



CHANGE IN THE CONCENTRATION OF BUSINESS ACTIVITIES IN THE REGIONS OF BULGARIA

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ABSTRACT

The aim of the article is to bind the changes concerning business activity, foreign direct investment and internal migration of the population. The research period is 15 years. The analysis in a long-term time interval outlines existing trends in the regional economies in the country. The object of analysis is the districts, NUTS 3 level, according to the existing classification of territorial units. Data on foreign direct investment, industry employment of the population and Gross Domestic Product are the subject of analysis in the conducted study. The calculated coefficients, determining the absolute and relative concentration of economic activities in different time intervals, highlight serious challenges and at the same time the need for change in the implemented regional policies. The results of the analysis point to a significant change in business activities in the Bulgarian regions and the absence of regional balance. There is a trend of a deepening decrease in the employed population and investment activity in small districts and, accordingly, internal migration of the employed population to attractive large regional centers, which increases regional inequalities and economic disparities.

Keywords: business activity, investment, employment, regional inequalities

INTRODUCTION

There are a number of challenges that exist for regional economies and affect their economy. This leads to the need to track and analyze existing trends that are of great importance for the prosperity of individual administrative-territorial units and the population in them. Economic stability is achieved by increasing business activity, high employment of the population and high incomes. These in turn lead to increased purchasing power and an increased standard of living in the respective territorial unit, an important condition for dealing with the negative demographic trends in a large part of regional economies. In order for there to be an increase in business activity, investments are needed to modernize existing production and open new, more relevant activities related to digital transformation and green technologies.

There are many scientific studies justifying regional differences in Bulgaria (1-3). The

purpose of this study is to determine how far the inequality between territorial units in the country persists and how it could be influenced. Trends concerning the specifics of sectoral employment are an important basis for adjusting existing regional policies aimed at developing the potential of local economies.

In her work, the author Petrova points out a high dependence between local revenues and expenditures on the economic development of the municipality (4). The stronger financial dependence of smaller municipalities is justified, which requires a shift in focus from efforts to increase revenues to efforts to obtain higher transfers. This once again shows the need for targeted measures by the central government to support business activities in small lagging regions.

Bulgaria is a country with a high share of arable agricultural areas, which defines it as a country focused on the agricultural sector. An important factor for the economic prosperity of regions, especially those with a large number of agricultural holdings, is the state subsidizing the above-mentioned activities. The author Georgieva studies the relationship between subsidies and profitability in the agricultural

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sector and substantiates the thesis that subsidies support the financial health of agricultural holdings and lead to sustainability and prosperity (5). The study proves that the smallest farms rely the most on subsidies, which account for 31% of their total revenues.

Another tool and opportunity to support and stimulate the agricultural sector in the country is the determination of the tax rate for agricultural producers, a topic studied in an article by the author Blagoeva (6). The analysis substantiates the need for different treatment and the introduction of a reduced tax rate to stimulate the agricultural sector. In the context of global environmental and social challenges, organizations are increasingly turning to green entrepreneurship. The scientific literature contains studies analyzing sustainable practices in manufacturing and high-tech industries. An example of this is the article by Kulova et al., which discusses case studies of leading companies that demonstrate how innovations in the field of renewable energy and automation are implemented and support long-term sustainability goals (7). The same study also presents the challenges facing small organizations in introducing these innovations, as well as the leading role of international regulatory frameworks for global standards. Other studies available in the literature to present sustainable business models are studies by Bocken et al. (8) and Geissdoerfer et al. (9). Analyses in this direction are of particular importance for the successful implementation of good practices, modernization of existing production in response to modern business challenges. All this will contribute to economic prosperity and development of individual companies and regional economies as a whole.

The analysis of the concentration of economic activities is calculated using a geographical and sectoral approach. Relative specialization occurs when a given production is concentrated, i.e. a large part of the business activity exists in a small number of regions (10). In this geographical approach, the concentration of economic activities is defined as the ratio of the share of regions to the specific activity compared to a reference unit. In the next, sectoral approach, concerning the absolute concentration, the share of the activity in the industry structure of the region is analyzed. These statements are presented in the works of Haaland et al. (11) and Zheng et al. (12).

In the scientific literature, there are articles that analyze the impact of natural resources on economic growth. The authors Al-Jomard A. et al. argue that in low-income countries, resource rents negatively affect growth, and positively affect two other economic variables, financial savings and foreign direct investment (13). It has been argued that to increase economic growth, especially in lower-income countries, policymakers should focus on improving the performance of institutions and the education sector.

In a study, author Gunawan traces the impact of natural resources through the Gross Domestic Product indicator on unemployment in different regions of Indonesia and finds that there is no significant impact and no contribution to employment growth (14).

Other authors who analyze macroeconomic indicators that affect growth include Bayar (15), Makonda et al.(16) and Krevel et al. (17).

METHODOLOGY

The article uses the following macroeconomic indicators as input data: gross domestic product (GDP), foreign direct investment (FDI), population, as well as the employment rate from official statistics published by the National Statistical Institute (NSI) (18). In order to identify leading business activities for the regions and, accordingly, for the country as a whole, the structure of industry employment of the population was analyzed, according to the adopted classification of economic activities (KID-2008) A21.

The object of analysis is territorial units, NUTS level 3 - districts in the country.

