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Plamena Yovchevska[1]
Mihaela Mihailova[2]
Nina Koteva[3]

LAND USE IN BULGARIAN AGRICULTURAL HOLDINGS AND THE COMMON AGRICULTURAL POLICY[4]

The research on the utilisation of agricultural land in agricultural holdings has the aim to present the problems and opportunities European CAP policy brings in Bulgarian agriculture. We have used statistical methods as well as academically approved approaches to systematically assess how changes in CAP policy, have changed the landscape of agriculture and what positive and negative changes are the result of the implementation of EU norms. For competitiveness, we have presented data from the pre-EU accession and, using the graphic method, showed the changes during the research period. We try to highlight some processes in public relations regarding land use as an indispensable factor for production, as well as to define certain reasons for the registered changes.
Keywords: agriculture holdings; land use; CAP policy
JEL: Q1; Q18; C82

1. Introduction

Land use is a key element in the study of the economic activity of agricultural holdings. In the common European economic area, the CAP is the main tool for implementing common policies, respectively the collection of representative information to assess the impact of common rules and regulations on actors in agriculture. In this regard, the baseline analyses by the FADN play an important role in the whole process of EU CAP reform, i.e. the evaluation of CAP measures and the impact assessment of policy proposals. The Agricultural

[1] *Plamena Yovchevska, Prof. Dr. in Institute of Agricultural Economics, phone: +359884139836, e-mail: yovchevska@abv.bg.*
[2] *Mihaela Mihailova, Assistant Prof. in Institute of Agricultural Economics, phone: +359886650003, e-mail: m.mihailova92@gmail.com.*
[3] *Nina Koteva, Prof. Dr. in Institute of Agricultural Economics, phone: +359884189146, e-mail: ninakoteva@abv.bg.*
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Accounting Information System (FADN) is a reliable tool for assessing farm activity and the impact of the CAP (Galluzzo, 2018, p. 928). The concept of the FADN was developed in 1965, when Council Regulation 79/65 established the legal basis for the organisation of the network of holdings. It consists of annual monitoring carried out by the Member States of the European Union. Since 1966, the European Farm Structure Survey (FSS) program has been implemented in order to study and analyse the economic activity of agricultural units. With Regulation (EU) 2018/1091 of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011 (Text with EEA relevance.) EU and FAO create chrono topical surveys on the agricultural holdings. In this research, the preliminary data from the last survey is used for comparative purposes. Representative empirical information is collected to track trends in the development and structure of agricultural holdings. This is an essential indicator for an objective analysis of the ongoing processes in the primary industry. In this way, a platform of empirical data is built, which is the basis of statistical knowledge needed in the development, implementation, monitoring, evaluation, and review of sectoral policies. The research focus is on the Common Agricultural Policy (CAP), including rural development measures and our main objective is to find how it reflects on land use and regional differences. From the listed goals set, one can make a motivated assumption that the ongoing processes in land use are a significant factor, the influence of which on the condition of the agricultural structures in the primary branch is unavoidable. This fact is confirmed by the close correlations on the axis of land use-agricultural holdings-goals of sustainable development. Regardless of their development and the changes that have taken place over the years, a significant part of the UN's Sustainable Development Goals (SDGs) is directly correlated with land use and the economic activity of agricultural producers. In this regard, the authors accept that land use, as part of land relations, is of leading importance for the economic activity of agricultural holdings. The present study examines land use at a regional level and examines agricultural land use and the structural changes that have taken place since the CAP, taking into account the previous period as a basis for comparison.

1.1. State of the art

Land use is a widely used term that has acquired citizenship in/for the identification of activities of individuals and economic entities, in the implementation of which there is a combination of economic activity with the use of land as a natural body. Agricultural land is the basic resource for agricultural production. Its rational use is essential for the competitive development of the sector (Szabolcs et al., 2014). For the purpose of this study, we clarify that we use the term "land use" in its substantive nature, arising from the fact that the state and processes in land use are an emanation and an integral part of land relations. Various authors have written on the problems of land use and the impact of CAP. The study of land relations (LR) is part of the process of studying the nature and state of economic relations and changes in the economic environment in which agriculture operates. The nature of LR is determined by their direct symbiosis with the production and economic relations in the industry. The processes in land relations and the topic of land have been considered since the beginning of economic theories. This is due to the fact that land is the main factor of production in the land-labour-capital system. In the period of the planned economy and the

transition to a market economy, scientists from the Institute of Agrarian Economics have made a significant contribution to the construction and development of theoretical and methodological formulations, whose contribution is relevant today (Diana Savova, Georgi Kyosev, Milka Koleva, etc.) (Yovchevska, 2016, p. 41). The effects of the application of the CAP in Bulgaria are considered (Ruscheva, 2010). The New Institutional Economy (Dirimanova, 2005) is also used to highlight the specifics of Bulgarian land relations. The influence of the costs of transferring agricultural land on the consolidation of agricultural property is analysed (Georgiev, Penov 2006). An analysis of land reform and institutional change in Bulgaria is developed at the Agricultural University in Plovdiv (Stoeva et al., 2020). In this regard, following the changes in land use in Bulgaria at the level of NUTS-2, we try to highlight some processes in public relations regarding land use as an indispensable factor for production, as well as to define certain reasons for the registered changes (Boliari, 2013; Boliari, 2017; Rangelova, Vladimirova, 2017).

2. Material and Methods

In the spirit of objective analysis, it should be noted that the processes of land use in different regions of Bulgaria have their historical, natural-climatic, socio-cultural, and economic specifics, established in the long-term economic practice of the country, which has all the hallmarks of an agrarian state. Despite the lag in time and the sustainability of certain agricultural practices and regional peculiarities, the establishment and establishment of agricultural holdings as a leading entity in the new economic environment caused by the change in public relations is accompanied by changes in land use in different regions of Bulgaria NUTS-2. The NUTS-2 regions are defined by the EU (EC, 2011).

The study/observation period is 2003-2016 and includes two significant institutional influences. At the beginning of this time period is the period of completion of the land reform and the emergence/activation of the free market of agricultural land in our country and the establishment of a new type of land relations. This is the stage in which the agricultural holding is established as the main economic unit in the primary branch of the country. During this period, the public relations in agriculture Bulgaria are under the influence of the pre-accession program SAPARD. Bulgaria is the first country of the former countries with a planned economy to receive funding, training programs and direct assistance in preparation for the future application of Union rules. Agriculture is a branch of the Bulgarian economy, which, although significantly supported during the pre-accession period, continued to restructure after EU membership. This process is influenced by the Common Agricultural Policy of the Union (Popov, 2019). The second part of the study period covers the process of Bulgaria's accession to the common European economic area and the implementation of the common agricultural policy after Bulgaria's full membership in the EU-28 in 2007. The chosen method is tested for the Bulgarian condition/environment and the regressions help us graphically present processes and show the change in land use. By using correlational analysis, we aim to discover what this process is like in different regions of the country.

In the present study, these changes/differences are illustrated/reflected with the help of the graphical method, with the application of the chain index, the logical method, partly with the

method of the office study, etc. The methods were selected and tested taking into account the highlighting of changes in time and territory. In the period 2003-2007, the difference in land use in the different regions of the country stands out. The institutional change after the full membership of Bulgaria in the common European economic space "accelerates" the processes in land use.

