, etc. data for comprehensive assessment of the absolute and comparative competitiveness of farming enterprises in Bulgaria. In this study the evaluation of the competitiveness levels is based on first-hand (survey) micro data collected in 2020 from the managers of 319 "typical" farms of different juridical types, economic sizes, production specializations, and ecological and geographical locations. The primary information was collected by the National Agricultural Advisory Service and major Agricultural Producers Organizations, and the structure of

the surveyed farms approximately corresponds to the real structure of the farms in the country.

During the survey, the farm managers were given possibilities to select one of the three levels (Low, Good, or High), which most closely corresponds to the condition of their enterprise for each indicator of the four competitiveness criteria. After that, the qualitative evaluations of the farm managers were transformed into quantitative values, as the High levels were valued 1, the Intermediate ones 0.5, and the Lows ones 0. Following that, for each of the surveyed farms, an Integral Competitiveness Index is calculated for individual criteria and as a whole, as arithmetic averages. The competitiveness indices of the farms with different types (legal status, size, region, product specialization, etc.) were calculated as an arithmetic average from the individual indices of the constituent farms in the particular group. For assessing the overall level of farm competitiveness, the following benchmarks, suggested by the leading experts in the area, are applied: High competitiveness level 0.51-1, Good competitiveness level 0.34-0.5, and Low competitiveness level 0-0.32.

3. Level of competitiveness of farms of different juridical type

There is considerable variation in the level of competitiveness of agricultural holdings of different legal types (Figure 2). With the highest competitiveness are cooperatives (0.64), and corporations and associations (0.53). The level of competitiveness of sole traders is good (0.44) and above the industry average (0.4). The lowest is the competitiveness of physical persons, which is at a good level (0.39), but below the industry average. This means that the current trend of transfer of agrarian resources and activity from the less competitive governing structures of the physical persons to cooperative, corporate and firm management with higher competitive advantages will continue.

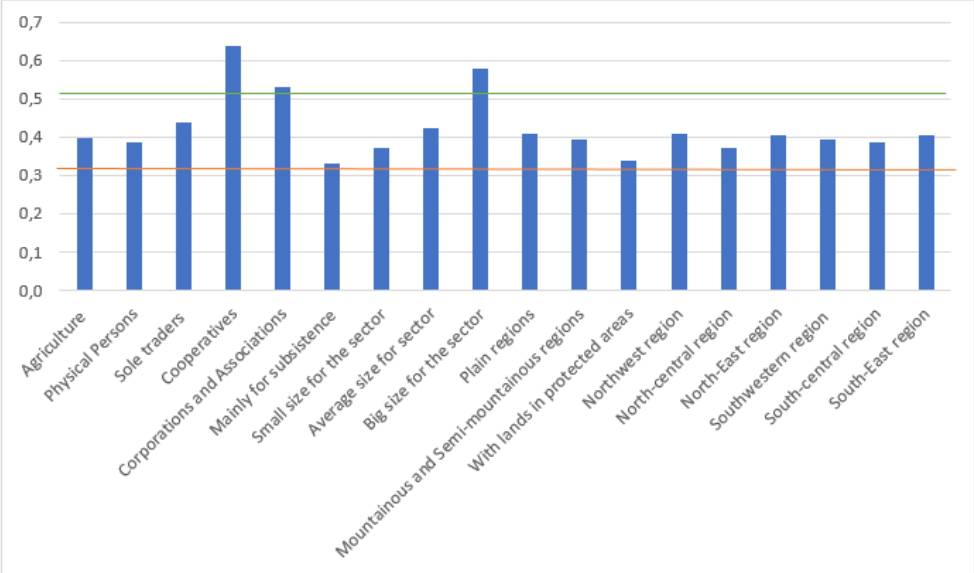

Figure 2. *Competitiveness of agricultural holdings of different types in Bulgaria*
Source: Author's calculations.

All of the surveyed cooperatives, corporations and associations have a good or high level of competitiveness, including every cooperative farm (Figure 3). The share of sole trader with good and high competitiveness is also significant. At the same time, almost 37% of all physical persons have low competitiveness. Moreover, only 48.7% of physical persons have a level of competitiveness above the national average, and almost one in two with competitiveness below the average for the group of physical persons (Figure 4). Along with this, the share of cooperatives, corporations and associations, and sole traders with competitiveness above the idustry average is significant.

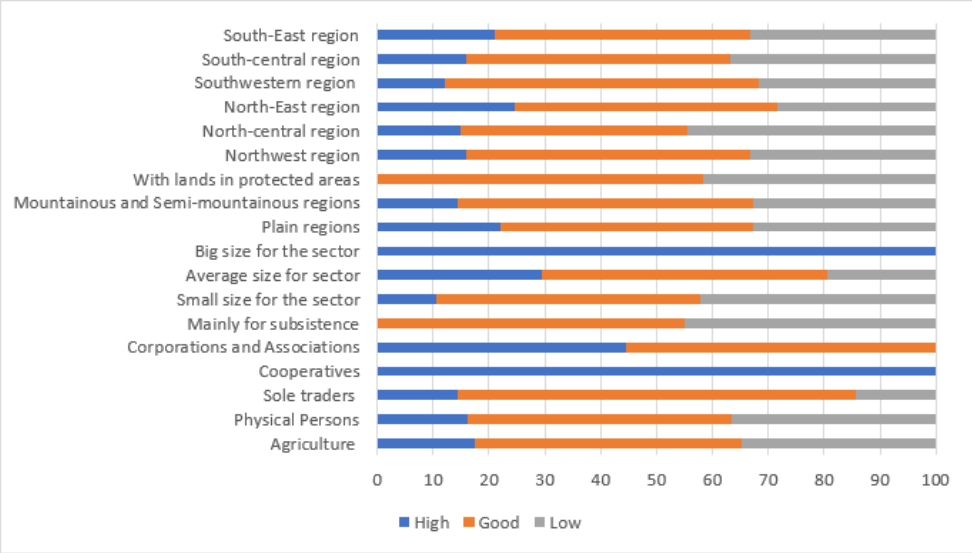

Figure 3. *Share of agricultural holdings with different levels of competitiveness in Bulgaria (%)*
Source: Author's calculations.

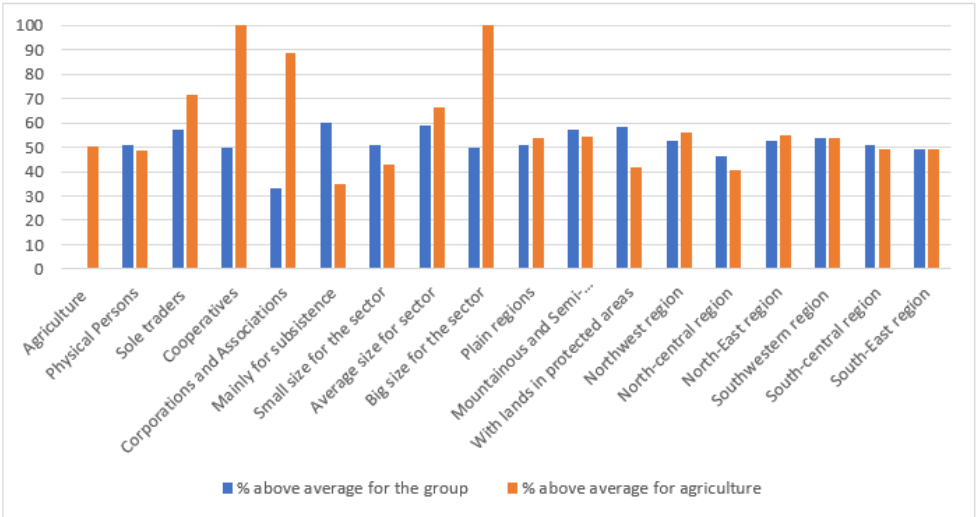

Figure 4. *Share of farms with a level of competitiveness above the average for the agriculture and the respective group in Bulgaria (%)*
Source: Author's calculations.

