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TENDENCIES AND CHANGES IN THE REGIONAL STRUCTURE OF WINE GRAPES AND WINE PRODUCTION IN BULGARIA

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Abstract

The article presented the results of a study carried out of the tendencies and changes in the regional aspect of the production of grapes and wine in Bulgaria in the years after the accession to the EU. The dynamics in absolute and relative values of the indicators gross output of grapes, area of harvested vineyards with wine grape varieties, average yields, production of wine grapes and wine by statistical regions was examined. The characteristic of the changes that occurred in the regional plan during the period 2007-2020 was based on the values of the coefficient of structural changes. The levels of the indicator were higher during the first period of application of the CAP in the country (2007-2013), which was mainly due to the contraction of production in the northern regions. In the second period (2014-2020), the impact of financial mechanisms slowed down the negative trends, but they have not been overcoming. Grape and wine production is mainly concentrated in the Southeast and South Central regions. During the next program period, it is necessary to expand and target the set of measures and mechanisms applicable within the Common Agricultural Policy to achieve synergy between economic, social and environmental results in a regional plan.

Key words**:** *grape, wine, production, regions, gross output*

INTRODUCTION

Traditions of grape and wine production in Bulgaria have existed for centuries. However, the dynamics of the viticulture sector outlines both years of growth and years of severe crises, depending on the trends in the economic development of our country [1, 6, 12]. EU membership defines a new role for viticulture and wine sector in the context of the objectives of the Common Agricultural Policy for viable food production, sustainable management of natural resources and climate action and balanced territorial development. The imbalances in the regional economic development of our country are a widely discussed problem that requires urgent solutions. Viticulture, as a labor-intensive production activity, has the potential to create employment [2, 3, 10]. The number of permanently employed persons in the sector as of 2016 was 23,223, and of seasonal workers, who were employed mainly during the grape harvest – 450,232 [11]. The number of persons employed in wine-producing enterprises in the same year was 3 398 [11]. In some regions and small municipalities, viticulture and winemaking are among the main sectors driving the regional economy, creating prerequisites for the development of related industries, such as trade and tourism [17]. The combination of traditional, local wines and specialties provides additional benefits and experiences for tourists [18]. Besides being an opportunity for family business, the development of wine grape and wine production ensures positive effects in social and economic terms, contributing to the preservation of traditions, the diversity of genetic resources and the specificity of the viticultural landscape for future generations [5, 7].

The aim of the study was to outline the tendencies and changes in the regional structure of the production of wine grapes and wine in Bulgaria during the period after joining the EU.

MATERIALS AND METHODS

The object of the analytical activity was the state and development of the production of wine grapes and wine by statistical regions, NUTS 2 level of the European Classification

of Territorial Units – Northwest, North Central, Northeast, Southeast, South Central and Southwest. The changes in the absolute and relative values of the indicators gross output of grapes (million BGN), area of harvested vineyards with wine grape varieties (ha), production of wine grapes (tons), production of wine (hectoliters) were analyzed.

The study period was 2007-2020, after the accession of Bulgaria to the EU. Sources of primary data were Eurostat, the Ministry of Agriculture, Food and Forestry (MAFF), the Agrostatistics department and the National Statistical Institute (NSI).

The deviations of the values of the investigated indicators (areas, quantity of production, average yields, gross output) by statistical regions and by years around their average values for 2007-2020 period were established by means of the coefficient of variation, using the following formula [4, 16]:

$$CV(\%) = \frac{SD}{\bar{Y}} * 100 = \frac{\sqrt{\frac{\sum_{i=1}^{n}(Y-\bar{Y})^2}{n}}}{\bar{Y}} * 100 \text{.....(1)}$$

where:

SD – standard deviation,

$\bar{Y}$- average value of the concrete indicator for the studied period.

In order to evaluate the structural changes in the areas of the harvested vineyards with wine grape varieties and in the production of wine grapes and wine by statistical regions during the period after our country's accession to the EU, a summarizing measure - integral coefficient of structural changes was used. It was calculated according to the formula [9, 19, 20]:

$$K_s = \sqrt{\frac{\sum(v_1-v_0)^2}{\sum v_0^2+\sum v_1^2}}, \text{ .....(2)}$$

where:

v_0 – relative shares of the structural elements during the base period;

v_1 – relative shares of the structural elements during the current period.