The determination of the districts with the highest significance in the national economy in various industries is done through applied mathematical and statistical methods and calculated coefficients of absolute and relative concentration of economic activities for the districts in the country.

Through an analysis of the relative concentration (geographical approach), the districts with a high concentration of leading economic activities in the country were derived. An applied subsequent analysis of the absolute concentration for highlighted areas (sectoral approach) tracks the dynamics and significance of the industry for the local economy.

ANALYSIS OF THE BUSINESS ACTIVITIES IN THE REGIONS

In order to analyze business activities in the regions of the country, it is necessary to observe an indicator related to the population for the observed period of time. **Table 1** presents the

changes for each region over a 5-year interval, calculated coefficients in the first three columns. The last column of the table describes the data from comparing the population for the entire fifteen-year study period.

Table 1. Population change by district for the period 2008 - 2023

District /NUTS 3	2013/2008	2018/2013	2023/2018	2023/2008
Vidin	0.865	0.889	0.846	0.651
Vratsa	0.893	0.911	0.908	0.739
Lovech	0.883	0.921	0.899	0.731
Montana	0.895	0.916	0.883	0.724
Pleven	0.881	0.927	0.906	0.740
Veliko Tarnovo	0.905	0.939	0.858	0.729
Gabrovo	0.897	0.917	0.875	0.719
Razgrad	0.897	0.931	0.897	0.749
Ruse	0.915	0.951	0.859	0.748
Silistra	0.899	0.942	0.867	0.734
Varna	1.023	0.994	0.921	0.937
Dobrich	0.917	0.941	0.844	0.728
Targovishte	0.897	0.948	0.857	0.729
Shumen	0.911	0.968	0.869	0.766
Burgas	0.985	0.990	0.937	0.914
Sliven	0.939	0.962	0.912	0.823
Stara Zagora	0.928	0.964	0.918	0.821
Yambol	0.904	0.935	0.894	0.756
Blagoevgrad	0.968	0.959	0.941	0.873
Kyustendil	0.883	0.914	0.905	0.730
Pernik	0.936	0.939	0.919	0.808
Sofia	0.948	0.951	0.989	0.891
Sofia (capital)	1.050	1.014	0.969	1.032
Kardzhali	0.965	1.015	0.959	0.939
Pazardzhik	0.921	0.949	0.882	0.770
Plovdiv	0.963	0.985	0.948	0.900
Smolyan	0.918	0.907	0.874	0.728
Haskovo	0.924	0.953	0.908	0.800

Own calculations according to NSI data

The only districts that have an increase in population for the 5-year intervals are Sofia Capital District (in the period 2008 to 2018), Varna District (in the period 2008 to 2013) and Kardzhali District (in the period 2013 to 2018). A comparison of the data for the entire 15-year period highlights an increased population only for Sofia Capital District. Districts that have the lowest rate of decrease are: Varna, Burgas, Kardzhali and Plovdiv. The remaining 23 districts in the country have a negative demographic trend. This is a serious

prerequisite for reducing the concentration of business activities in the regions.

More detailed information about the contribution of each region to the national economy is provided by the Gross Domestic Product indicator. **Figure 1** shows the data at the beginning and end of the considered time interval. Six of the districts in the country stand out with high levels of GDP, both for 2008 and 2023. These are the districts: Varna, Burgas, Stara Zagora, Sofia, Sofia Capital and Plovdiv.

The analysis of the data showing the gross domestic product per capita highlights the presence of other districts in the country with higher values of the indicator. **Table 2** includes the top 10 districts with the highest GDP per capita for 2008 and 2023. A shift in the ranking is noticeable at the beginning and end of the

period under review, but the districts of Sofia Capital, Varna, Stara Zagora, Burgas and Sofia are again leaders. Plovdiv District in 2008 was in eleventh place, but in 2023 it is seventh in the ranking. The above-mentioned six districts are again leading in the country in terms of added value per capita in the economy.