This means that a significant part of the farms of physical persons will cease to exist in the near future, if measures are not taken in a due time to increase competitiveness by improving the management and restructuring of farms,

adequate state support, etc. as a result of weak competitive positions, bankruptcies, transformation into companies and partnerships, acquisition by more efficient structures, etc.

Two-thirds of corporations and associations also have below-average levels of competitiveness for this group, indicating a need for modernization to "align" with corporate governance and competition standards.

The analysis of the individual aspects of the competitiveness of farms with different legal types shows that (relatively) low economic efficiency to the greatest extent contributes to the deterioration of the competitiveness of physical persons and sole traders, the low financial security of physical persons, the low sustainability of cooperatives, and the low adaptability of corporations and associations (Figure 5). At the same time, high economic efficiency conditions the strong competitive positions of cooperatives, corporations and associations, and the high sustainability of sole traders.

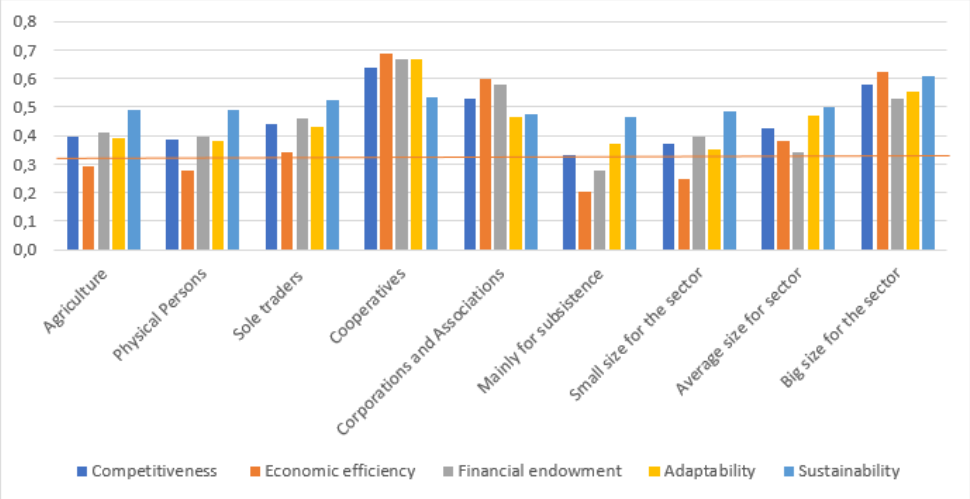

Figure 5. *Level of competitiveness of Bulgarian farms with different juridical types and sizes according to basic competitiveness criteria*
Source: Author's calculations.

Cooperative and corporate farms have the highest financial security and potential for adaptation to changes in the market, institutional and natural environment, and cooperatives and sole traders have the highest sustainability. Good sustainability also contributes to the greatest extent to maintaining the competitiveness of physical persons in the country.

Most of the indicators of competitiveness of the farms of physical persons have values lower than the average for the country (Figure 6). In terms of adaptability to the natural environment, supply of land and natural resources, labor force, finance and services, the competitiveness of physical persons is like the sectoral average. Only in terms of supply of materials and equipment, these farms have competitive advantages compared to farms in the country.

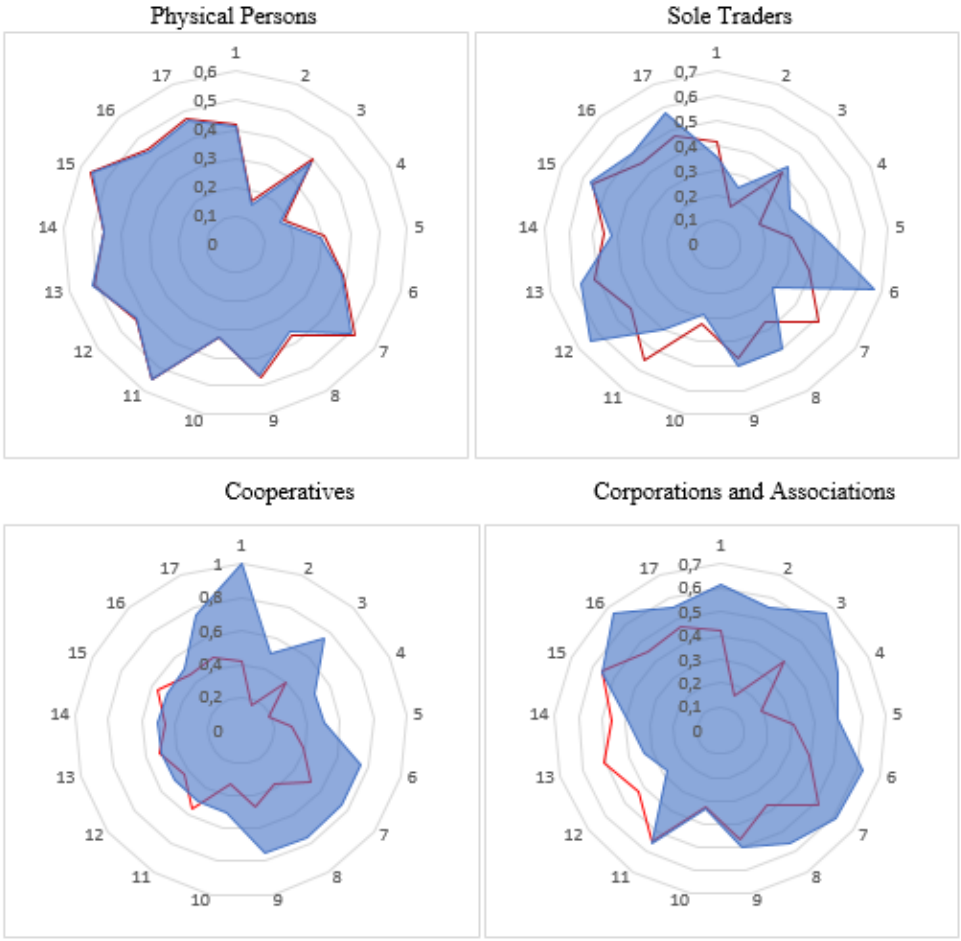

Figure 6. *Competitiveness indicators* of agricultural holdings of different juridical types in Bulgaria (red line – average for agriculture)*

Notes: * 1 – Labor Productivity; 2 -Land Productivity; 3 - Profitability; 4 - Income; 5 - Profitability of own capital; 6 – Liquidity; 7 - Financial autonomy; 8 - Adaptability to the market environment; 9 - Adaptability of the institutional environment; 10 - Adaptability of the natural environment; 11 - Supply of land and natural resources; 12 - Labor supply; 13 – Inputs supply; 14 – Finance supply; 15 – Services supply; 16 – Innovations supply; 17 – Utilization and marketing of produce and services

Source: Author's calculations.

The competitiveness of sole traders is supported by (better) good liquidity, profitability, and financial security, adaptability to the market and institutional environment, and advantages in terms of supply of services and innovations, and in the realization of production and services. Moreover, in terms of the supply of workforce and inputs, these holdings are superior to other legal types. The main factors for lowering the competitiveness of sole traders are relatively low productivity (0.25), productivity (0.36), financial autonomy (0.29), potential for adaptation to the natural environment (0.29), and weaker positions in supply of land and natural resources (0.4), and finance (0.43).

Cooperative farms have comparative competitive advantages over other legal types in terms of levels of productivity, profitability, liquidity, financial autonomy, adaptability to the market, institutional and natural environment, in the supply of labor and finance, and in the realization of production and services. Another significant part of the cooperatives' competitiveness indicators surpasses the average for the country. To the greatest extent,

greater problems in supplying the necessary land and natural resources (0.5) and services (0.5) contribute to lowering the competitiveness of cooperative farms.

Corporations and associations outperform other legal types with high levels of labor and land productivity, and advantages in terms of supply of land and natural resource, and innovations. In addition, most of the remaining indicators of competitiveness of these farms are above the average for the country. Critical to maintaining the competitiveness of corporative farms are problems in supplying the necessary labor (0.28), materials and equipment (0.33) and finance (0.39), as well as average levels of adaptability to changes in the natural environment and efficiency in supplying the necessary services.