In order to track the dynamics of structural changes year by year, the coefficient was calculated on a chain base method. The value of the indicator varies between 0 and 1. The scale of interpretation is shown in Table 1 [9, 21]:

Table 1. A scale for interpreting the coefficient of structural changes

Coefficient value	An economic interpretation
0.00	No structural changes have occurred
From 0.01 to 0.05	Very weak structural changes
From 0.06 to 0.10	Weak structural changes
From 0.11 to 0.20	Moderate structural changes
From 0.21 to 0.40	Significant structural changes
From 0.41 to 0.60	Strong structural changes
From 0.61 to 0.99	Very strong, intensive structural changes
1.00	Total, diametrically opposite changes

Source: Gospodinova (2021), Todorov (2010) [9, 21]

Statistical data processing was performed using MS Excel. The methods of comparative analysis, structural analysis and descriptive statistics were applied [4, 16, 19, 22].

RESULTS AND DISCUSSIONS

The gross output of grapes, created at the national level, decreased from 158.24 million BGN on average for the period 2007-2013 to 115 million BGN on average for 2014-2019 (-27.3%). This was a result of the contraction of production activity in all statistical regions. The dynamics of the relative shares of the gross output, created by statistical regions, in the total amount of the indicator for the country, manifested during the years of EU membership, were demonstrated in Figure 1.

The declining percentage participation of the northern regions in the value of the national production of grapes was clearly highlighted. The reduction of the relative shares of the Northwest and North Central regions was very serious. During the first four years of the studied period, the gross output from the Northwest region had a weight between 12.0% and 19.5% in the total value of the indicator. Critically low levels were recorded in 2011 and 2012, after which the region's percentage participation in national gross output of grapes increased, but remained below the levels established at the beginning

of the period, varied between 6.2% and 7.2%. An exception was observed only in 2019 (4.9%), when the gross output decreased sharply as a result of both the smaller quantity of grapes produced and the strong decrease in the purchase prices of wine grapes. The official data of the National Statistical Institute showed that the average price per producer decreased to 0.55 BGN/kg, which have been the lowest level recorded since 2015.

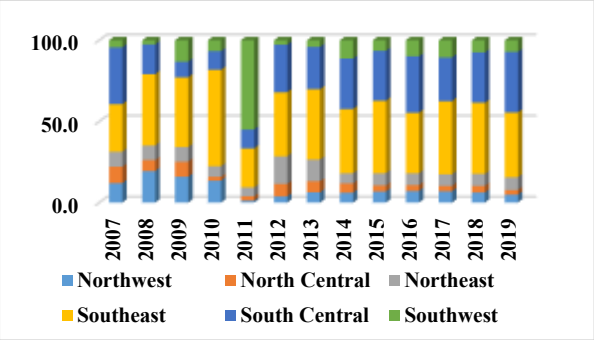

Fig. 1. Relative shares of the gross production of grapes by statistical regions in the total value of the indicator for the country, %
Source: Own calculation on the basis of data from Eurostat and NSI [8, 15].

The situation was similar in the North Central region, with its share in the total value of gross output decreased from 10.1% in 2007 and 9.2% in 2009 to between 3.4% and 4.2% during the period 2015-2018. The reduction in the Northeast region was not so drastic. At the beginning of the period, the relative share of the gross output, created in the region, was between 9.0% and 9.3% of the total value of the indicator, with its level decreased to 7.2-7.9% during the 2015-2019 period.
The dynamics of development of the indicator values in the southern regions of the country was slightly different. The contraction of gross output in the Southeast region was taking place at a slower pace than in the northern parts of the country. The share of the value of grapes production of the region in the total value of the gross output varied between 39.6% and 45% during the period 2014-2019. A similar situation was in the South Central region, whose percentage participation in the gross output during the second program period of CAP application even increased to 31.1-37.4%. This was the result not so much of the rising in the value of the indicator, realized at the regional level, as of the drastic reduction of the share of the northern regions.
The strong annual variation of the gross output of grapes in the Southwest region, dued to both fluctuations in production volume and price changes, affected on the volatility of the weights of the region in the total value of the indicator by year.
The values of the coefficient of variation showed significant deviations of the annual amounts of the gross output of grapes from all statistical regions compared to the average during the period 2007-2019 (Table 2).
The smallest, but still significant, were the deviations found in the Southeast region with a coefficient of variation of 31.80%. In all other regions, the impact of production and market risk on the dynamics of production value was much more tangible, especially in the Northwest (88.0%) and North Central regions (80.16%).