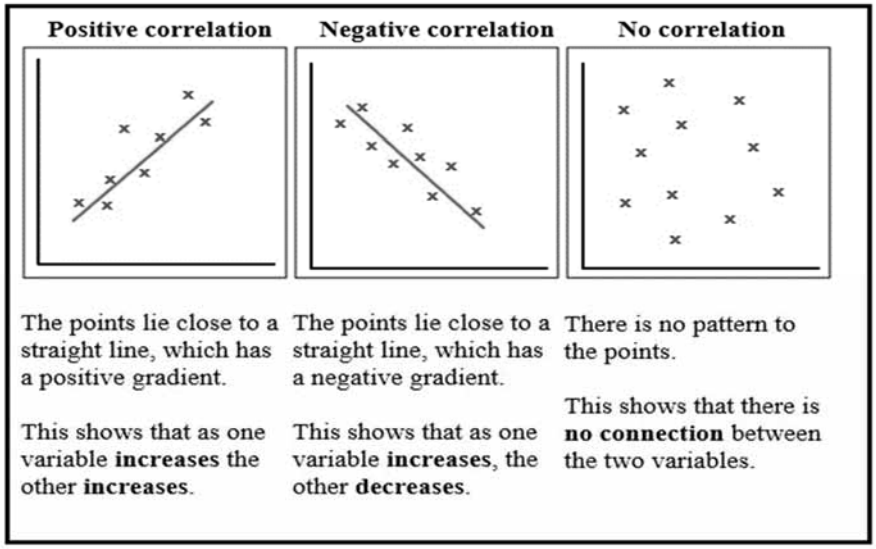
% increase = Increase ÷ Original Number × 100 (1)

If the answer is a negative number, then this is a percentage decrease.

The correlation between the utilised agricultural area, the size of the agricultural holding and the Standard output is calculated by R^2 values, which is the square of the correlation. Correlation shows the strength of a relationship between two variables and is expressed numerically by the correlation coefficient. The correlation coefficient's values range between -1.0 and 1.0. Positive and negative correlation:

Figure 1

Correlation (Positive, negative and no correlation) visualisation.



Source: Made by using Croxton et al. (1968). Applied General Statistics, Pitman.

In a narrower sense, the term correlation is understood as synonymous with a correlation coefficient ρ, which is a measure of the linear relationship between two random variables x, y, defined as the normalised covariance of the two variables:

$$\boldsymbol{p} = \frac{\boldsymbol{cov(x,y)}}{\sqrt{\boldsymbol{Var(x).var(y)}}} \quad (2)$$

The correlation coefficient (r) indicates the extent to which the pairs of numbers for these two variables lie on a straight line. Values over zero indicate a positive correlation, while values under zero indicate a negative correlation. A correlation of -1 indicates a perfect negative correlation, meaning that as one variable goes up, the other goes down. A correlation

of +1 indicates a perfect positive correlation, meaning that as one variable goes up, the other goes up (Dowdy et al. 1983).

There is no rule for determining what size of correlation is considered strong, moderate or weak. The interpretation of the coefficient depends on the topic of study. In the social sciences, it is assumed that the correlation has values of r <-0.6 or 0.6 <r, and R^2 has a value above 0.35 <R^2. Regression analysis models the relationships between a response variable and one or more predictor variables. Use a regression model to understand how changes in the predictor values are associated with changes in the response mean. Regression can be used to make predictions based on the values of the predictors (Frost 2019). R-squared is the percentage of the dependent variable variation that a linear model explains.

$$\mathbf{R^2} = \frac{\boldsymbol{Variance\ explained\ by\ the\ model}}{\boldsymbol{Total\ variance}} \quad (3)$$

$\mathbf{R^2}$ ***- squared is always between 0 and 100%:*** (4)

0% represents a model that does not explain any of the variations in the response variable around its mean. The mean of the dependent variable predicts the dependent variable as well as the regression model.

100% represents a model that explains all of the variations in the response variable around its mean. Usually, the larger the R^2, the better the regression model fits your observations.

3. Analysis of Land Use of Agricultural Holdings

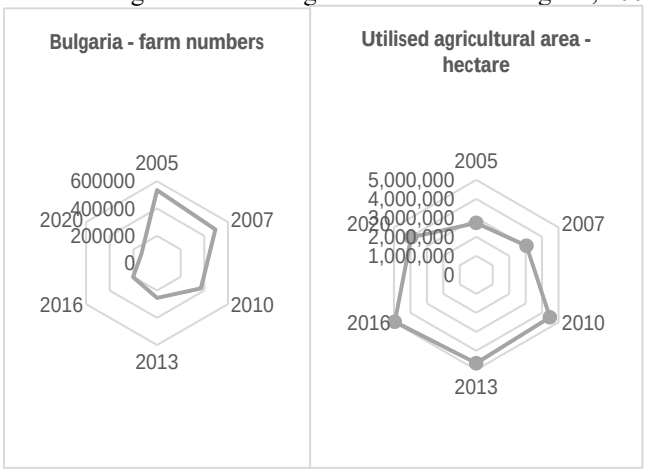
3.1. Dynamics of the used agricultural area and number of agricultural holdings in Bulgaria

After Bulgaria's accession to the EU, the economic units in the agricultural sector are in a state of dynamic development and change. Under the influence of/the pressure of direct payments and the desire to receive subsidies, some farms fail to maintain sustainable economic activity. As a result of the stressful institutional change for them, they cease to function. The process is presented graphically in Figure 2. These are primarily small and medium-sized farms. The large economic units, using all the levers provided by the CAP, continue to consolidate, and the small ones cannot continue their development in the economic situation created after 2007. In the time period from 2005 to 2016, the number of agricultural holdings decreased by almost half. This means that every second farm cannot survive in the midst of an open economy and a dominant free-market economy. In the conditions of the applied rules of the Community agricultural policy (CAP), after 2007, there is a permanent tendency to decrease in the number of agricultural holdings. The data for 2020 is preliminary data from the farm survey and shows that the process that started before the EU accession has continued and more and more farms have a case to exist or have been assimilated by the bigger ones. The processes among the organisational and economic structures are in the direction of reducing the economic units. Steady trends in this direction are registered mainly among small farms. This is just an author's remark. This process makes the landscape of Bulgarian agriculture highly diss balanced and in favour of big industrial farming, which is part of the problems related to climate change, erosion of soils, lost of

biodiversity, intensification of farming and change of crop diversity by transitioning to monocultural one. CAP provided a platform for better competitiveness for the bigger agricultural holdings but, on the other hand, had a very negative effect on smaller farms that couldn't find a place in the new market. Bulgarian laws and institutional norms were also at fault, because higher regulation and certification were required for the small farms than in any other EU country, which made the sale from farmer to the consumer almost impossible. The lack of farmer's markets and dissemination chain further discouraged the small producers. The combination of all the factors we have talked about above resulted in the current state of Bulgarian agriculture.