There is considerable variation in the competitiveness of farms depending on their product specialization (Figure 7). Deviations from the average for the legal type are largest for physical persons specialized in herbivores (-0.07), sole traders specializing in mixed crop production (-0.16), and corporations and associations specialized in herbivores (-0.15) and bees (+ 0.26). These deviations are towards the average level for the sub-sector for physical persons and corporations and associations specializing in herbivores. This shows that the production specialization of this group of farms is a more important factor for their competitiveness than their legal status.

On the other hand, for sole traders specialized in mixed crop production and for corporations and associations specializing in bees, the deviations are in opposite directions from the average levels for the sub-sector. This shows the additional comparative competitive advantages (of corporations and associations) or comparative competitive disadvantages (of sole traders) in certain sub-sectors of agriculture in the country – beekeeping and mixed crop production, respectively.

Finally, farms of physical persons dominate in the major types of production such as vegetables, flowers and mushrooms, herbivores, pigs, poultry and rabbits, mixed crop production and mixed livestock production. In these sub-sectors, the levels of competitiveness of physical persosns predetermine the sub-sector level, while at the same time matching or being close to the average for this legal type of holdings. This means that there is an "optimal" (competitive) specialization for this type of farming organization and there is practically no competition with other legal types in these industries.

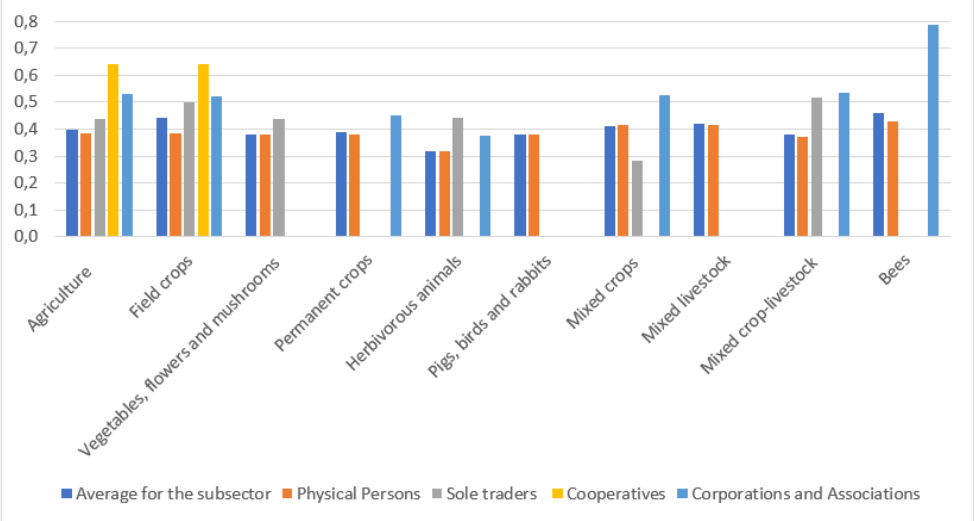

Figure 7. *Competitiveness of agricultural holdings of different legal type and specialization in Bulgaria*
Source: Author's calculations.

It is to be expected that the restructuring of holdings of different legal type will continue, through the concentration of resources in the most efficient groups, diversification and/or change of specialization, transformation of the legal type of the farms, etc.

4. Level of competitiveness of farms of different sizes

There is also differentiation in the levels of competitiveness of farms of different sizes (Figure 2). There is a strong positive correlation between the size of the farm and its level of competitiveness. Farms with large sizes for the industry have the highest competitiveness (0.58). The level of competitiveness of medium-sized farms is good (0.42) and above the industry average. The level of competitiveness of small farms and subsistence farms is below the sector's average (0.37 and 0.33, respectively). This shows that the previous trend of transferring agrarian resources and activity from less competitive farms with small sizes and a semi-market orientation to those with medium and large sizes for the industry will be preserved.

All of the surveyed large-scale farms are highly competitive (Figure 3). The share of highly competitive medium-sized farms is also big. Along with this, however, a significant part of self-sufficiency farms and those with small sizes for the industry are of low competitiveness - respectively 45% and 42.1% of them. The share of medium-sized farms with an unsatisfactory level of competitiveness is also not small.

All of the large farms and two-thirds of the medium-sized ones have competitiveness levels above the industry average (Figure 4). Among self-sufficiency farms and those of small size, the share of those with competitiveness below the national average prevails. At the same time, however, the majority of semi-market holdings and medium-sized farms have levels of competitiveness exceeding that of the respective group - 60% and 58.9%, respectively. Among small and large-scale farms for the sector, the share of holdings with a higher competitiveness than the average for the group is half.

All this means that the restructuring of farms of all sizes will continue through the transfer of resources to more efficient structures in the relevant group and/or in groups with bigger sizes, consolidation of farms, improvement of management, suspension or reduction of activity, etc. Along with this, however, there will continue to be a significant number of farms with good and high competitiveness in farm groups of all sizes.

Low economic efficiency to the greatest extent contributes to the deterioration of the competitiveness of semi-market farms and small farms, the low financial security of all farms except the largest, and the lower sustainability and adaptability of smaller farms (Figure 5). At the same time, high economic efficiency, financial security, adaptability and sustainability are the reason for the strong competitive positions of large-scale farms.

All indicators of competitiveness of large farms, with the exception of supply of services, have values superior to the average for the country (Figure 8). The main areas that lower the (absolutely good) competitiveness of these farms are relatively low productivity, financial security, adaptability to the natural environment, and supply of labor and services.

The competitiveness of farms of average size for the industry is supported by best-in-industry adaptability to the natural environment and efficiency in the supply of services, and many other indicators superior to those of agriculture as a whole. Main factors for lowering the competitiveness of medium-sized farms are the lowest for the sector liquidity (0.1) and positions in terms of labor supply (0.4).

Small farms have comparative competitive advantages over industry averages only in terms of the supply of land and natural resources, labor, and inputs. Many of the indicators of competitiveness of these farms are below the average for the industry, and the most critical for the deterioration of their competitive positions are low productivity (0.11), profitability (0.13), adaptability to the natural environment (0.28), and financial security (0.3).

Most of the indicators of competitiveness of farms mainly for self-sufficiency are below average and/or among the lowest for the sector. Only in terms of adaptability to the natural environment and labor supply, this type of farm has levels superior to the industry average. Particularly critical for the competitiveness of these holdings are extremely low productivity (0.08), profitability (0.06), financial security (0.13), liquidity (0.26), and productivity (0.3).