Table 2. Analysis of the variation of the gross output of grapes by statistical regions during 2007-2019

Statistical regions	Indicators						
	n	R	Min	Max	Mean	SD	CV (%)
Northwest	13	36.35	1.42	37.77	12.90	11.36	88.00
North Central	13	22.09	2.31	24.40	8.14	6.53	80.16
Northeast	13	18.35	4.78	23.13	12.36	6.26	50.60
Souteast	13	55.66	29.78	85.44	55.65	17.69	31.80
South Central	13	73.34	11.30	84.64	35.04	18.40	52.54
Southwest	13	66.60	3.67	70.27	14.17	17.64	124.46

Source: Own calculation on the basis of data from Eurostat and NSI [8, 15].

The values of the integral coefficient of structural changes, characterizing the amendments of the shares of the gross output of grapes by statistical regions, showed a high degree of intensity of the changes during the first period of CAP application in our country - 2007-2013 (Figure 2). Moderate to significant structural changes were observed in the first three years. The index reached levels between 0.70 and 0.72 in 2011 and 2012 respectively, which indicated the presence of very strong, intensive structural changes. The outline trend was due to the substantial variation, both in the quantity of grapes production by region, and to

fluctuations in producer prices. After 2013, structural changes were not so dynamic. Integral coefficient values ranged from 0.07 to 0.16, indicating weak to moderate structural changes. They were the result mainly from the greater degree of variation in the relative shares of Southeast, Northwest and Southwest regions in the total gross output of grapes.

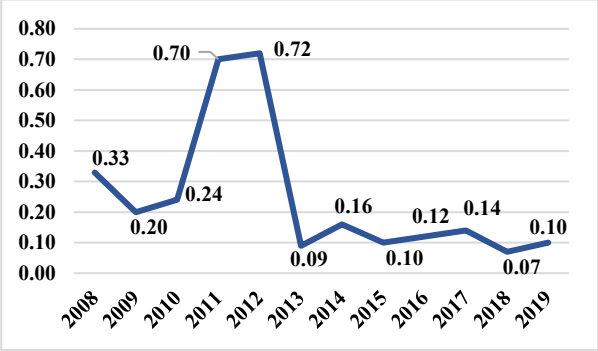

Fig. 2. Dynamics of the integral coefficient of structural changes in the gross output of grapes by statistical regions during the period 2008-2019.
Source: Own calculation on the basis of data from Eurostat and NSI [8, 15].

The total area of vineyards with wine grape varieties in the country was 56,669 ha on average for the period 2007-2013, and decreased to 31,039 ha average during the next program period of application of the CAP 2014-2020. The negative trend regarding the development of the area of vineyards for the production of wine grapes was registered in all statistical regions. The reduction for the two compared periods was the most significant in the North Central region - by 63.3%, followed by the Northeast and South Central regions, respectively by 49.2% and 48.8%. The decrease in the area of harvested vineyards with wine grape varieties was the weakest in the Southwest region - by 11.6%. This region traditionally occupies the smallest relative share of the area under vines in the country, in result of the strong reduction in the other regions, its share increased from 5.4% on average for 2007-2013 to 8.7% on average for 2014- 2020.
The area with vineyards for wine grapes production in the Northwest region decreased at a slightly slower pace than the average for the country. The established reduction in relation to the average values for the two compared periods was by 44.7%.