Figure 2

Agricultural holdings and utilised agricultural area in Bulgaria, 2005-2016

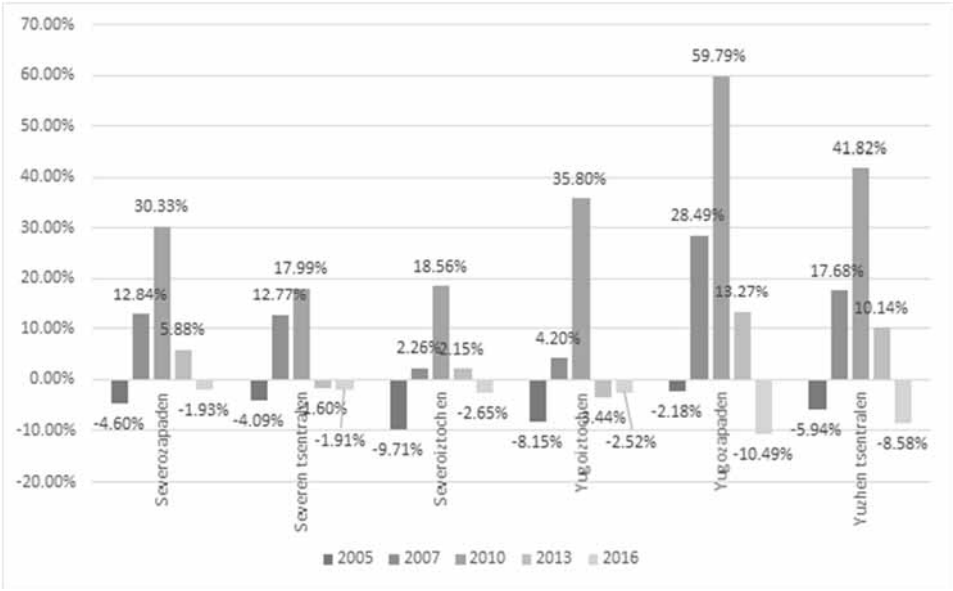


Source: Eurostat.

In the same period, there is a significant change in utilised land in Bulgaria, that doesn't mean that more land is allocated to small and medium farms, the process is exactly the opposite, only the big farms are using the new utilised land. The yearly trend is the same for every region. The biggest change in land use is 2010 when in Yugozapaden region the change is equal to 60% and the least change is 18% in Severen Tsentralen. Land relationships have been unstable because of the fast-paced changes happening in the institutional environment and how the CAP is applied to the Bulgarian environment that still suffers from the changes after the planned agriculture and collective forms before the change of the social model. The process of structural changes in economic units in agriculture is largely a test of the state of the social model of society. It is also directly related to the sustainability of economic structures in agriculture. Given the connection of all these changes and problems with the topic of this research project: "Socio-economic effects of the CAP on the development of agricultural holdings and rural households", a detailed and comprehensive analysis of the links between land use, agricultural holdings, socio-economic conditions and its impact on the status of rural households (Koteva, Chopeva, Yovchevska et al., 2020). In this project, the land use of agricultural holdings has been developed by the research team and based on previous expertise, this article's thesis and research aim was formed.

Figure 3

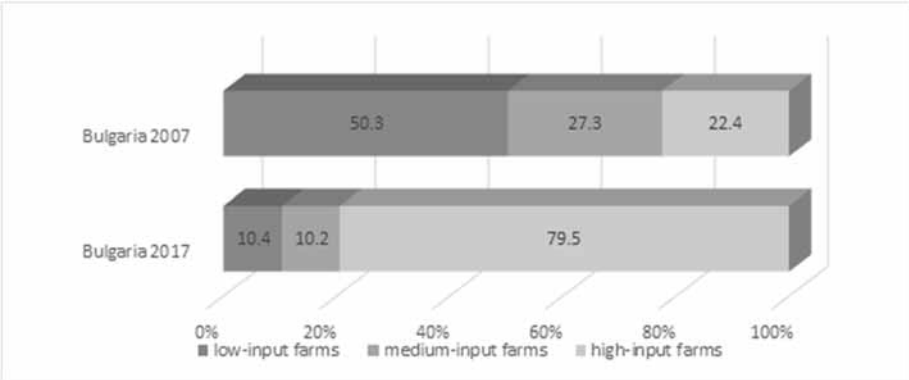
Change in utilised land in regions NUTS2



Source: Eurostat and author's calculation.

Figure 4

Intensification of low, medium and high-input farms in a utilised agricultural area (%)



Source: EU Bioeconomy Monitoring System dashboard.

The change in the intensification of farms has been drastic in the period since 2007. From low-input, the Bulgarian farm turns to a high-input one with no middle ground. The combined percentage of low and medium input farms is only 20%. The changes are dissonance between CAP policy goals, green deal and SDGs goals, and reality. The reality is that CAP, instead of completing its goals, have created and furthered the problems in Bulgarian agriculture.

Table 1

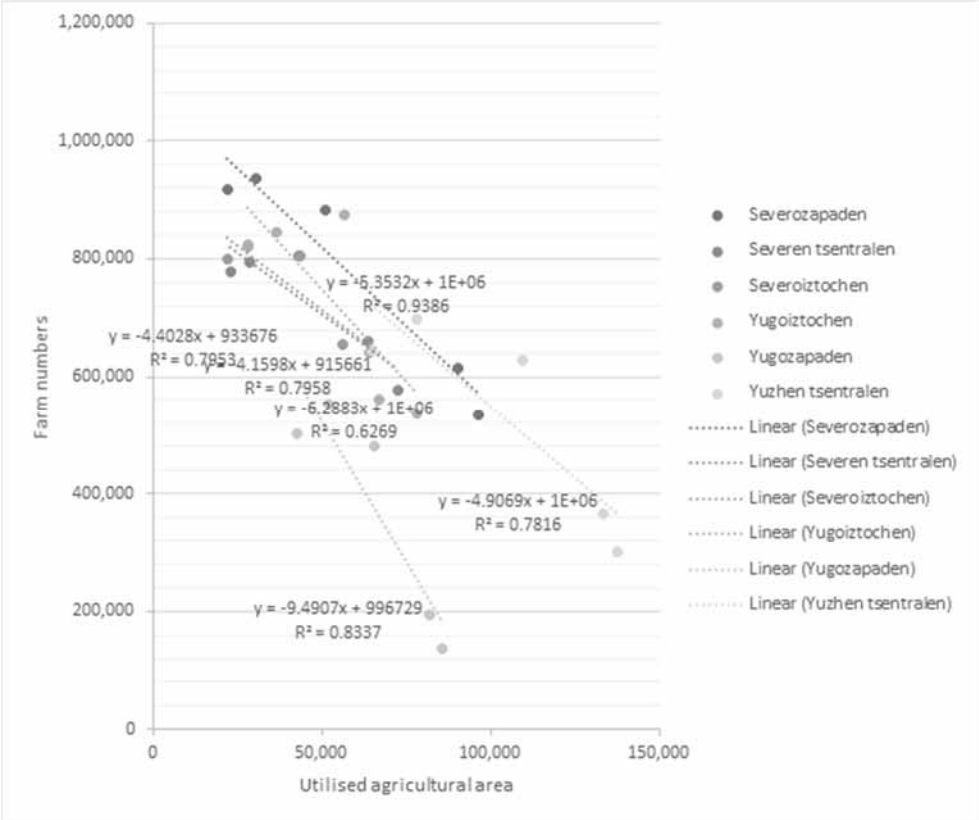
Correlation between Farm number and Utilised agricultural area

Correlation between Farm number and Utilised agricultural area	Correlation
Bulgaria	-0.9105684
Severozapaden	-0.9688181
Severen tsentralen	-0.8920947
Severoiztochen	-0.8918061
Yugoiztochen	-0.7917391
Yugozapaden	-0.9130807
Yuzhen tsentralen	-0.8840905

Source: calculations based on Eurostat data.