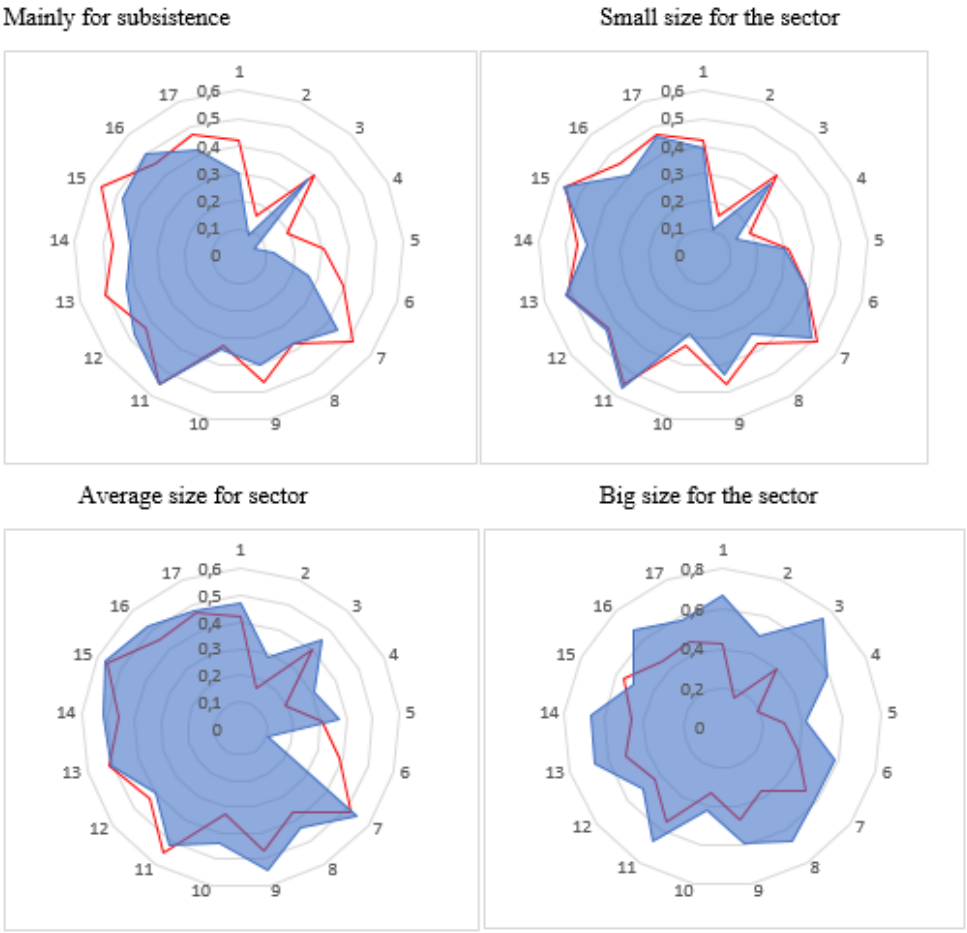

Figure 8. *Competitiveness indicators* of agricultural holdings of different sizes in Bulgaria (red line – average for agriculture)*
Source: Author's calculations.

There is considerable variation in the competitiveness of farms of different sizes depending on their product specialization (Figure 9). The level of competitiveness of large farms exceeds the sub-sectoral level in all types of specialization in which these farms operate. The situation is similar for most categories of medium-sized farms. Therefore, there are clear competitive advantages arising from the larger scale of operation - economies of scale and scope of production and transactional activity, potential for investment and innovation, etc.

In most categories of small farms, the levels of competitiveness are close to or coincide with the group and sub-sector averages. Exceptions are small farms with mixed livestock and those keeping bees, where the minimum size is a competitive advantage or disadvantage, respectively.

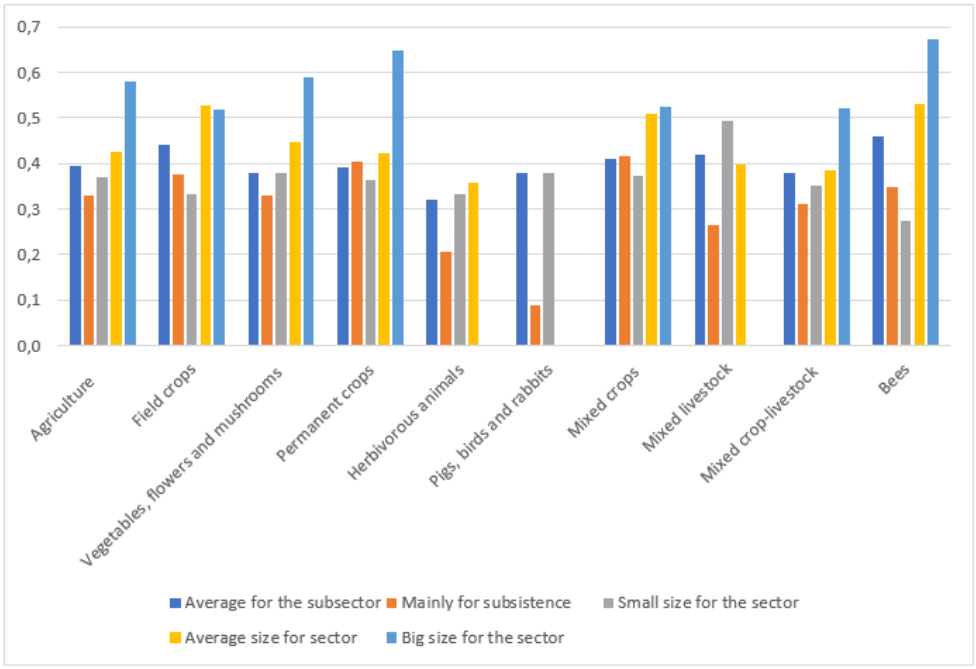

Figure 9. *Competitiveness of agricultural holdings of different sizes and specialization in Bulgaria*
Source: Author's calculations.

Subsistence farms have a lower level of competitiveness than the average for the main sub-sectors and the farms with other sizes. The exception is the semi-market farms in permanent crops and mixed crop production, which have above average competitiveness for these sub-sectors and therefore comparative advantages over some groups of larger farms. Semi-market holdings specializing in herbivores, pigs, poultry and rabbits, and mixed livestock have strong competitive disadvantages compared to larger farms.

All these data show that the process of specialization and/or restructuring of farms will continue, depending on the competitive advantages or disadvantages caused by the respective size (small, medium, large) and nature (semi-market, market) of the activity in productions of different types and combination.

In the case of farms of physical persons and corporations and associations, there is a positive correlation between the level of competitiveness and the increase in the size of the activity (Figure 10). All of the surveyed sole traders are in the group of small farms and have a level of competitiveness exceeding both the average for this size group and the industry. The same applies to cooperatives, all of which are in the medium-sized group. Therefore, an optimal size has been reached for realizing the maximum competitive positions of these legal types of holdings. The situation is similar with corporations and associations, which are divided into only two groups - small and medium in size. The competitive advantages of this form of economic organization are fully realized in small and/or medium sizes depending on production (specialization, etc.), management (need to coalition of resources, etc.), or other reasons.

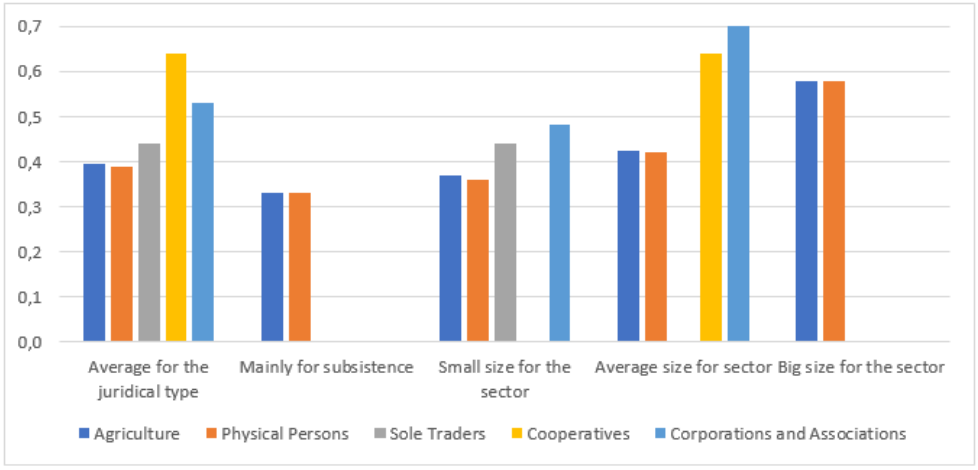

Figure 10. *Competitiveness of agricultural holdings of different sizes and juridical type in Bulgaria*

Source: Author's calculations.

5. Level of competitiveness of farms with different ecological locations

There are also differences in the competitiveness of agricultural holdings in different ecological regions of the country (Figure 2). Farms in plain areas are more competitive than those in mountainous and semi-mountainous areas of the country. With the lowest absolute and comparative competitive positions are farms that operate with land in protected areas and territories. This requires long-term public support for this category of holdings to maintain their viability and the agricultural activity in such territories and zones.

The share of farms with good and high competitiveness in plains, and in mountainous and semi-mountainous regions is almost the same – about two-thirds of all farms (Figure 3). However, over 22% of all farms in plain areas are highly competitive, while among those in mountainous and semi-mountainous areas this share is significantly lower (14%). Nevertheless, almost every third farm in these areas is of low competitiveness and threatened with extinction. Among farms with lands in protected areas and territories, there are no farms with high competitiveness, and the share of those with low competitive positions is almost 42%.