Figure 3 presents the relative shares of the area of harvested vineyards with wine grape varieties by statistical regions in the total area of harvested vineyards in the country during the period 2007-2020. The concentration of production potential of the wine sector in two main regions - Southeast and South Central, which both occupied 19,026 ha or 71.6% of the total area in 2020, was clearly visible. In terms of dynamics, the two regions almost maintain their positions in all the years covered by the study. Some reduction observed in the South Central region, compared to 2007 and 2008, when the areas under vineyards in the region represented respectively 39.9% and 39.8% of the total area.

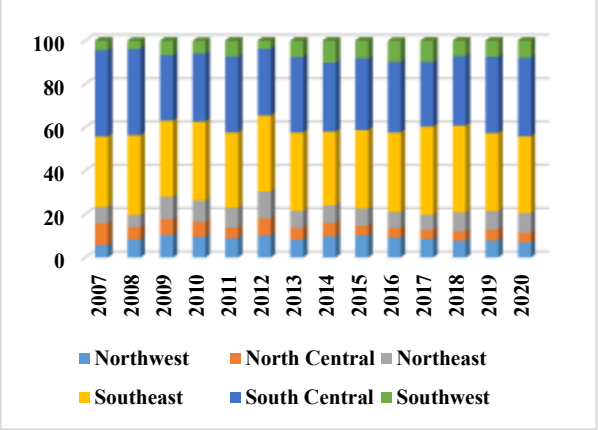

Fig. 3. Structure of the area with harvested vinieyards with wine grape varieties by statistical regions during the period 2007-2020, %
Source: Own calculation on the basis of data from the MAFF [13].

The share of the harvested vineyards, located in the North Central region, shrank the most, because of the rate of decrease of the area for the studied period was the strongest. Observed changes were to some extent due to the new distribution of the administrative districts in the six statistical regions carried out in 2008.
The values of the coefficient of variation calculated for the annual size of the harvested area under vineyards with wine grape varieties in a regional plan showed significant deviations in almost all statistical regions except the Southwest region (Table 3).

Table 3. Analysis of the variation of harvested areas with wine grape varieties by statistical regions during the period 2007-2020

Statistical regions	Indicators						
	n	R	Min	Max	Mean	SD	CV (%)
Northwest	14	4664	1,855	6,519	3,786	1,407	37.16
North Central	14	5929	1,182	7,111	2,725	1,736	63.71
Northeast	14	5000	2,233	7,233	3,732	1,500	40.19
Souteast	14	19510	9,403	28,913	15,679	5,521	35.21
South Central	14	21952	9,425	31,377	15,061	6,895	45.78
Southwest	14	1535	2,089	3,624	2,886	544	18.85

Source: Own calculation on the basis of data from the MAFF [13].

The most serious fuctuations were in the size of the areas in the North Central region with a value of the indicator of 63.71%. This can be explained by the influence of climatic factors, the unfavorable manifestation of which in individual years compromised the quantity of vintage, respectively limited the size of the areas from which grapes were harvested.

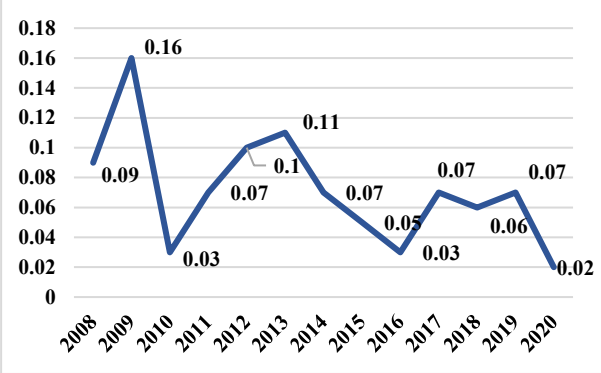

Fig. 4. Dynamics of the integral coefficient of structural changes of the areas with wine grape varieties by statistical regions during the period 2008-2020.
Source: Own calculation on the basis of data from the MAFF [13].

The values of the integral coefficient during the period 2008-2020 ranged from 0.02, which indicated very weak, negligible structural changes, to 0.16 - moderate structural changes in the harvested areas with wine grape varieties (Figure 4). The fluctuations by region were more significant in the years from 2007 to 2013, which determined the relatively higher levels of the indicator, especially in 2009 and 2013.