Figure 5

Correlation between Farm number and Utilised agricultural area



Source: Agrostatistics and author's calculations.

We find that the correlation between farm numbers and the utilised agricultural area is negative. A negative correlation means that an increase in one variable is associated with a decrease in the other. That shows us that if the farm numbers increase, the utilised agricultural area will decrease and vice versa. The strongest negative correlation is found in the

Severozapaden region, where the correlation is almost 1(-0.968). Here the two processes have a greater impact on one another, on the other hand, the least amount of impact can be found in Yugoizotchen (-0.791) but still with a value that shows a great correlation between the two variables. In Bulgaria, the trend is of transforming the agriculture holding into bigger ones that utilise more land and have a higher standard output. Still, the percentage of small farms with an average size of up to 2.0 ha and an average production volume of up to 2000 EUR remains high in comparison to other member states. That is in line with the land fragmentation after the end of the planed agriculture in Bulgaria.

There is a high positive correlation between Utilised land and Standard output that shows that the sustainability, growth potential and viability in agricultural holdings are dependable on the utilised land (how big is the agricultural holding). As it is shown in Figure 5, the lines represent the linear trend and trajectory of the land use and farm structure. The trend shows us the tendency for bigger farms that utilise more land to have a bigger standard output. This trend is especially true for the Severozapaden and Severen tsentralen region, where the agricultural holdings have steadily turned bigger and utilised more and more land. This is mostly because of the type of culture that is produced in these two regions (wheat). CAP pillar one has turned the region towards monocultures and presents a greater challenge for sustainable agriculture.

Table 2

Correlation between Utilised land and Standard output

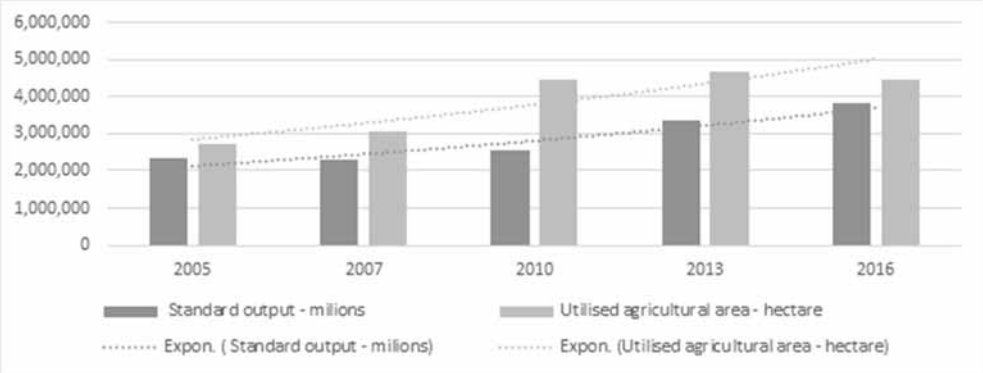
Correlation between Utilised land and Standard output	Correlation
Bulgaria	0.731174447
Severozapaden	0.804325929
Severen tsentralen	0.61883714
Severoiztochen	0.724862453
Yugoiztochen	0.736503002
Yugozapaden	0.51615331
Yuzhen tsentralen	0.700055241

Source: Eurostat and calculation.

The standard output has gradually gotten higher with CAP, having bigger agriculture holdings with free access to the world market and higher productivity from better technology. With Bulgaria's joining the EU in 2007, the national market has become part of the internal market of the Union and Bulgarian producers and traders faced a number of challenges related to the size and structure of farms and agricultural exports. The 2007-2016 period is characterised by dynamic structural changes in farms. Restructuring of agricultural holdings leads to a change in the structure of UAA by groups of farms, depending on their size. There is a positive trend towards increasing the level of specialisation and concentration of production, improving the market orientation of the farms (Sabeva 2020). After its accession to the EU, Bulgaria has established a highly dualistic agricultural structure – 75% of the holdings are very small and generated less than 9% of the standard output. By contrast, only 3% of the farms (the biggest grain producers in the country) accumulated nearly 75% of the standard output. The polarisation and overconcentration in Bulgarian farm structure, which began during the accession period, is increasing significantly after 2007 (Uzunova, 2018).

Figure 6

Standard output and utilised agricultural area

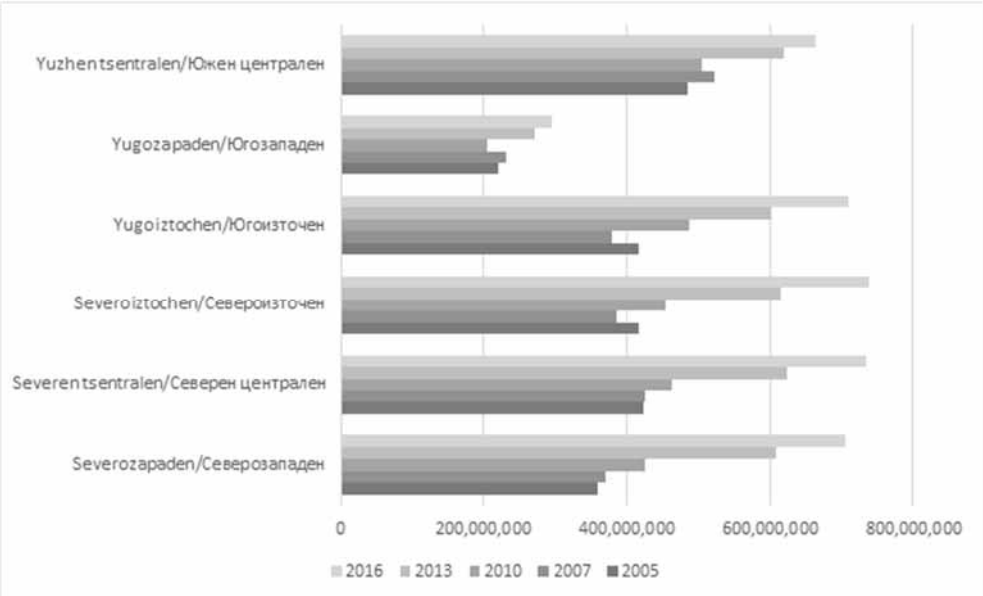


Source: Eurostat.

In different regions of Bulgaria, the standard output is getting higher in the period. The smallest change is in Yugozapaden region and the biggest is in Severen tsentralen and Severozapaden. This is mostly based on the effect of the CAP policy and moving towards grain production in these regions. In the long run, we as researchers think that will have a negative effect on soil quality, bio-diversity and will lead to the extension of small farms in Bulgaria.