The share of farms with levels of competitiveness above the average for the sector and for the group in mountainous and semi-mountainous areas is higher than that of farms in plain areas (Figure 4). The highest is the segment of farms with better competitor positions for the territorial-ecological group in the protected zones and territories. In all ecological regions, however, there is a significant share of farms with higher competitiveness than the industry average and the group, and their activity is likely to be discontinued or transferred to farms with better competitive positions in the respective region.

In all aspects of competitiveness, the farms in the plain regions of the country are superior to those of the other ecological regions, and the most critical for their competitiveness is the low economic efficiency (Figure 11). In the mountainous and semi-mountainous regions, the competitiveness of holdings is similar to the average in the country in all aspects, as the most critical factor here is also the low economic efficiency. Farms with lands in

protected zones and territories only have high values in terms of their sustainability, while according to the other criteria their competitiveness is at low levels.

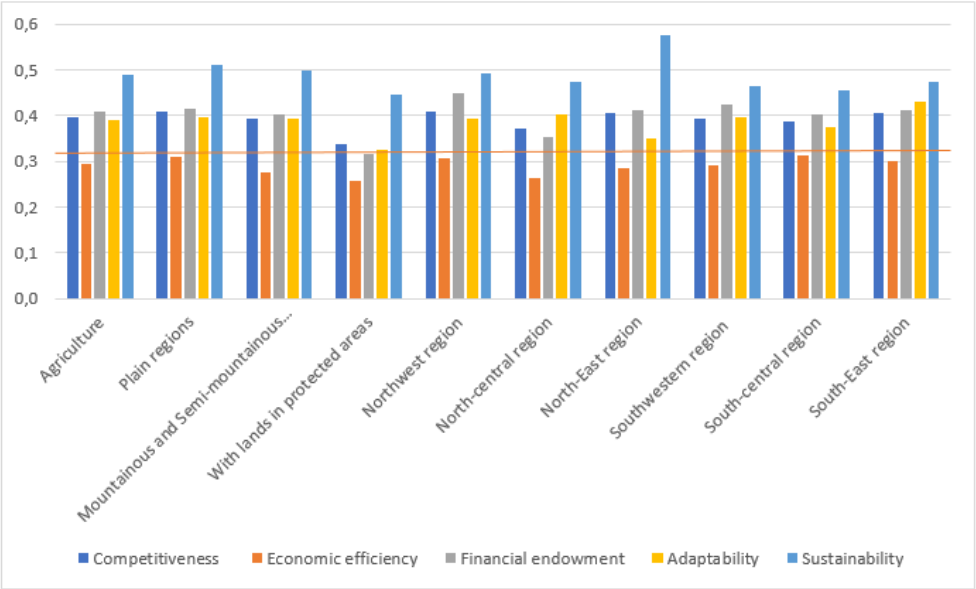

Figure 11. *Level of competitiveness of agricultural holdings with different ecological and geographical locations according to main competitiveness criteria in Bulgaria*
Source: Author's calculations.

All indicators of competitiveness of farms in the plain areas are equal to or superior to the national average (Figure 12). To the greatest extent, maintaining and increasing the competitiveness of these farms contribute to high financial autonomy, efficiency in the supply of land and natural resources, services and innovations, and in the realization of production and services. The main areas that reduce the competitiveness of farms in plain regions are low productivity (0.17), profitability (0.12), and financial security (0.32).

Most indicators of the competitiveness of farms in the mountainous and semi-mountainous regions are close to the average for the country. Most important for the competitive positions of these farms are the high financial autonomy, and efficiency in the supply of land and natural resources, workforce, inputs, and services. Critical for the competitive positions of these farms are their low productivity (0.17), profitability (0.19), and financial security (0.3).

The majority of indicators for the competitiveness of farms with land in protected zones and territories are below the average for the country. Exceptions are low and equal to the industry profitability, and exceeding the national average efficiency in the supply of land and natural resources, inputs, and services. To the greatest extent, low levels of productivity (0.15), profitability (0.31), income (0.19), financial security (0.23), liquidity (0.3), and adaptability to the market (0.25) and the natural (0.29) environment contribute to lowering the competitiveness of these farms.

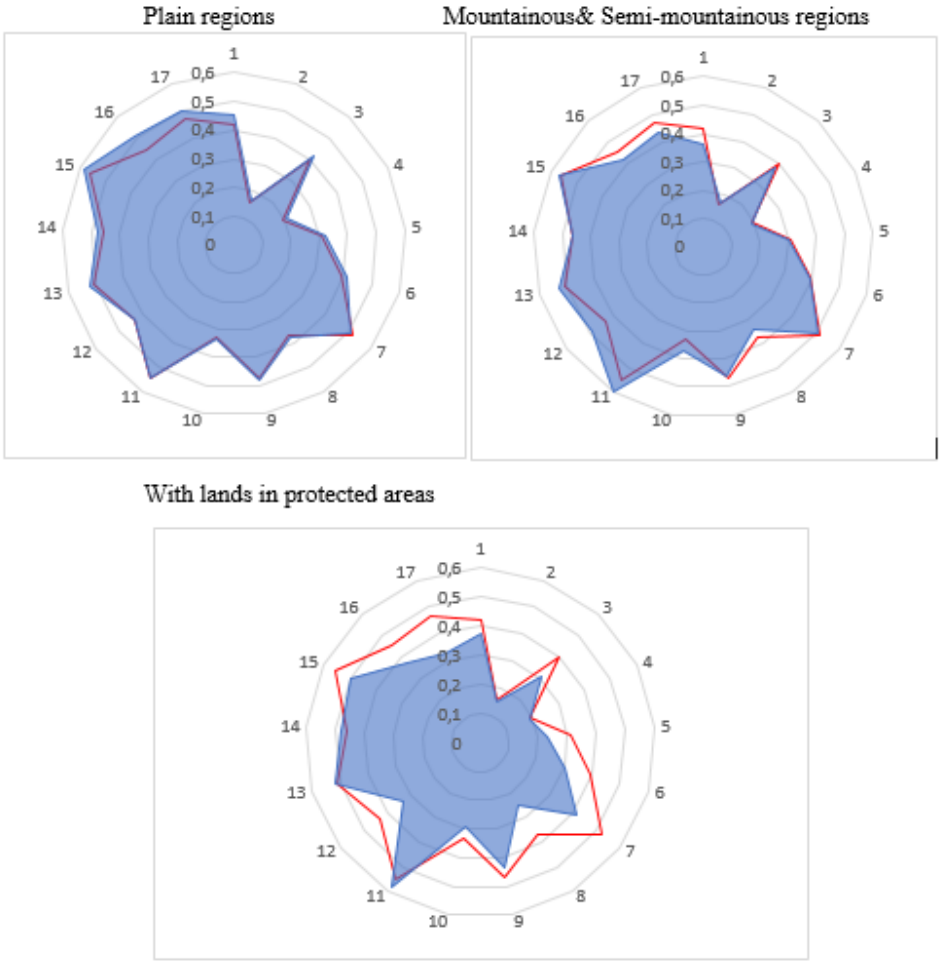

Figure 12. *Competitiveness indicators* of agricultural holdings with different ecological locations in Bulgaria (red line – average for agriculture)*
Source: Author's calculations.

There are differences in the levels of competitiveness of farms with different specialization in individual ecological regions (Figure 13). Farms in the plains demonstrate significant competitive advantages over the rest of the country in field crops, perennials, mixed crop production, mixed livestock, mixed crop-livestock, and bees. Farms in mountainous and semi-mountainous areas are the most competitive among those specializing in vegetables, flowers and mushrooms, and those with lands in protected areas and territories in herbivores.