In the following seven years, the variation, both in the absolute size of the harvested vineyards by region, and of their weights in the total area were weaker, which led to lower values of the indicator - between 0.02 and 0.07 (weak structural changes).

The level of the average yields of wine grapes, calculated on average for the country, showed a slight growth of 15.5% in 2014-2020 period compared to 2007-2013 from 4,948 kg/ha to 5,714 kg/ha (Table 4).

The increase was due to the impact of a complex of factors. Probably, the impact of the abandonment of a significant part of the areas under vineyards with an expired depreciation period and in poor agrotechnical condition was stronger than the improved technological level in some farms.

This was evidenced by the quantity of productivity per unit area - 5,714 kg/kg on average for 2014-2020, which was significantly lower in accordance with the biological potential of the wine grape varieties grown in Bulgaria.

Considered in a regional aspect, the Southeast region stand out with the highest level of average yields - 6,493 kg/ha on average for the period 2014-2020, which was indicative of the more effective management of the synthesis of production factors and natural, economic, organizational, management and market conditions.

The level of productivity per unit area increased by 22.9% during the two compared periods, which was the strongest growth rate compared to the other statistical regions.

Average yields of grapes obtained in the Northeast region were also higher than the average level for the country during the same period.

Increase in the level of the indicator showed a growth of 18.2% based on the average quantity for the period 2014-2020 compared to 2007-2013.

Table 4. Average yields from harvested vineyards with wine grape varieties by statistical regions during the period 2007-2020, kg/ha

Years	Statistical regions						Total
	Northwest	North Central	Northeast	Southeast	South Central	Southwest	
2007	3,342	3,252	5,047	5,187	5,126	5,279	**4,855**
2008	4,056	3,980	5,920	4,902	3,686	5,903	**4,390**
2009	4,777	5,523	5,035	4,740	4,653	6,786	**4,944**
2010	3,101	4,392	3,662	5,378	4,281	3,986	**4,495**
2011	4,978	4,861	5,043	5,127	5,460	5,257	**5,219**
2012	4,130	4,870	2,637	5,249	3,362	8,016	**4,305**
2013	5,500	7,622	6,711	6,415	6,119	7,797	**6,430**
Average 2007-13	***4,269***	***4,929***	***4,865***	***5,285***	***4,670***	***6,146***	***4,948***
Index to the average for the country, %	***86.3***	***99.6***	***98.3***	***106.8***	***94.4***	***124.2***	***100.0***
2014	2,863	4,035	3,465	4,750	3,927	4,221	**4,102**
2015	4,772	5,958	6,748	8,323	5,949	5,388	**6,702**
2016	4,789	4,786	5,925	5,993	5,909	5,795	**5,777**
2017	5,224	5,071	6,520	6,547	4,857	6,056	**5,819**
2018	5,183	6,151	5,483	6,948	5,798	6,046	**6,214**
2019	3,944	3,465	5,726	6,756	5,917	5,356	**5,880**
2020	5,590	4,528	6,390	6,135	4,784	5,393	**5,501**
Average 2014-20	***4,624***	***4,856***	***5,751***	***6,493***	***5,306***	***5,465***	***5,714***
Index to the average for the country, %	***80.9***	***85.0***	***100.6***	***113.6***	***92.9***	***95.6***	***100.0***
2014-20/2007-13, %	***108.3***	***98.5***	***118.2***	***122.9***	***113.6***	***88.9***	***115.5***

Source: MAFF, the Agrostatistics Department [13] and own calculations.

In South Central region - one of the two regions with the largest area of vineyards with wine grape varieties in the country, the level of productivity per unit area lagged behind both average for Bulgaria and average realized in the Southeast region during the studied periods. Although average yields increased in this region as well, this happened at a slower pace than in the Southeast and Northeast regions, as well as compared to the average for the country.

The average yields of wine grapes in the North Central and Northwest regions were significantly lower than the national average level, with the lag was getting worse in the second period of the study. An unfavorable trend was the decrease in average value of the indicator in 2014-2020 compared to 2007-2013, observed in the Southwest region.

Values of the coefficient of variation did not show significant annual deviations of the average yields by region compared to the average levels during the studied period (Table 5).