Figure 7

Standart output by NUTS 2 regions

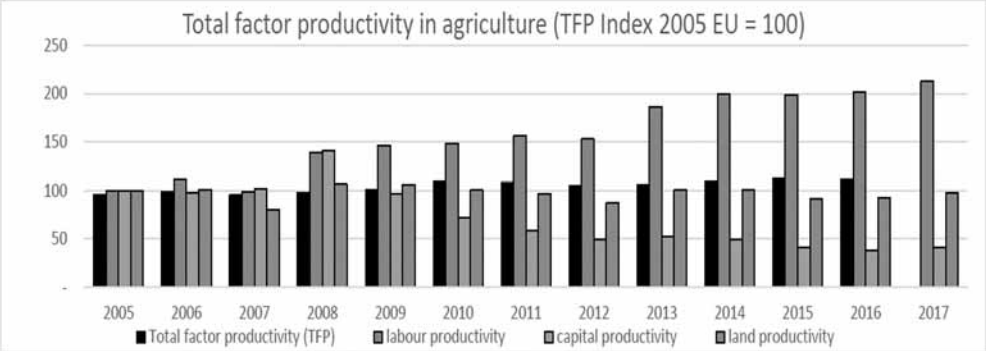


Source: MAF, department of Agrostatistics.

The total factor productivity (TFP) is increasing in Bulgaria, mainly due to an increase in labour productivity which is mainly linked to the outflow of labour (-62% between 2005 and 2017). The capital productivity presents the returns on investments. Land productivity reflects the developments in yields and rents and remains stable over the time period. The peak in 2008 is linked to crop output (Figure 8). The opinion of the authors of this research is that there should be a change in CAP in Bulgaria. CAP should be linked to soil types and the production of suitable crops for the soil. This will optimise yields and create harmonious with nature agriculture that can keep a multi-crop production. This will also help with intensification and balance the negative effects on nature.

Figure 8

Total factor productivity in agriculture

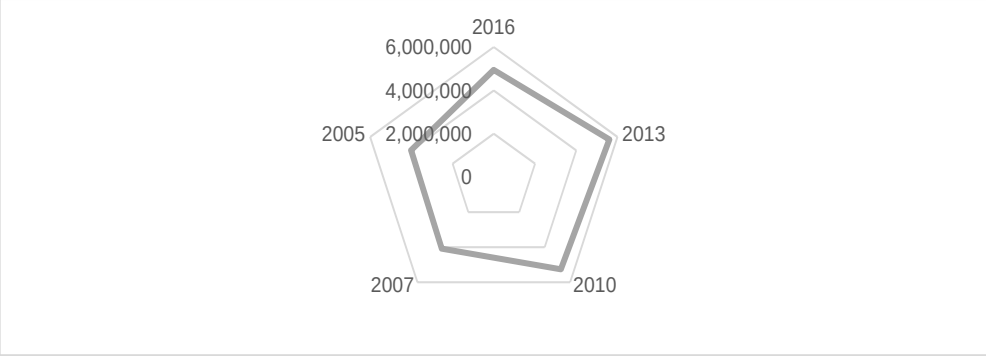


Source: Nine objectives for a future Common Agricultural Policy.

The EU policy integration reflects and new monetary flow in the country (Hubenova, 2019), making the change in the national agricultural environment move faster than the normal trend. This is shown in Figure 8, where the period since EU accession has a greater change and land productivity is the only constant that doesn't change from the new monetary flow that is to support the sector in Bulgaria.

Figure 9

Utilised agricultural area without special areas for agricultural production

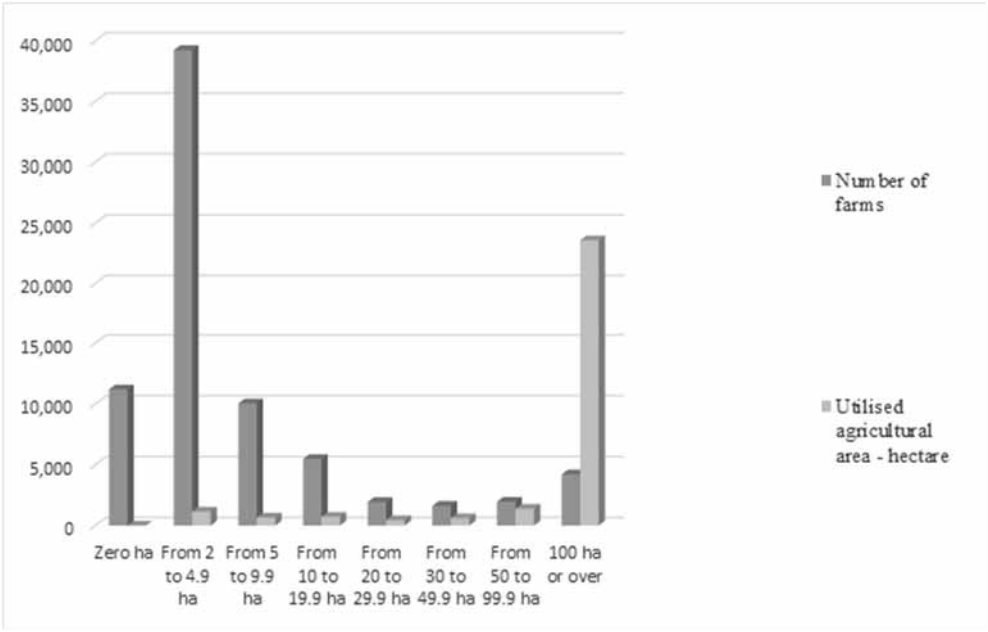


Source: Eurostat.

In the period after 2007, the used agricultural area without special areas for agricultural production registered a tendency to increase (Figure 9), despite a decrease in the number of agricultural holdings. This process of consolidation of agricultural holdings, expansion of the possibilities of the large/large economic structures in the branch and lasting tendencies of the loss of market share on the part of the small and medium economic units in the Bulgarian agriculture is confirmed by the empirical data of Figure 11 and Figure 12. The graphical presentation of the processes in land use reveals a kind of dichotomy between the number of agricultural holdings and the used agricultural area in Bulgarian agriculture.

Figure 10

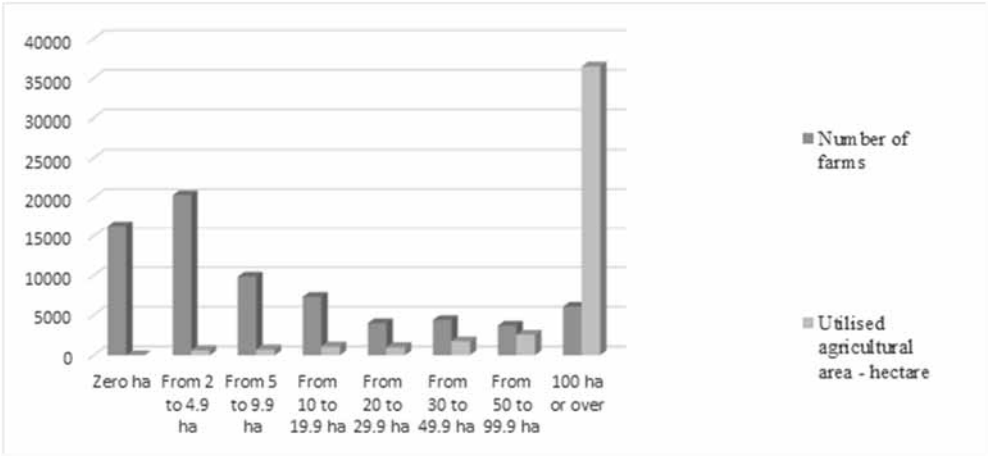
Agricultural holdings and utilised agricultural area in Bulgaria, 2007 (100 ha)



Source: Eurostat.