The level of competitiveness of specialized farms in plain areas exceeds that of other ecological areas in all areas except vegetables, flowers and mushrooms, and herbivores. Farms operating in protected areas and territories have significant competitive disadvantages (much lower than sub-sectoral and regional competitiveness) in a number of key areas such as vegetables, flowers and mushrooms (0.24), perennial crops (0.3), pigs, poultry and rabbits (0.32), and mixed crop-livestock farming (0.3). In this ecological region, there are no holdings specialized in field crops due to low competitiveness, unacceptable efficiency, technological, institutional, etc. restrictions.

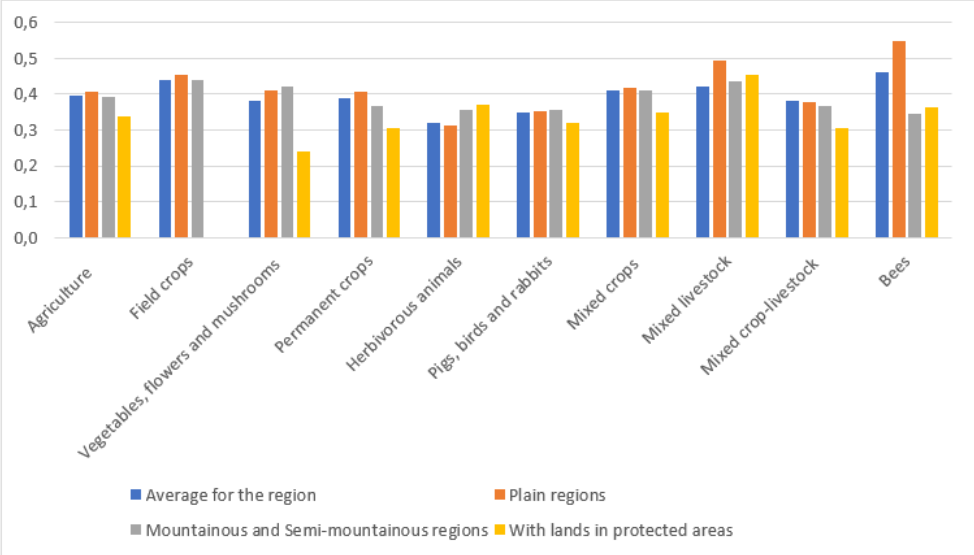

Figure 13. *Competitiveness of agricultural holdings in main ecological regions with different specialization in Bulgaria*
Source: Author's calculations.

In the plain regions, farms with any legal status have a higher competitiveness than the rest of the country's regions, while preserving the differences reviled for the individual legal types (Figure 14). Only physical persons and corporations and associations operating in the protected zones and territories have the lowest competitiveness. This shows that the specific ecological location is an additional critical factor that benefits or impairs the competitiveness of farms in the country.

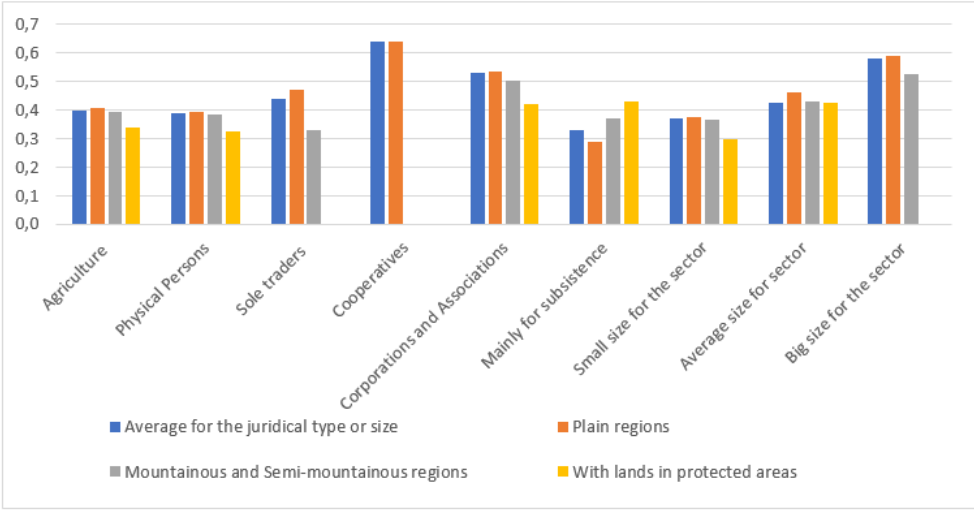

Figure 14. *Competitiveness of agricultural holdings in main ecological regions with different legal types and sizes in Bulgaria*
Source: Author's calculations.

Semi-market farms located in protected areas and territories, and in mountainous and semi-mountainous areas have significant competitive advantages over those in plain areas (Figure 14). For all sizes of market farms, the plain layout provides an opportunity to realize higher competitiveness.

Due to numerous restrictions and poor competitiveness, large-scale farms do not invest and operate in protected areas and territories.

6. Level of competitiveness of farms located in individual agrarian regions of the country

There are differences in the competitiveness of agricultural holdings in different agrarian regions of the country (Figure 2). The competitiveness of farms in the North-West and North-East regions is higher than the national average, while the farms in the North-Central Region, South-West, and South-Central Regions are lower than the industry.

The share of farms with good and high competitiveness in the North-East and South-East regions of the country is the largest - respectively every fifth and every fourth of them (Figure 3). The North-East and South-West regions have the smallest share of farms with low competitiveness. The largest number of low-competitive farms are located in the North Central region – over 44% of the total number.

The largest number of farms with levels of competitiveness above the national average are in the North-West region, followed by the North-East and South-West regions (Figure 4). In all agrarian regions there is a significant number of farms with higher competitiveness than the average for the country and for the respective region. This means that the process of restructuring farms in all regions will continue through the transfer of management of activities and resources to farms from the same and/or other regions of the country.

In the individual agrarian regions, there is a significant differentiation of the levels according to the main criteria of competitiveness (Figure 11). Farms in the North-West region have the highest financial security and higher than most of the other regions (equal to the South Central region) economic efficiency. Farms in the North Central region have relatively high values in terms of adaptability and sustainability. Farms in the North-East region have the highest sustainability, but are with lower adaptability than other regions.

Farms in the South-West region have relatively better levels of financial security and adaptability, but with low sustainability for the sector. The farms in the South Central region have comparatively the highest levels of economic efficiency, but with lower levels than the other regions for the other competitiveness criteria. And finally, farms in the South-East region have the highest adaptability and close to the national average economic efficiency, financial security and sustainability.

High productivity, profitability, liquidity, financial autonomy, efficiency in the supply of land and natural resources, labor force, materials and equipment, services and innovations contribute the most to maintaining and increasing the competitiveness of farms in the North-West region (Figure 15). At the same time, their low productivity (0.13) and income (0.21) are critical for the competitiveness of farms in this region.