Table 5. Analysis of the variation of average yields by statistical regions during the period 2007-2020

Statistical regions	Indicators						
	n	R	Min	Max	Mean	SD	CV (%)
Northwest	14	2,727	2,863	5,590	4,446	887	19.94
North Central	14	4,370	3,252	7,622	4,892	1,153	23.57
Northeast	14	4,111	2,637	6,748	5,308	1,274	24.00
Souteast	14	3,583	4,740	8,323	5,889	1,035	17.57
South Central	14	2,757	3,362	6,119	4,988	918	18.40
Southwest	14	4,030	3,986	8,016	5,805	1,140	19.63

Source: Own calculation on the basis of data from the MAFF [13].

The weakest were the fluctuations observed in the Southeast region (17.57%). This indicated that applied measures and mechanisms in the sector were important for improving the production activity, but not to a sufficient extent for obtaining satisfactory economic results, both at the farm level and at the regional and national level.

Decrease in the production of wine grapes in the country was by 35.6% in the period 2014-

2020 compared to average for 2007-2013 from 276.7 thousand tons to 178.3 thousand tons. The most significant decline was in North Central region - by 61.4%, followed by Northwest and South Central regions, where was the same falling rate - by 40.4%. In remaining three regions, the decrease was as follows: by 21.6% in Southwest region, by 28% in Southeast region and by 37% in Northeast region. Although average wine grape yields increased in most of the regions considered, with exception of North Central and Southwest regions, this growth was not sufficient to compensate for large reduction in the area of harvested vineyards with wine grape varieties.

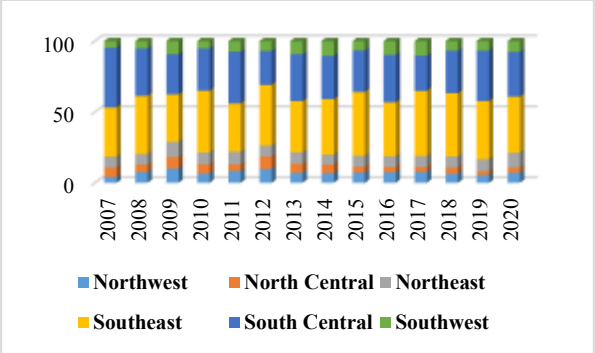

Fig. 5. Relative shares of the quantity of wine grapes produced by statistical regions in the total production for the country, %
Source: Own calculation on the basis of data from the MAFF [13].

Southeast region stand out with largest relative share in the total quantity of production on average for seven years period from 2014 to 2020 (42.1%), with its share increased compared to the period 2007-2013 (37.7%), as illustrated on Figure 5.
South Central region provided 30.6% of the total quantity of wine grapes produced in Bulgaria, but the comparison between these two studied periods showed that the percentage participation of region in national production shrank by 3%. The share of region was highest in 2007 at 42.1%, after wich it decreased to 33.1% in 2013 and to 31.5% in 2020.
The development of idicator was similar also in the North Central region - its share decreased from 6.6% on average for the period 2007-2013 to 4.0% on average for 2014-2020, in the Northwest region - from 7.5% to 6.9% and in the Northeast region – from 8.4% to 8.1%. The percentage share of wine grapes produced in Southwest region in the total national quantity expanded, but this was due to the shrinking share of production from the three regions mentioned above.
The results of the analysis of variation of wine grape production by statistical regions were presented in Table 6.

Table 6. Analysis of the variation of wine grape production by statistical regions during the period 2007-2020

Statistical regions	Indicators						
	n	R	Min	Max	Mean	SD	CV (%)
Northwest	14	18,049	8,388	26,437	16,510	6,118	37.06
North Central	14	18,239	4,886	23,125	12,696	6,718	52.91
Northeast	14	18,381	8,592	26,973	18,740	5,656	30.18
Souteast	14	92,958	48,783	141,741	89,770	25,169	28.04
South Central	14	106,061	37,845	143,906	72,944	29,438	40.36
Southwest	14	17,291	10,967	28,258	16,803	4,976	29.62

Sources: Own calculation on the basis of data from the MAFF [13].