Many farms have a modest share in land use in our country. These are vulnerable economic units whose existence is caused by social rather than market motives. In the free environment of a market economy, they cannot survive. After a ten-year period, their number halves (Figure 10). Along with the decrease in the number of farms, this means that the average farm size increases, which is an indicator of progress in the process of land consolidation (Sabeva, 2020). Family farms are of great economic and social importance. In sync with the agricultural cooperatives, they maintain the traditions, customs, history, authentic folklore and are a symbol of the Bulgarian language in the rural areas. They ensure the employment and cohesion of rural households (Tsvyatkova, 2020).

Figure 11
Agricultural holdings and utilised agricultural area in Bulgaria, 2016 (100 ha)



Source: Eurostat.

In the period 2007-2016, farms cultivating from 2 to 4.9 hectares halved. The number of farms with more than 100 hectares almost doubled in number (Figure 10 and Figure 11). The utilised agricultural area of 2,358,23 hectares in 2007 increased to 3,648,460 ha, in 2016, which constitutes ¾ of the total utilised agricultural area of agricultural holdings (4,468,500 ha). The large agricultural production units, which in 2016 were only 6,060 out of a total of 202,720 agricultural holdings, have a dominant monopoly on the utilised agricultural land. Small and medium-sized farms are declining in number, a trend we have already commented on. The ongoing consolidation of farms has a positive tendency to reduce the number of farms up to 1 hectare, which are not eligible for SAPS payments (Koteva, 2019). CAP policy greatly contributes to the consolidation of Bulgarian agricultural holdings. The process of consolidation of large economic structures potentially exacerbates the problems facing medium and small farms.

The trend in our country is not in dissonance with the processes in a number of other member states of the Union, incl., and in some countries of the former planned economies. The number of agricultural holdings in the EU is declining rapidly. The area of agricultural land used for production remains stable. In Bulgaria, these processes are much more intense. The consolidation and enlargement of large agricultural holdings are accelerating as a result of support from Community agricultural funds. The low share of supported small farms by all potential beneficiaries, as well as the relatively low share of support, significantly affects the processes of restructuring production structures in agriculture and leads to a drastic reduction in the number of small and medium farms in Bulgaria.

Conclusion:

For the period researched, we find that number of small farms has decreased and the number of big ones has increased. The utilised land has also increased, which means that big farms

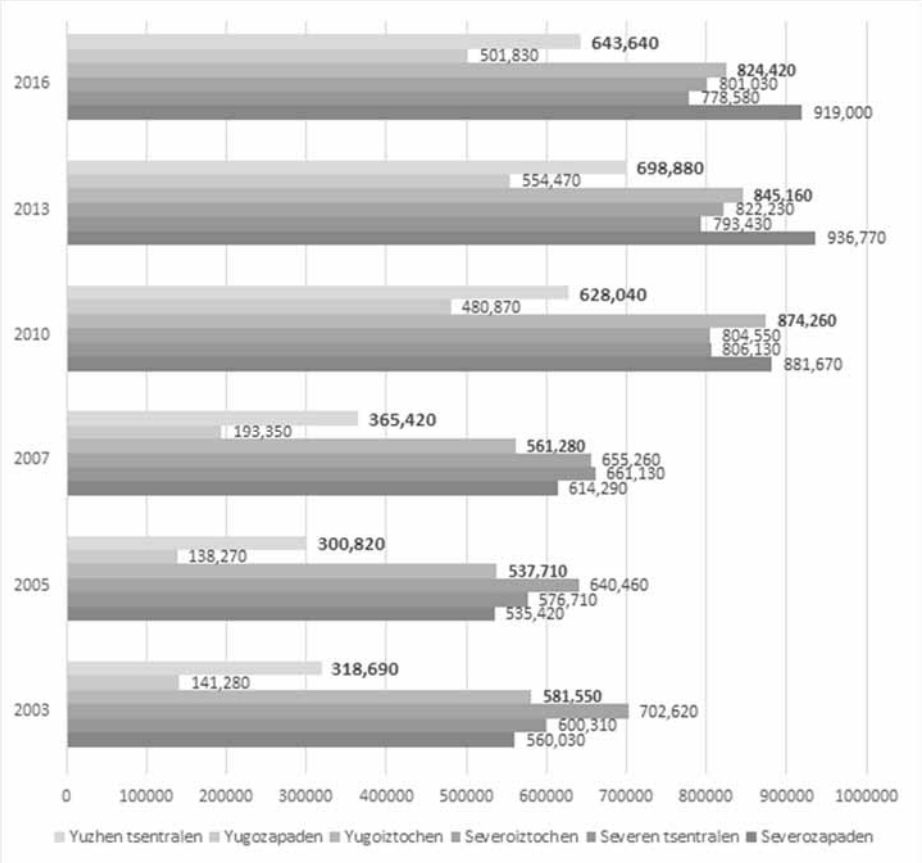
are turning bigger, and the process makes the viability of small and medium-sized farms lower. The small and medium farms need a policy shift in CAP to interfere with the current processes in land use and structure of agriculture holdings.

3.2. Land use in the different regions of Bulgaria NUTS 2

The processes of land use in the different regions of Bulgaria have their historical, natural-climatic, socio-cultural and economic specifics. These differences are reflected in Figure 12 using the graphical method. In the period 2003-2007, the difference in land use in the different regions of the country stands out. The institutional change after the full membership of Bulgaria in the common European economic space "accelerates" land use. In regions with small-scale production, such as the Southwest, the utilised agricultural area increased three times in the period 2010-2016 compared to the period 2003-2016 (Figure 12). In Bulgaria, the trend has different tendencies in different regions of the country.

Figure 12

Used agricultural area by agricultural holdings in the region of Bulgaria, 2003-2016