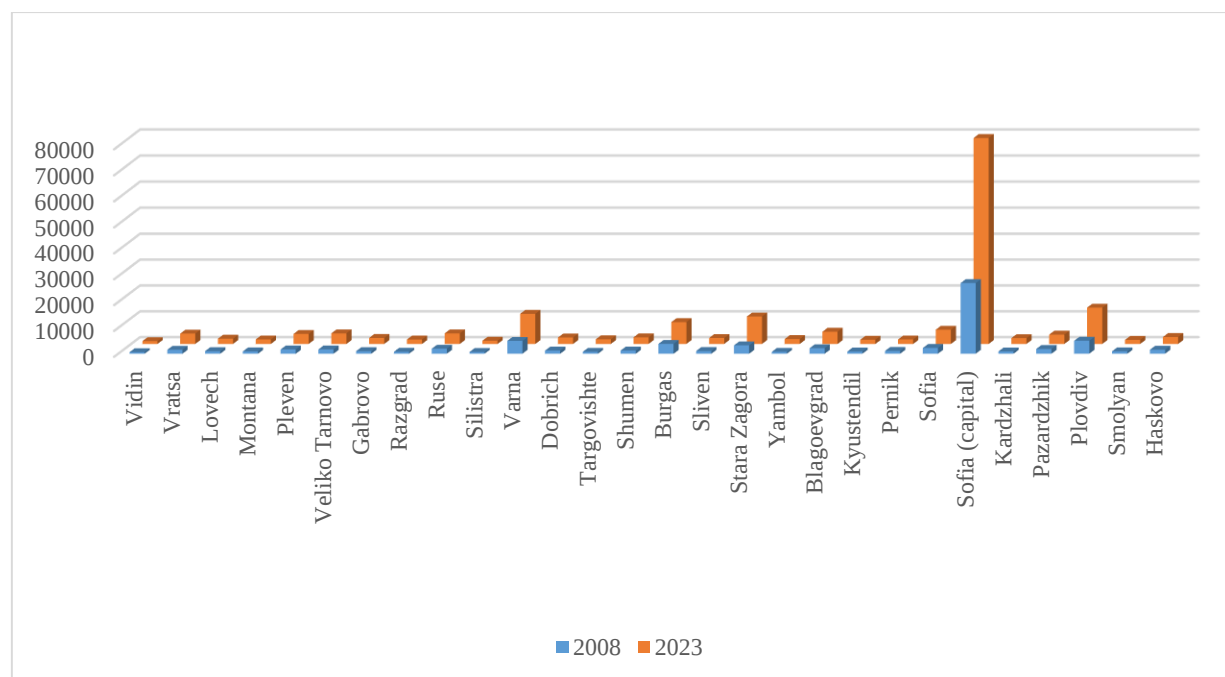


Figure 1. GDP by region for the period 2008 – 2023, (million BGN)

Own calculations according to NSI data

Table 2. Top 10 regions by GDP/p.c. for 2008 and 2023

Districts 2008	BGN	Districts 2023	BGN
Sofia (capital)	21990	Sofia (capital)	61833
Varna	10791	Stara Zagora	36470
Stara Zagora	9156	Vratsa	27113
Burgas	9058	Varna	26946
Sofia	8786	Gabrovo	24297
Pernik	7904	Sofia	24251
Ruse	7758	Plovdiv	22209
Vratsa	7675	Burgas	22169
Gabrovo	7664	Ruse	21678
Smolyan	7320	Veliko Tarnovo	20187

Own calculations according to NSI data

An important indicator of investment activity in the country is foreign direct investment. **Figure 2** depicts the data for the regions for the time period of the study with an interval of five years in order to make the conclusions more categorical.

The regions with the highest share of investment activity are again the six already

distinguished (Varna, Burgas, Stara Zagora, Sofia, Sofia Capital and Plovdiv). High levels of investment are not only a prerequisite for high levels of the GDP indicator, but also become a center of attraction for the more highly qualified population. It should be noted that this is a serious prerequisite for internal migration of the population. Attracted investments are the basis for new modern productions, which not only have higher

requirements for the competencies of the staff, but also in themselves provide more opportunities for good implementation with higher incomes and other social advantages. Of course, large cities, having better infrastructure and offering more opportunities, attract mainly young people from the population. This is precisely what creates the need for intervention

by both the central and local authorities in the regional economies of the country in order to retain the young population in smaller cities. Attracting investment activity will contribute to the modernization of production equipment and the creation of more attractive jobs.