Considered for the entire period, a significant variation of the produced quantities by year compared to the average values for period between 2007 and 2020 observed in North Central region with a coefficient value of 52.91%, in South Central region (40.36%), in Northwest region (37.06%) and in Northeast region (30.18%). The degree of variability of the production quantity was the weakest in the Southeast region (28.04%).
The values of the integral coefficient showed moderate to significant structural changes during the first period from the membership of Bulgaria in the EU, when the levels of the indicator range were mostly between 0.15 and 0.17 (Figure 6). The structural changes were significant only in 2012, when the indicator reached 0.22, due to contraction of production in South Central region and its increase in Southeast region. The observed structural changes in 2014-2020 were weak to moderate, indicating a relative stability of production positions highlighted regionally, with the Southeast and South Central regions dominating.

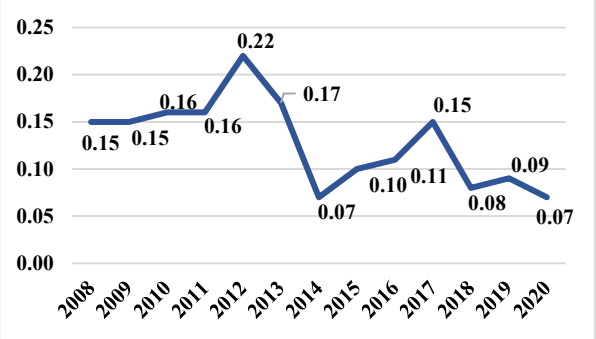

Fig. 6. Dynamics of the integral coefficient of structural changes in the production of wine grapes by statistical regions during the period 2008-2020.
Source: Own calculation on the basis of data from the MAFF [13].

Total wine production recorded a decrease of 20.1% from 1,251.7 thousand hectoliters on average for the period 2014-2020 to 999.8 thousand hectoliters average for 2007-2013. A decline in the quantities produced, established on basis of the averaged levels for two seven-year periods, was observed in almost all statistical regions, with exception of Southeast and Southwest regions. The quantity of wine produced in the Southeast region increased by 5.3% for the two compared periods (from 542.8 thousand hl to 571.6 thousand hl) and in the Southwest region – by 4.3%. The noted growth in these two regions did not compensate for the reduced production in the rest of the country. The most significant decrease in the quantity of wine produced was in the Northwest region, where the decline was by 73.8% based on average for 2014-2020 compared to the level in 2007-2013.
The production in the North Central region also decreased extremely strongly - from 138.6 thousand hl on average for the first period to 51.4 thousand hl on average for the second period (by 62.9%), which was a logical consequence of the reduced production of grapes. Reported falling in South Central region was by 31.9%, and in Northeast region - by 25.5%.
The dynamics illustrated in Figure 7, clearly shows the expansion of the relative share of wine production in Southeast region in the total quantity produced in Bulgaria. The weight of the region increased from 36.2-37.5% in 2007-2009 to 53.3-56.5% in 2018-2020.

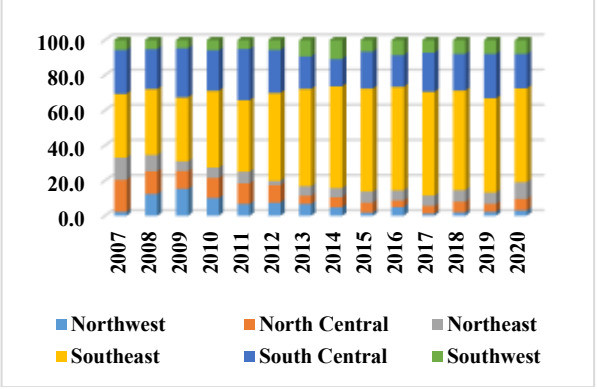

Fig. 7. Relative shares of the quantity of wine produced by statistical regions in the total production for the country, %
Source: Own calculation on the basis of data from the MAFF [14].