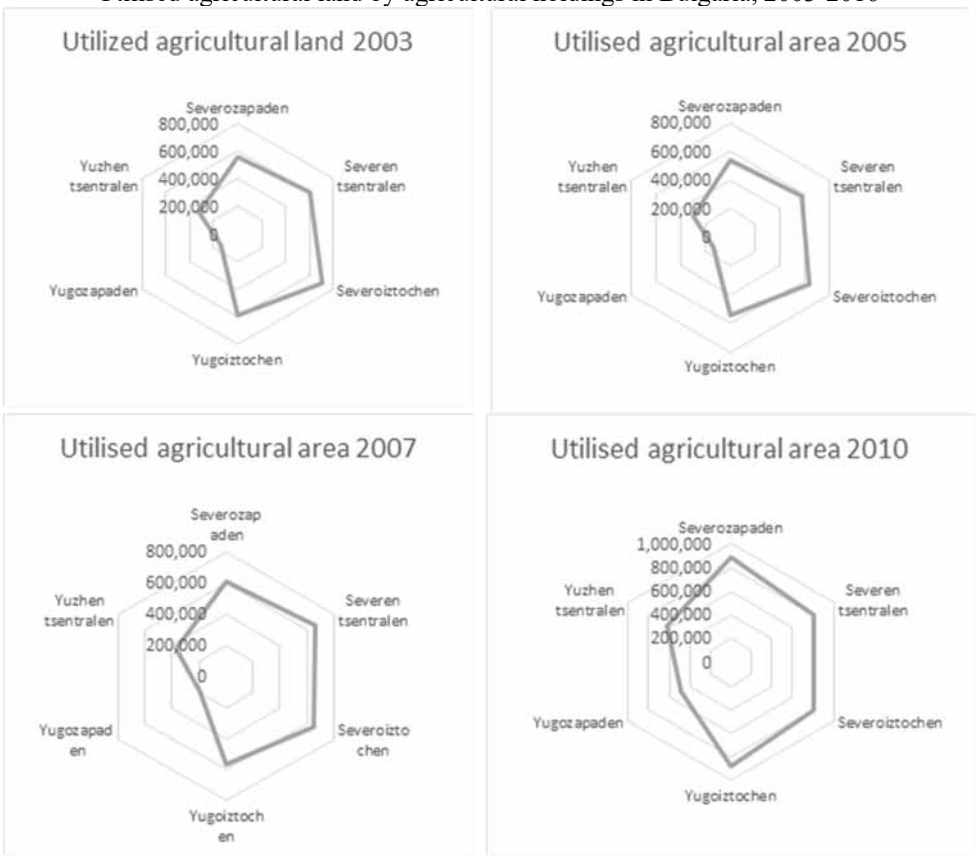
Source: Eurostat.

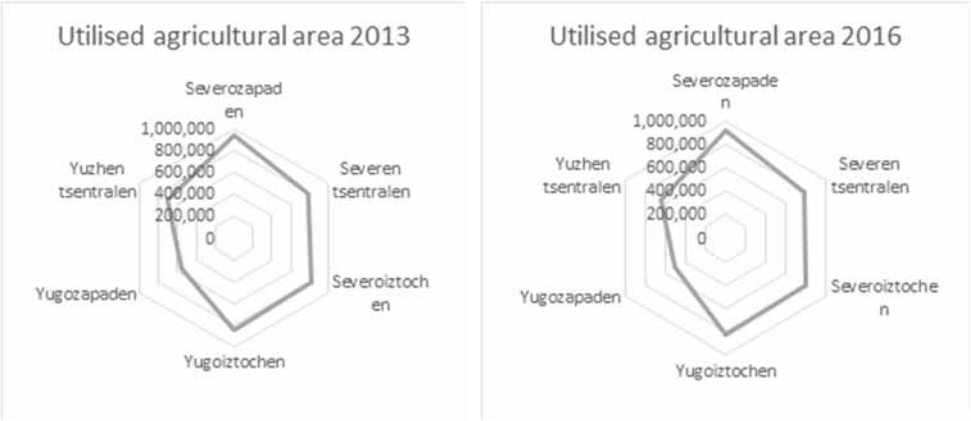
In the period after 2007, the utilised agricultural area of agricultural holdings increased. The increases are proportional to all NUTS2 regions in the country. In the South-West region, where in 2003 and 2007 the used agricultural land was the least in comparison with the other regions, the largest increase was registered. Most UAAs from agricultural holdings were reported in the North-West region. In the period 2005-2016, the utilised agricultural area of small agricultural holdings decreased by about a quarter (25%). The increase in the utilised agricultural area in all areas is a consequence of the consolidation process. The connection with the establishment of larger agricultural holdings is directly proportional to the registered process of consolidation of land resources in our country.

In the period 2003-2007, the difference in land use in the different regions of the country stands out. The institutional change after the full membership of Bulgaria in the common European economic space "accelerates" land use. In regions with small-scale production, such as the Southwest, the utilised agricultural area increased three times in the period 2010-2016 compared to the period 2003-2007 (Figure 13).

Figure 13

Utilised agricultural land by agricultural holdings in Bulgaria, 2003-2016





Source: Eurostat.

In the period after 2007, the agricultural land used by agricultural holdings increased under the influence of the combined impact of the new institutional change after full European membership and the improved economic situation, as a result of financial support for farmers' incomes from pan-European budgets. The increases are proportional to all NUTS2 regions in the country. In the South-West region, where in 2003-2007 the utilised agricultural area was the lowest compared to other regions, the largest increase was registered. Most UAAs from agricultural holdings were reported in the North-West region. In the period 2005-2016, the utilised agricultural area of small agricultural holdings decreased by about a quarter (25%). The increase in the utilised agricultural area in all regions is a consequence of the process of consolidation of the agricultural parcels cultivated by the agricultural holdings (Figure 13). The connection with the creation of larger economic units is directly proportional to the registered process of consolidation of the land resource, processed by agricultural holdings in Bulgarian agriculture (Figure 13).

A process of increasing the size of UAA is registered in all regions of the country, with an accelerated growth rate after the country's accession to the EU-28. This is due both to the opportunities for the realisation of the production in the European market of 500 million inhabitants and to the incentives to receive subsidies from the funds for the implementation of the CAP and the maintenance of rural areas in the individual Member States. This is a complex process of implementing changes in European policy, transposing pan-European legislation, and implementing it in EU countries. The dependence on the cyclical nature of the process, inevitable in the introduction of each subsequent budget and programming period, introduces a certain lag in the implementation of the changed policies and results in a certain "delay/delay" of the ongoing changes and processes in land use. This is more clearly reflected in all regions of NUTS-2 level in our country and is a kind of litmus test for the development of land relations in Bulgarian agriculture (Figure 14). Given the high degree of maturity of public relations in Bulgarian agriculture, changes in land use as a result of the implementation of the new budget and programming periods would be insignificant, even within the stochastic error.

Figure 14

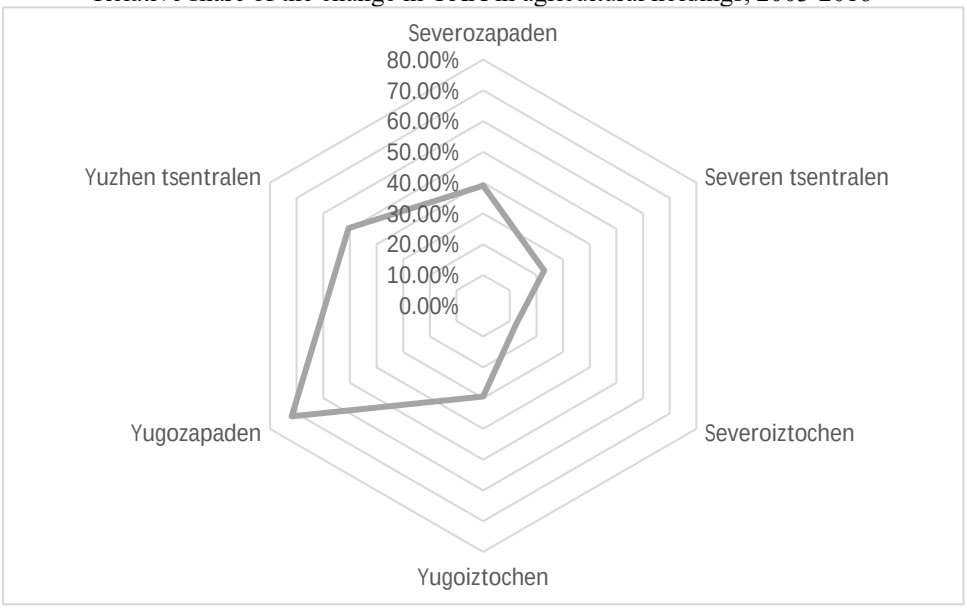
Changes in UAA in AH in the regions of Bulgaria during the period 2003-2016

Source: Eurostat.