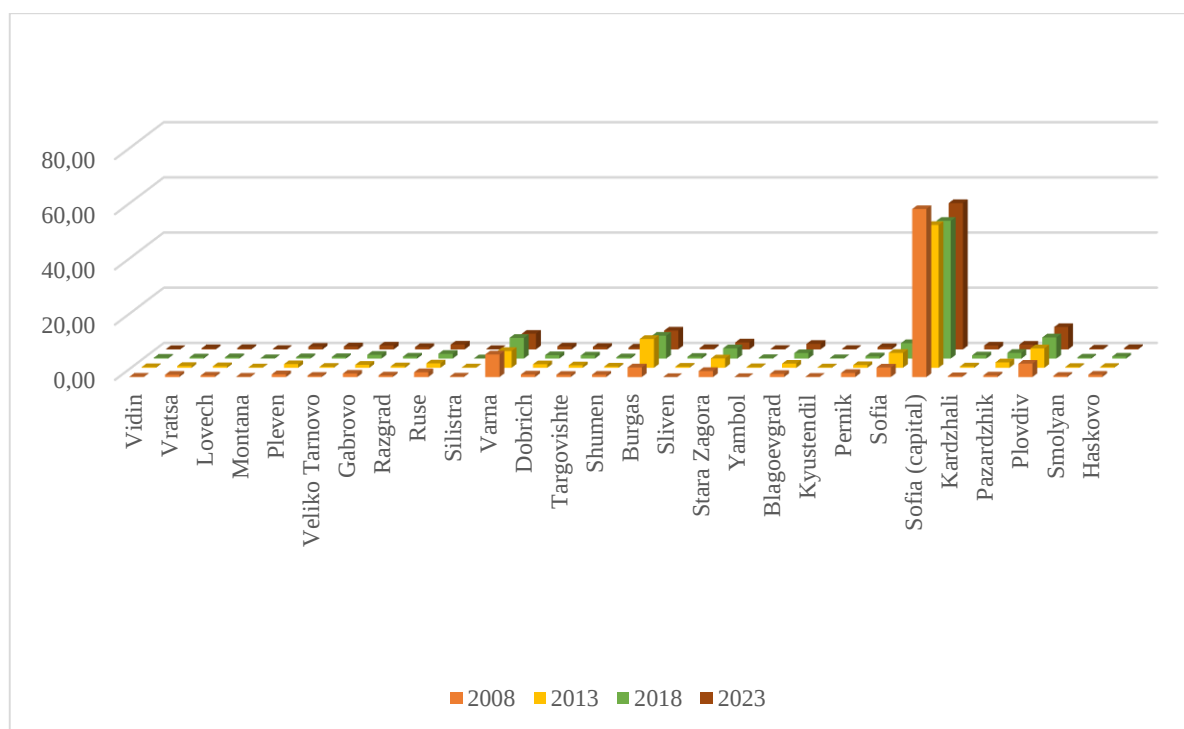


Figure 2. Foreign direct investment by regions for the period 2008 – 2023

Own calculations according to NSI data

Comparing the data on Gross Domestic Product and Foreign Direct Investment very categorically substantiate the leading position of the six above-mentioned regions in the country. The sum of the shares of GDP and Foreign Investment of these top 6 regions for the period of the study demonstrates the attractiveness of these strong regions (**Figure 3**). In terms of GDP, the sum of the contribution of the leading six regions to the national economy increases from 64.07% in 2008 to 70% in 2023. Moreover, there is a progressive increase, with a slight deviation in 2020 and 2021, which can be explained by the impact of the pandemic on the global economy as a whole. Therefore, only 30% is the share of GDP for the remaining twenty-two regions for 2023. This is a very low share, indicative of a decrease in the

concentration of business activities in these regions. The pronounced negative trend should be noticed and countermeasures should be taken.

Regarding foreign investments (the second part of **Figure 3**), no progressive trend for increasing investment activity in the top 6 districts is observed, but the range of their total share in relation to all investments in the country is from 81.62% to 84.42%. This is extremely worrying, given the share of investments for the remaining twenty-two districts in the country - below 20% of the total investments for Bulgaria in the period under review.

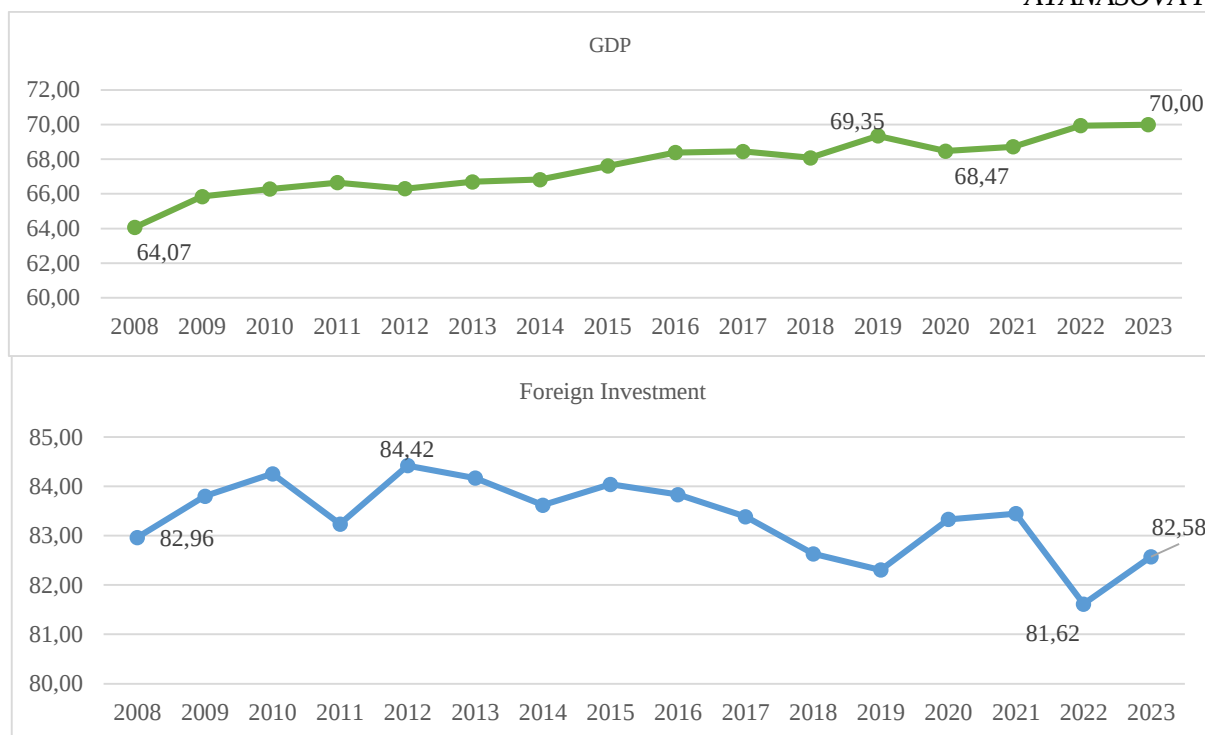


Figure 3. Comparison share of GDP and Foreign Investment in the national economy, %
Own calculations according to NSI data

Figure 4 follows, which presents data from an analysis of the employment rate (between 15 and 64 years of age) of the population. The average employment for the country for the observed time interval increases from 64.00% in 2008 to 70.70% in 2023, an increase of 6.7 percentage points.

Employment for the top 6 districts increases by 8.51 percentage points, and for the remaining districts by 6.06 percentage points. The higher employment in larger, developed cities and concentrated business activities is completely explainable.