Bearing in mind that over the past three years, the quantities of wine produced in the region have shown a constant decrease - from 588 thousand hectoliters in 2018 to 403.3 thousand hectoliters in 2020, the enlarged percentage participation was rather due to the contraction of the volumes and relative weights of wine produced in most of the remaining regions.
The most obvious was the decrease in the share of wine production in the Northwest region in the total production. While at the beginning of the period, in 2010 and 2009 respectively, regional economy of the area provided between 10.0% and 15.3% of the total quantity of wine produced in the country, in 2018 this share was only 2.0%, and in 2020 – 3.0%.
The variation observed in the annual quantities of wine produced was within wider limits than that of wine grape production. This was due to the strong influence of market factors complementing the impact of agro-ecological and technological determinants. The coefficient values indicated on the Table 7, outlined stronger annual fluctuations in the volumes in the northern regions of the country. The quantity of wine produced by year varied most significant in the Northwest region (82.88%), followed by the North Central (62.17%) and Northeast region (47.48%). Of the three statistical regions located in Southern Bulgaria, significant annual fluctuations in the quantities of wine

produced observed only in the Southwest region.

Table 7. Analysis of the variation of wine production by statistical regions during the period 2007-2020

Statistical regions	Indicators						
	n	R	Min	Max	Mean	SD	CV (%)
Northwest	14	167680	13,433	181,113	67,422	55,876	82.88
North Central	14	203168	38,945	242,113	94,975	59,049	62.17
Northeast	14	141332	29,860	171,192	75,534	35,861	47.48
Souteast	14	534840	403,316	938,156	557,201	160,783	28.86
South Central	14	219153	116,172	335,325	252,270	67,314	26.68
Southwest	14	106510	51,131	157,641	78,361	26,880	34.30

Sources: Own calculation on the basis of data from the MAFF [14].

The contraction of wine production during the years from 2007 to 2013, especially in the northern part of the country, led to moderate structural changes, which was indicative of value of the integral coefficient, ranging between 0.11 and 0.17 (Figure 8).

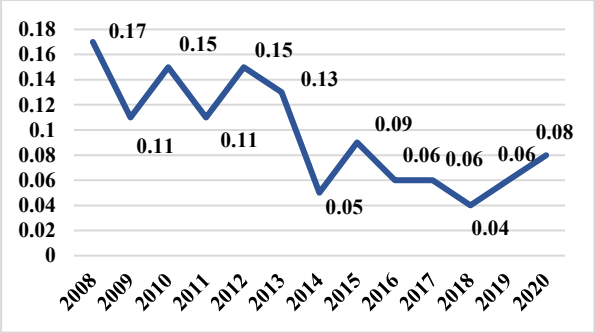

Fig. 8. Dynamics of the integral coefficient of structural changes in wine production by statistical regions during the period 2008-2020.
Sources: Own calculation on the basis of data from the MAFF [14].

In the years after 2014, weaker fluctuations in the quantities of wine produced at the regional level, and their reflection on the weights of the regions in the total production, led to lower values of the indicator - between 0.04 and 0.09, which outlined very weak structural changes.

More than half of the quality of wine produced in Bulgaria originated from the Southeast region (Burgas, Sliven, Yambol and Stara Zagora districs), which defines the need to ensure conditions for the stable production of wine grapes and wine in this region, in view of its significant place within the national wine sector.

CONCLUSIONS

Comparison between the values of coefficient of variation and the integral indicator of structural changes calculated for the harvested area of vineyards with wine grape varieties, the production of grapes and wine and the gross output of grapes by statistical regions showed that they were lower in the second period of CAP implementation in Bulgaria (2014-2020). Weaker fluctuations imply some stabilization in the development of the sector, but at a lower level of production volumes.

Although the negative rates of development slowed down in the second period of CAP implementation in the country, the downward trends in gross output, harvested areas, grape and wine production, both in the national and regional plan, have not been overcome.

The wine grapes and wine production was mainly concentrated in Southeast and South Central regions, which limited the possibilities for synergism in the direction of balanced territorial development.

During the next program period, the complex of measures and mechanisms applicable in Bulgarian wine sector within the framework of the Common Agricultural Policy should be expanded and aimed primarily at stabilizing the production potential and improving the technological level of production, but also at increasing the added value, taking into account the regional specificity.

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