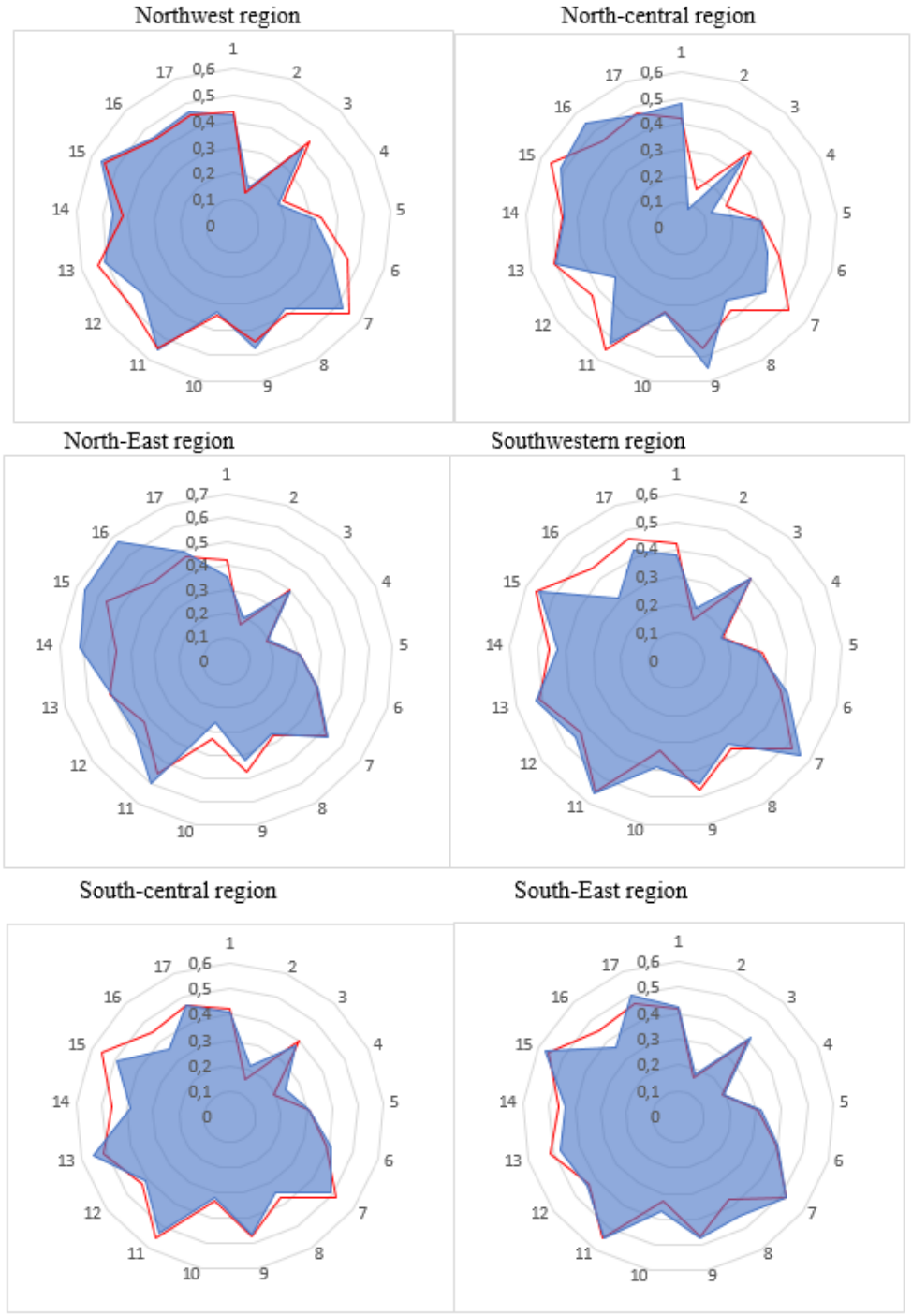

Figure 15. *Competitiveness indicators* of agricultural holdings located in different regions in Bulgaria (red line – average for agriculture)*
Source: Author's calculations.

Farms in the North Central region have good competitive positions in terms of productivity, adaptability to the institutional environment, and high efficiency in the supply of land and natural resources, inputs, and innovations. Farms in this area, however, have very low indicators of productivity (0.08), income (0.13), and labor supply problems (0.31).

Farms in the North-East region have higher than the national average liquidity, financial autonomy, and efficiency in the supply of land and natural resources, workforce, finance, services and innovations, and better positions

in the realization of production and services. Critical to the competitiveness of these farms are low productivity (0.19), income (0.2), financial security (0.31), and adaptability to the natural environment (0.26).

Farms located in the South-Western region of the country are superior to others in terms of liquidity, financial autonomy, and efficiency in the supply of land and natural resources, labor, and inputs. The most important areas that lower the competitiveness of farms in this region are low productivity (0.2), income (0.18), financial security (0.3), and efficiency in supplying innovations (0.3).

Most of the levels of indicators for the competitiveness of farms in the South Central region are lower and similar to the average for the country, and they have better meanings unity in terms of liquidity, efficiency in the supply of inputs, productivity and profitability. The most important factors worsening the competitiveness of farms in this area are low productivity (0.22), income (0.25), financial security (0.31), and adaptability to changes in the natural environment (0.32).

Farms in the South-East region have better than the national average productivity, profitability, income, financial security, adaptability to the market and natural environment, efficiency in the supply of labor force and services, and realization of production and services. Critical to improving the competitiveness of these farms are an increase in their productivity (0.18), income (0.2), financial security (0.32), and lower efficiency in supplying innovations (0.36).

The detailed analysis of the relationships of the level of competitiveness with the legal status, sizes, specialization and ecological location of the holdings in the different agrarian regions of the country did not establish specifics different from those already established and described in the previous parts of the paper.

7. Conclusion

This study has demonstrated the needs and gave insights on directions for reexamine the competitiveness of governance structures in modern farming activity. It also has found out that besides the juridical type, other dimensions of governance structures like economic size, product specialization, location, market of self-sufficiency orientation, are critical (and sometimes more important) for determining their absolute and comparative competitiveness. It has also reviled, that besides market competition, there are other governing mechanisms for carrying farming activities such as “visible hand of manager”, “collective decision making”, public intervention, etc. All they have to be further studied, identified, and their importance and complementarities assessed in order to properly evaluate the efficiency, and vertical and horizontal borders of farming organizations, and factors and prospects of development of diverse governance structures in agriculture.

The multi-criteria assessment of the level of competitiveness of farming enterprises in Bulgaria found that it is at a good level, but there is significant differentiation in the level of competitiveness of holdings with different juridical types, sizes, product specialization, ecological and geographical location. The low adaptive potential and economic efficiency to the greatest extent contribute to lowering the competitiveness of Bulgarian agricultural producers. Especially critical for maintaining the competitive positions of

farms are the low productivity, income, financial security and adaptability to changes in the natural environment, in which directions the public support of farms and their management strategies for development should be directed. A large share of farms of different types have a low level of competitiveness, and if measures are not taken in a due time to increase competitiveness by improving the management and restructuring of farms, adequate state support, etc., a large part of Bulgarian farms will cease to exist in the near future.

The suggested and successfully tested approach for assessing the competitiveness of farms should be improved and applied more widely and periodically. The precision and representativeness of the information used should also be increased by increasing the number of farms surveyed, which requires close cooperation with producer organizations, national agricultural advisory service, and other interested parties, and extending and improving the system for collecting agro-statistical information in the country and the EU.

References

Alam, S., M. Munizu, A.R. Munir, M. Pono, A.R.O. Kadir, (2020). Development Model of Competitiveness of Chicken Farm SMEs in Sidrap Regency, South Sulawesi, Indonesia. ESPACIOS, 41(10), 23-42.

Andrew, D., M. Semanik, M. Torsekar (2018). Framework for Analyzing the Competitiveness of Advanced Technology Manufacturing Firms, Office of Industries Working Paper ID:057, September 2018

Atristain Suarez, C. (2013). Organizational Performance and Competitiveness: Analysis of Small Firms, Nova science Publisher.

Bachev, H. (2008). Agricultural policies in Bulgaria in post Second World War years, EconPapers. [Retrieved from].

Bachev, H. (2010). Management of Farm Contracts and Competitiveness, VDM Verlag Dr. Muller, Germany.

Bachev, H. (2011). Needs, Modes and Efficiency of Economic Organizations and Public Interventions in Agriculture, *Review of Economics & Finance*, 1, 89-103.

Bachev H., B. Ivanov, A. Sarov (2020). Unpacking Governance Sustainability of Bulgarian Agriculture, *Economic Studies*, 6, 106-137.

Bachev H. (2022). *Unpacking the Governance Efficiency of Agricultural Farms in Bulgaria*, Agricultural Research Updates. Volume 41, P.Gorawala and S. Mandhatri (Editors), Nova Science Publisher, New York, 97-126.

Bachev H. (2022). An Approach to Assess the Governance Efficiency of Bulgarian Farms, Economic-Alternatives, 4, 769-787.

Bachev H. & M.Tsuji (2001). Structures for organisation of transactions in Bulgarian agriculture, Journal of the Faculty of Agriculture of Kyushu University 46, 123-151.

Bachev H., B. Ivanov, A. Sarov (2020). Unpacking Governance Sustainability of Bulgarian Agriculture, *Economic Studies*, 6, 106-137.