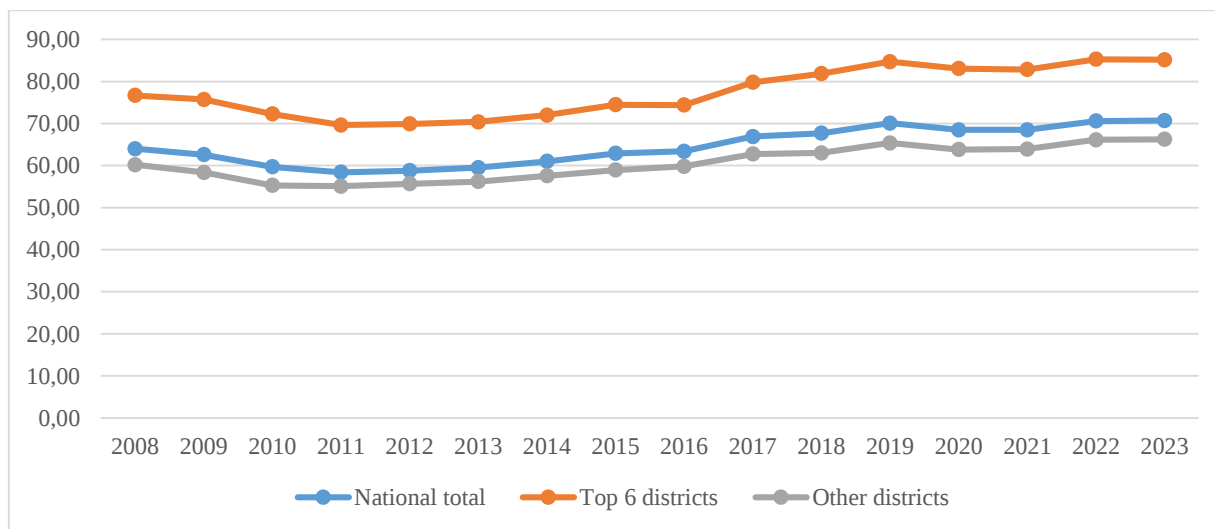


Figure 4. Employment rate (15 - 64 years old), %
Own calculations according to NSI data

From a structural analysis of economic activities for the country at the beginning and end of the period, the leading industries, according to employed persons in the economy, are: "Processing industry", "Construction" and "Commerce and car repair". Due to the need to limit the volume of the applied analysis, the article will present data on changes in the relative and

absolute concentration of the districts in the country for these leading employment sectors.

The "Processing industry" sector has the highest share of employed population in Bulgaria, both for 2008 and 2023. About a quarter of the total employed population is employed in this economic activity. The relative concentration coefficients were calculated for all districts in the

country and **Figure 5** presents data for the top 10 districts with the highest coefficient. The values in the figure express the indicator for 2023. The presented relative concentration demonstrates the highest significance for the national economy in 2008, namely Sofia Capital District, but for 2023 it is Plovdiv District. This is the district with the

highest trend of change in the concentration of this industry for the period of the study. Other districts in which a change towards an increase in relative concentration is observed are Stara Zagora and Sofia Districts, while a decrease is present for Blagoevgrad with the highest degree.

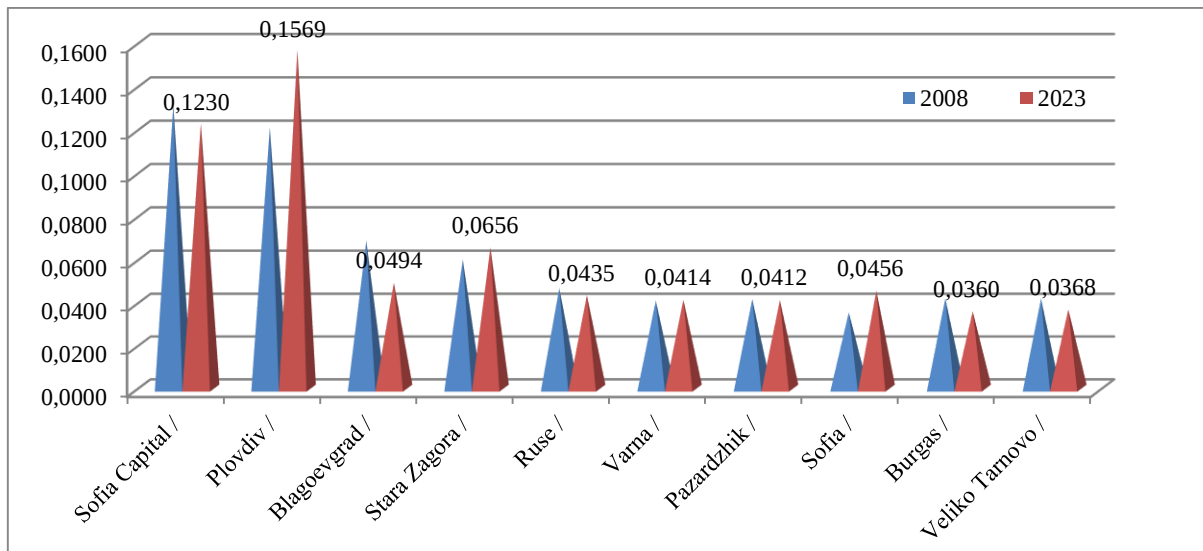


Figure 5. Top 10 regions with a high share in the Processing industry 2008 – 2023 (relative concentration)
Own calculations according to NSI data

The following **Figure 6** depicts the data on the calculated absolute concentration of the same economic activity "Processing industry" for the presented districts from the previous figure, those with the highest share and the most significant on a national scale. The calculated coefficients demonstrate a high contribution and significance for the local regional economies in most of the presented districts. The absolute concentration is lowest in Sofia, the capital, Varna and Burgas, districts with multi-sectoral farms and high significance of other business activities in the

regions. The indicated coefficients highlight a decrease in the absolute concentration of the considered industry for all presented districts for the observed time interval, with the most serious rate of decline being observed in Blagoevgrad district. This is a signal of increased employment in other business activities significant for the local economy or a reduction in employment in the "Processing industry" sector. Additional analyses are needed for more specifics regarding industry employment in the region.