Changes in land use in our country frame a positive change in UAA in all NUTS-2 in our country. We owe special attention to the processes taking place in the Southwest region. In the area characterised by small-scale production, in the period 2003-2016, the growth of land use in the land increased by 70% and is a sign of favourable development of agriculture and rural areas in this part of the country. Indirectly, the process is indicative of the opportunities for diversification of agricultural production, for preservation and conservation of valuable biotopes and breeding of indigenous varieties of plants and breeds of animals.

Figure 15

Relative share of the change in UAA in agricultural holdings, 2003-2016



Source: Eurostat.

The registered changes are a favourable indicator for the successful implementation of elements of the EU Green Deal and the Bioeconomy Strategy as part of the transition to a circular economy and a gentle attitude towards the soil, water, flora and fauna given the reduction of the negative impact of the human footprint on the natural environment.

The chain index, taking into account the change in UAA of agricultural holdings in Bulgaria in the period 2003-2016 highlights the positive impact of the Community agricultural policy on UAA in agricultural holdings in all regions of the country. The most "favoured" is the Southwest region. The data on the percentage change on a chain basis also register a problem that we have already commented on. During the transition to the next budget and programming period, there are signs of holding back the process of increasing UAA in the agricultural holdings.

Table 3

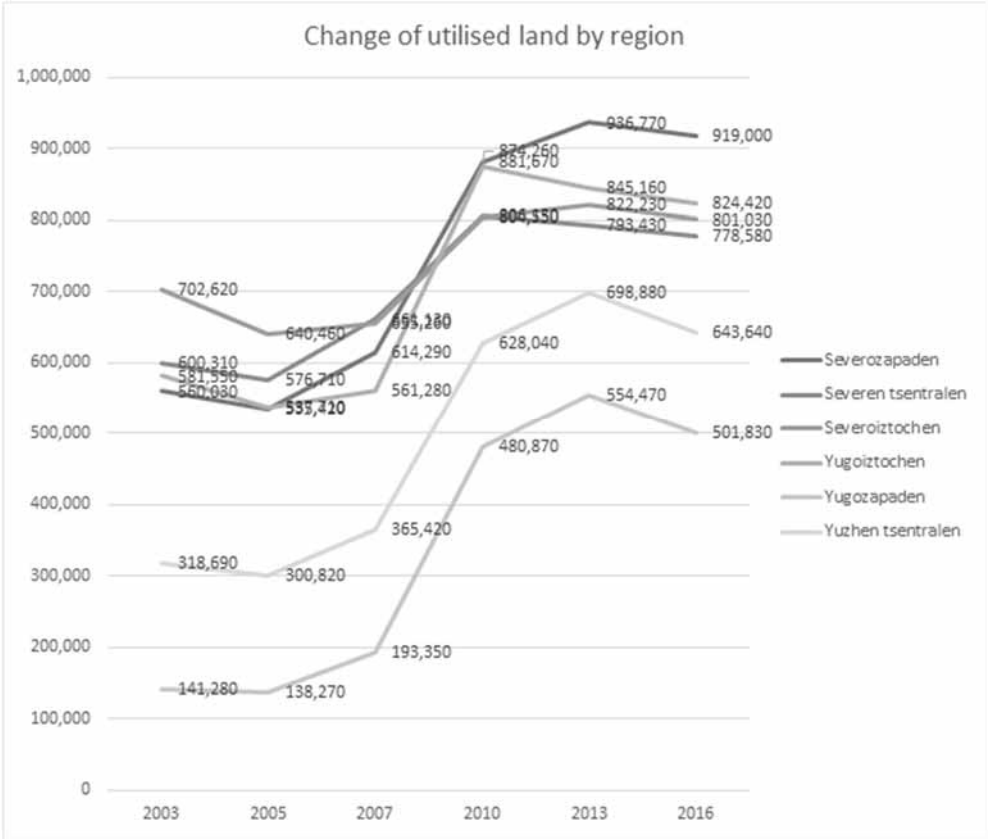
Chain index of the change in UAA by agricultural holdings in Bulgaria in the period 2003-2016

Change on chain base (%)	2005	2007	2010	2013	2016
Severozapaden	-4.60%	12.84%	30.33%	5.88%	-1.93%
Severen tsentralen	-4.09%	12.77%	17.99%	-1.60%	-1.91%
Severoiztochen	-9.71%	2.26%	18.56%	2.15%	-2.65%
Yugoiztochen	-8.15%	4.20%	35.80%	-3.44%	-2.52%
Yugozapaden	-2.18%	28.49%	59.79%	13.27%	-10.49%
Yuzhen tsentralen	-5.94%	17.68%	41.82%	10.14%	-8.58%

Source: National Statistic Institute.

Figure 16

Amendment to the UAA by the agricultural holdings in the regions of Bulgaria 2003-2016



Source: Eurostat.

This process is also registered with the help of the graphic method and is visualised in Figure 16. Evidence of the process of transition between programming periods in the implementation of the CAP is the reduction of UAA by the PA in the period after 2013. The

change is a kind of uncertainty and economic entities shrink agricultural land, awaiting new financial incentives. This is accompanied by a kind of "pulsation" in land use, which is registered in all regions of the country (Figure 16). The reasons for these changes are inherited from the way of agrarian and land reform in Bulgaria and testify to complex social processes with strong reverse influence. The immaturity of land relations and land use, as an essential part of them, also affects the agricultural structures in our agriculture. European family farms and farms are competitive and sustainable, but they are the product of a different type of social relationship established over the centuries of reconciling economic conditions and policy decisions taken and changed as a result of and after sound economic assessments.

Conclusion:

In different regions in Bulgaria, there are different problems involving land use. The specifics of the regions and the production that is cultivated is the main reason for land use change in the regions. In the regions, where the main crop is heavily subsidised by CAP, the utilised land increase. The process is true for all the regions, but the increase is disproportional.

4. Conclusions and Recommendation

Bulgarian land relationships are still in the midst of dynamic changes. In the future, with no intervention regarding policy and laws, the structural changes will continue and the trend of intensification and consolidation toward bigger agricultural holdings will be kept. As we have mentioned, these changes, when not made with sustainability and a better future that protect both farmers' interest and land, will have a long-lasting negative impact.

Recommendations for change in the practices of CAP policy in Bulgaria are made so that any negative impact can be negated in the future. There should be more national support that can help the small and medium agricultural holdings and negate the intensification and unsustainable model that the CAP resulted in. A more harmonious with nature approach should be found before bad practices settle in. Small and medium farms should be presented with better markets and better opportunities so that they do not face extinction.

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