Bachev H., B.Ivanov & A.Sarov (2021). Assessing Governance Aspect of Agrarian Sustainability in Bulgaria, *Bulgarian Journal of Agricultural Sciences*, 27(3), 429–440.

Bachev H. & N.Koteva (2021). Reexamining Competitiveness of Bulgarian Farms, in Miguel Fischer (Editor) *Environmental Management: Ecosystems, Competitiveness and Waste Management*, Nova Science, New York, 59-90.

Bachev H., & N.Koteva (2021). The Competitiveness of Agricultural Holdings in Bulgaria, *Economic Thought*, 4, 27-48.

Benson, G. (2007). Competitiveness of NC Dairy Farms, North Carolina State University, [Retrieved from].

Chursin, A. & Y. Makarov (eds.). (2015). *Management of Competitiveness: Theory and Practice*. London: Springer.

Csaba, J., & X. Irz (2015). Competitiveness of Dairy Farms in Northern Europe: A Cross-Country analysis, *Agricultural and Food Science*, 24, 3, 206-218. doi. 10.23986/afsci.50881

Dresch, A, D.C. Collatto, & D.P. Lacerda (2018). Theoretical understanding between competitiveness and productivity: firm level, *Ingeniería y competitividad,* 20(2), doi. 10.25100/iyc.v20i1.5897

EC (2018). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing rules on support for strategic plans to be drawn up by Member States under the Common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulation (EU) No 1305/2013 of the European Parliament and of the Council and Regulation (EU) No 1307/2013 of the European Parliament and of the Council, European Commission, Brussels.

FAO (2010). *International Competitiveness of 'Typical' Dairy Farms*, FAO.

Falciola, J., M. Jansen, & V. Rollo (2020). Defining firm competitiveness: A multidimensional framework, *World Development*, 129, 104857. doi. 10.1016/j.worlddev.2019.104857

Giaime, B. & C. Mulligan (2016). Competitiveness of Small Farms and Innovative Food Supply Chains: The Role of Food Hubs in Creating Sustainable Regional and Local Food Systems, *Sustainability*, 8, 616. doi. 10.3390/su8070616

Kleinhanss, W. (2020). Competitiveness of the Main Farming Types in Germany, 20th International Farm Management Congress Vol.1, IFMA.

Krisciukaitiene, I., R. Melnikiene, & A. Galnaityte (2020): Competitiveness of Lithuanian farms and their agriculture production from present to medium - term perspectives, Lithuanian IAE.

Latruffe, L. (2010). *Competitiveness, Productivity and Efficiency in the Agricultural and Agri-Food Sectors. OECD Food*, Agriculture and Fisheries Papers, No.30, OECD Publishing.

Latruffe, L. (2013). Competitiveness in the agricultural sector: measures and determinants. *Farm Policy Journal*, 11(3), 9-17.
Lundy, M., M. V. Gottret, W. Cifuentes, C. F. Ostertag, R. Best, D. Peters and Sh. Ferris (2010). *Increasing the Competitiveness of Market chains for Smallholder producers*, CIAT.
Marques, P. R. *et al.* (2015). Competitiveness levels in cattle herd farms. Cienc. *Rural*. 45(3), 480-484. doi. 10.1590/0103-8478cr20140401
Marques, P. R., J.O.J. Barcellos, C. McManus , R.P. Oaigen , F.C. Collares , M.E.A. Canozzi V.N. Lampert (2011). Competitiveness of beef farming in Rio Grande do Sul State, *Brazil, Agricultural Systems*, 104(9), 689-693. doi. 10.1016/j.agsy.2011.08.002
Mmari, D. (2015). *Institutional Innovations and Competitiveness Of Smallholders In Tanzania*, Thesis to obtain the degree of Doctor from the Erasmus University Rotterdam.
Ngenoh, E., B. K. Kurgat, H. Bett, S. W. Kebede and W. Bokelmann (2019). Determinants of the competitiveness of smallholder African indigenous vegetable farmers in high-value gro-food chains in Kenya: A multivariate probit regression analysis, *Agricultural and Food Economics*, 7, 2-17. doi. 10.1186/s40100-019-0122-z
Nivievskyi, O., Stephan von Cramon-Taubadel (2010). The Determinants of Dairy Farming Competitiveness in Ukraine, Policy Paper Series [AgPP No 23], Institute for Economic Research and Policy Consulting.
Nowak A. (2016). Regional Differences in the Competitiveness of Farms in Poland, *Journal of Agribusiness and Rural Development*, 41(3), 345-354. doi. 10.17306/JARD.2016.62
Nowak, A. Krukowski (2019). Competitiveness of farms in new European Union member states, *Agronomy Science*, 2, 73-80. doi. 10.24326/as.2019.2.7
OECD (2011). Fostering Productivity and Competitivenessin Agriculture, OECD.
Orłowska, M. (2019). Competitiveness of Pollish Organic Farms with Different Economic Size in Light of Fadn Data, *Annals PAAAE 2019*, 21(2), 217-224. doi.
Porter, M. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. The Free Press, Macmillan.
Westeren, K. I., H. Cader, M. F. Sales, J. O. Similä, J. Staduto (2020). *Competitiveness and Knowledge, An International Comparison of Traditional Firms*, Routledge.
Wisenthige, K., & C. Guoping, (2016). Firm level competitiveness of small and medium enterprises (SMEs): analytical framework based on pillars of competitiveness model. *International Research Journal of Management, IT and Social Sciences*, 3(9), 61-67. doi. 10.21744/irjmis.v3i9.172
Williamson, O. (1996). *The Mechanisms of Governance*. New York: Oxford University Press.
Ziętara W., M. Adamski (2018). Competitiveness of the Polish dairy farms at the background of farms from selected European Union countries, *Problems of Agricultural Economics*, 1(354), 56-78.
Алексиев, А. (2012). Конкурентни възможности на зърнения сектор. Монография. Пловдив, Академично издателство на Аграрния университет
Андонов, С. (2013): Ролята на европейските субсидии за повишаване на конкурентоспособността на земеделието в България, Дисертация за придобиване на онс „Доктор", Софийски университет.
Башев Х. (2010): Оценка на конкурентоспособността на българските ферми, Икономика и управление на селското стопанство No 6, 11-26.
Башев Х. (2011): Оценка на конкурентоспособността на земеделските кооперации, Икономика и управление на селското стопанство No 1, 22-30
Башев Х. (2011): Конкурентоспособностт на земеделските стопанства на физически лица, Икономика и управление на селското стопанство No 5, 55-65.
Башев Х. и Н. Котева (2021): Конкурентоспособността на земеделските стопанства в България, Икономическа мисъл, бр.4, 1-26.
Башев Х. и колектив. (2022): РАЗБИРАНЕ, ОЦЕНЯВАНЕ И ПОВИШАВАНЕ НА КОНКУРЕНТОСПОСОБНОСТТА НА БЪЛГАРСКИТЕ ФЕРМИ, Институт по аграрна икономика, София.
Иванов, Б., Р. Попов, Х. Башев, Н. Котева, Н. Маламова, М. Чопева, К. Тодорова, И. Начева, Д. Митова (2020): Анализ на състоянието на селското стопанство и ХВП, ИАИ.
Котева Н., М. Анастасова-Чопева, Х. Башев (2021): Подход за оценка на конкурентоспособността на земеделските стопанства в България, Икономика и управление на селското стопанство, 66, 2, 3-20.
Котева Н. и Х. Башев (2011): Изследване на конкурентоспособността на земеделските стопанства в България, Икономическа мисъл, 5, 34-63.
Котева, Н. (2016). Развитие и конкурентоспособност на земеделските стопанства в България в условията на ОСП на ЕС. Авангард Прима, София.

Котева Н. и др. (2021). Конкурентоспособност на земеделските стопанства в България и модели за нейното повишаване, ИАИ, София.
МЗХ (2021): Преброяване на земеделските стопанства в страната, 2020г., МЗХ.
Славова, Я. и кол. (2011). Конкурентни възможности на аграрния сектор. ССА, ИАИ, С.