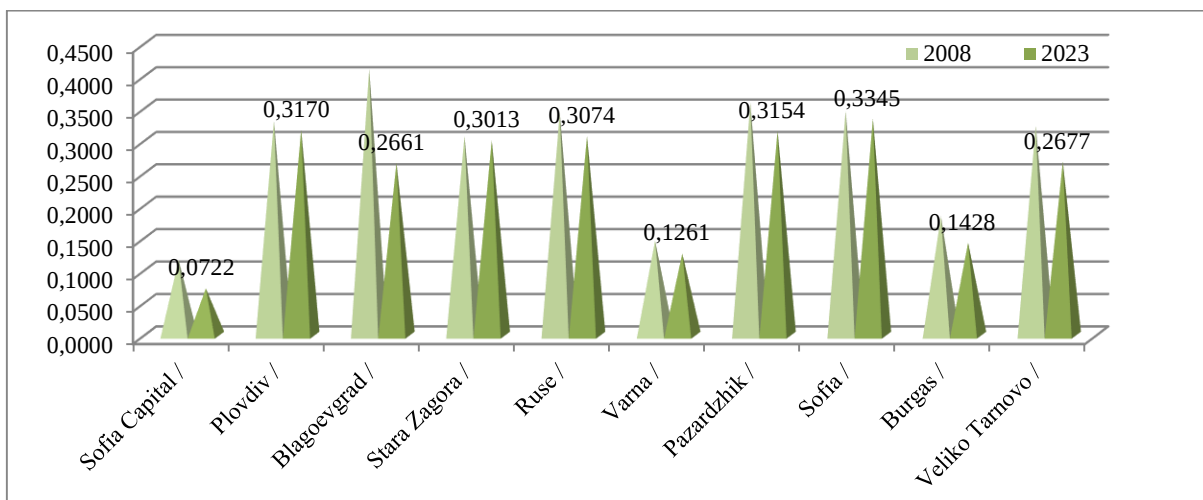


Figure 6. Top 10 regions with a high share in the Processing industry 2008 – 2023 (absolute concentration)
Own calculations according to NSI data

The next economic activity with a high share of employed is the Construction sector. **Figure 7** presents the relative concentration of the top 10 districts in the country for this sector. The coefficient for Sofia Capital District stands out significantly (over four times higher than the other analyzed districts). The following in importance

in this sector are the districts of Varna, Plovdiv and Burgas. For the observed time interval, the increase in the coefficient is more pronounced for Sofia Capital District and to a lesser extent for Plovdiv. The remaining districts are not characterized by a significant change in concentration for the period.

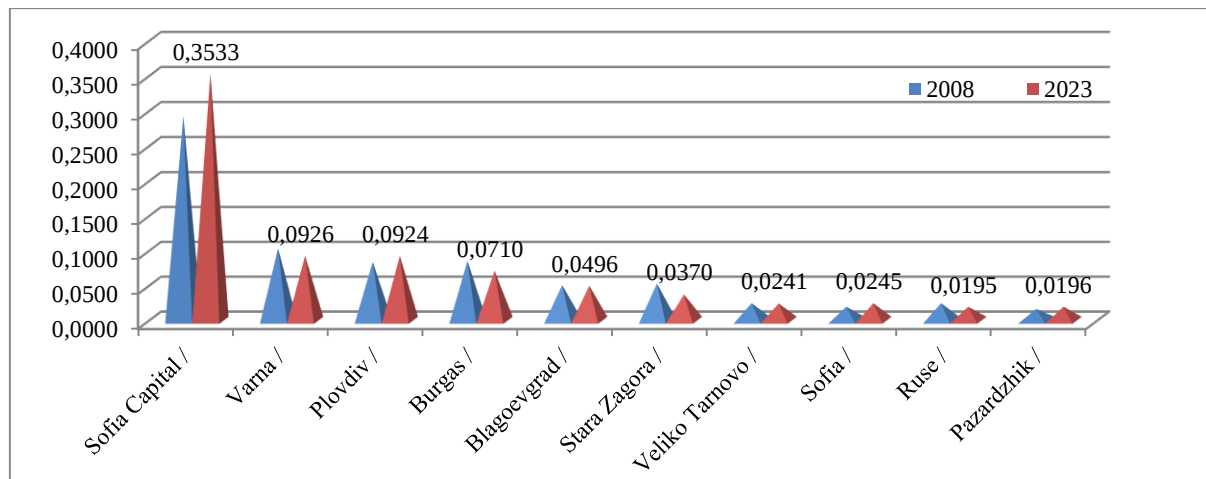


Figure 7. Top 10 regions with a high share in the Construction 2008 – 2023 (relative concentration)
Own calculations according to NSI data

The absolute concentration of the indicated districts is presented in **Figure 8**. Of all the districts examined, Burgas and Varna are characterized by the highest importance of this sector in the local economies, followed by the

districts of Blagoevgrad, Stara Zagora and Sofia Capital. A characteristic feature for the observed period is a decrease in the absolute concentration coefficient of all 10 districts for the period 2008 - 2023.

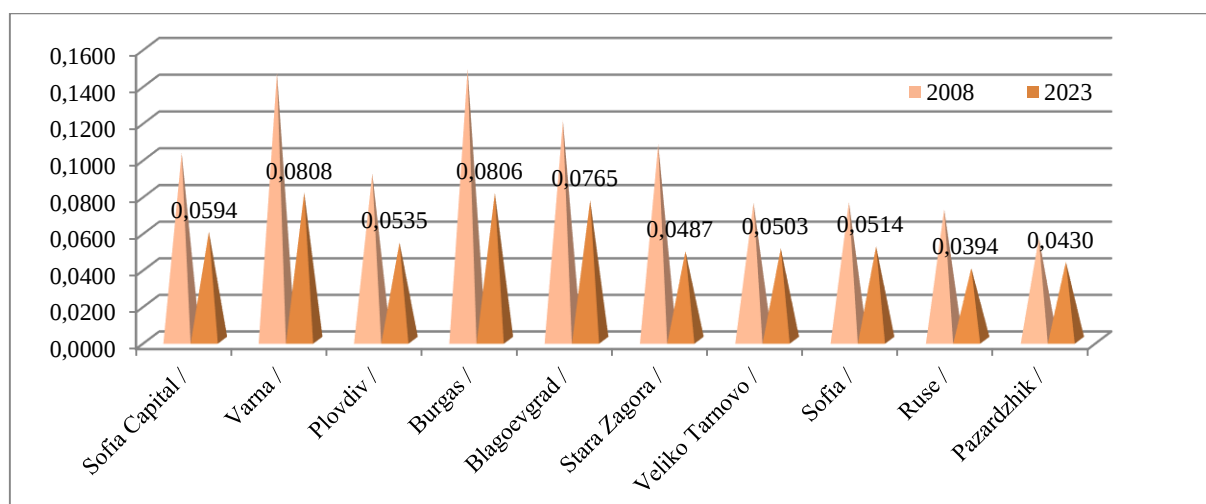


Figure 8. Top 10 regions with a high share in the Construction 2008–2023 (absolute concentration)
Own calculations according to NSI data

The next sector with very high employment at the national level is "Commerce and car repair" and **Figure 9** presents the calculated coefficients of the top 10 districts with the highest share of employed in the total for the country. Again, the leading position is for Sofia Capital District with a significant lead over the other regions represented, followed by Plovdiv, Varna and Burgas. Moreover, it should be noted that there

was an increase in the relative concentration for Sofia Capital in this economic group of activities for the period of analysis, the only district with a significant change in the analyzed indicator. The calculated coefficients confirm the attractiveness and effect as a center of attraction of Sofia Capital District for the workforce in the country. The high added value follows the high investment activity and concentration of business activities.

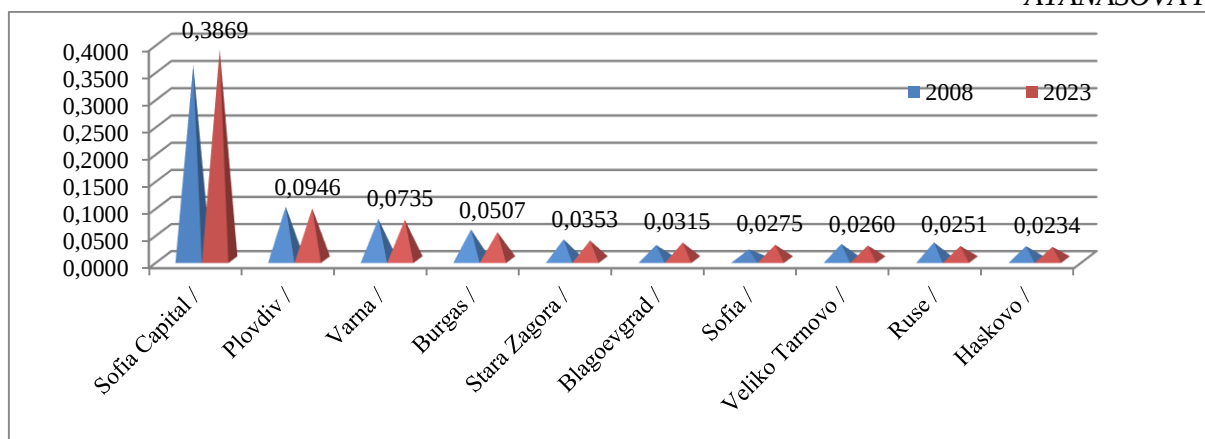


Figure 9. Top 10 regions with a high share in the Commerce and car repair 2008 – 2023 (relative concentration)
Own calculations according to NSI data

Figure 10 presents the calculated coefficients of absolute concentration of the presented districts in the "Commerce and car repair" sector. The highest values are the indicators for: Sofia Capital, Varna and Haskovo, demonstrating high importance for the local economies. For the period of the study, the highest change in

concentration in the direction of increase concerns Sofia district, followed by Blagoevgrad and Haskovo, while a decrease in the absolute concentration of this group of economic activities is present in Plovdiv, Sofia Capital and Ruse districts.

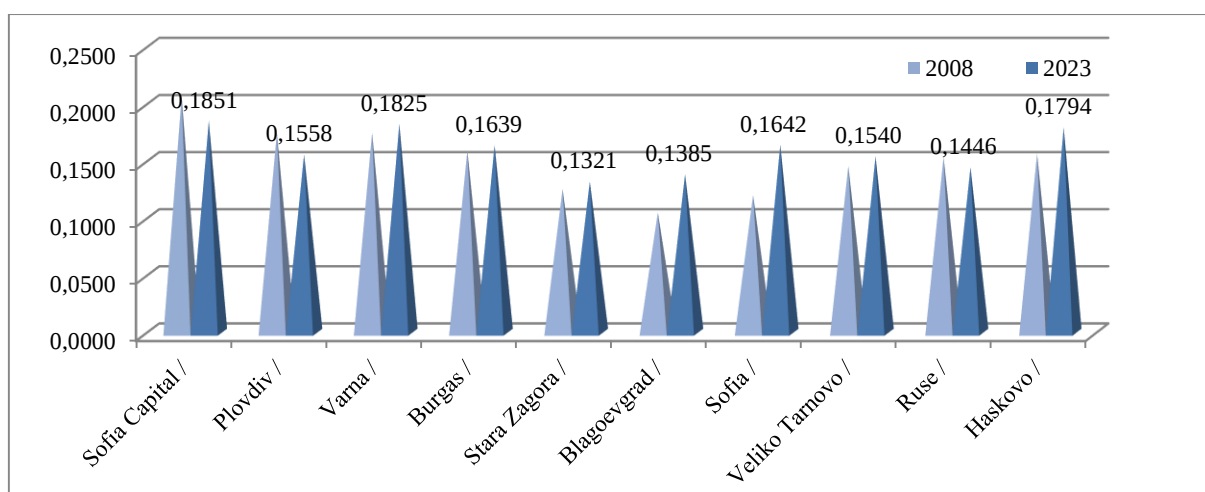


Figure 10. Top 10 regions with a high share in the Commerce and car repair 2008 – 2023 (absolute concentration)
Own calculations according to NSI data

All calculated coefficients of relative and absolute concentration distinguish a change in business activity, which follows investment activity and an increase in gross value added. Financial incentives contribute to the modernization of existing production and the creation of new, more relevant and more attractive for the qualified workforce. The results obtained from the study should be linked to the adoption of measures to direct appropriate investments to lagging regional economies.

CONCLUSIONS AND RECOMMENDATIONS

From the calculations and analyses made, the following trends can be deduced regarding the

economies and development of the districts in Bulgaria. For the observed period of time, only the Sofia capital district has shown an increase in population. The districts of Plovdiv, Varna, Burgas and Kardzhali have a slight decrease in population, while for the other districts in the country there is a strongly negative demographic trend.

According to the GDP data for the period, a dominant role is clearly outlined for six of the districts in Bulgaria: Sofia, Sofia capital, Plovdiv, Varna, Burgas and Stara Zagora. Moreover, the total contribution of these districts to the national economy is increasing progressively - from 64.07% in 2008 to a 70% share in 2023.

Regarding the attracted foreign direct investments for the 15-year period, the data show an even higher concentration in the six distinguished districts. The total share of foreign direct investments is within the range of 81.62% - 84.42% for the period of the study.

The employment rate for the six districts indicated increases by 8.51 percentage points, while for the other districts the average increase is by 6.06 percentage points.

The structure of sectoral employment for the country demonstrates a multi-sector economy. The most prominent economic activities with a high number of employees are "Processing industry", "Construction" and "Commerce and car repair".

From the calculated coefficients representing the relative concentration for the leading employment sectors, it can be summarized again the leading position of the districts of Sofia Capital, Plovdiv, Varna and Burgas.

The analysis of the absolute concentration of the presented districts highlights a decrease in employment in the sectors "Processing industry" and "Construction". An increase in the absolute concentration in the activity "Commerce and car repair" concerns the districts of Sofia, Blagoevgrad, Haskovo, Burgas, Varna and Stara Zagora.

The analyses made highlight the presence of strong inequality between the districts in the country, which leads to insufficient support for regions with lagging development rates. A large part of the financial incentives (foreign direct investments) are directed to developed regional economies, which contributes to the deepening of inequalities.

The trend continues that small districts are increasingly finding it difficult to cope with challenges such as negative demographic trends and economic crises. Barriers to organizing competitive business, creating attractive jobs, ensuring a high level of production capacity and introducing innovations are highlighted.

The inflow of foreign direct investment in areas with high added value in the economy concentrates business activities, which attracts qualified labor and leads to a deepening demographic crisis in economically underdeveloped regions.

The results obtained very strongly link the demographic negative trend in the country with the development of economic activities in regional economies in Bulgaria. All this requires the implementation of policies aimed at retaining and attracting economically active population in underdeveloped territorial units.

The increased concentration of business activities in six of the regions in the country and the continuing decrease in employment in the remaining regions justifies the need for regional and national measures aimed at attracting investment activity to current, attractive, high-tech business activities in regions with decreasing employment.

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