

INFLUENCE OF LOCAL FACTORS ON DEMOGRAPHIC CHANGES AND THE SHARE OF THE POPULATION OVER WORKING AGE IN RURAL AREAS IN BULGARIA

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Abstract

Rural areas have their own specific socio-economic and demographic challenges. They are characterized by an increasingly aging population, depopulation, limited infrastructure and health services, increasing domestic crime, etc. The development aims to analyze the influence of local factors on the viability of rural areas. For the fulfillment of the set goal, an answer to the scientific research question is sought: What is the influence of local factors on demographic changes and the share of the population of over working age in rural areas in Bulgaria, based on the censuses in 2010 and 2020? Approved is the Territorial Partition Shift Analysis (TSSA), which is a modified model of the popular Partition Shift Analysis (SSA). It is concluded that the territorial impact in rural areas has a limited or moderate effect on the considered indicators. Only in isolated cases is the very strong or unfavorable impact of local factors on the population in general and in particular on the population over working age considered.

Keywords: viability, influence of local factors, rural areas, population.

Introduction

Territorial and local development strategies for rural areas in Europe differ depending on the challenges of local socio-economic factors. Often, the challenges are concentrated on a single administrative unit, and sometimes they do not correspond to the geographical scope of the decision-making process. However, in all cases, the decisions made in nearby areas make a significant contribution to solving a local problem of national importance. These can be challenges related to the provision of education and training services, health care, availability of jobs, etc.

The rural areas have their own specific socio-economic and demographic challenges. They are characterized by an increasingly aging population, depopulation, limited infrastructure and health services, increasing domestic crime, etc. All this requires innovative models and approaches for cooperation, allocation of resources and strengthening of communication between social centers, educational and health facilities, business units and public institutions located in different settlements..

Publications are available in the scientific literature relating to the development of demographic resources and the workforce in rural areas (Anastasova and Malamova 2011); the processes of demographic aging, declining birth rates and high mortality (Mitova 2018); the importance and impact of agriculture on rural development (Doitchinova and Stoyanova 2020); scenarios for their demographic development for 2027 (Sarov 2023); the role of local initiative groups (Khmelinski 2011); the demographic and educational structure in rural Poland (Wrzochalska and Łaba 2022). The viability of rural areas is determined by livelihood, employment opportunities and social capital, attachment to place of residence and local values (Olsen et al. 2021), and rural tourism is proposed as an alternative to viability (Crăciun et al. 2022), etc.

The aim of this study is to analyze the influence of local factors on the viability of rural areas. For the implementation of the set goal, an answer to the research question is sought: What is the influence of local factors on demographic changes and the share of the population in non-working age in rural areas in Bulgaria, based on the censuses in 2010 and 2020? It is assumed that local factors are those prerequisites that influence changes in regional and national indicators. The number of the population in the Bulgarian rural municipalities is constantly decreasing, which is inversely related to the population of non-working age between the two censuses. Therefore, it would be interesting to identify local differences and peculiarities and whether this finding is relevant for the entire territory of Bulgaria.

Methodology

The research uses a methodology for studying the territorial impact on changes in the number of the population and the share of the population over working age in rural areas. Population aggregates are the object of study in demographic statistics. The aim is to assess the local impact of the national and regional influence on the dynamics of selected indicators. A Territorial Share Shift Analysis (TSSA) is approved, which is a modified model of the popular Share Shift Analysis (SSA). The adopted model was proposed by Ivanov (2020, 2022: 5-25). According to the accepted methodology, TSSA has three separate stages – municipal, regional (NUTS 3) and national, being applied at the territorial level.

The classic formula for Shift-Share analysis (Herzog and Olsen 1977) is as follows:

$$SS = NS + IM + RS \quad (1)$$

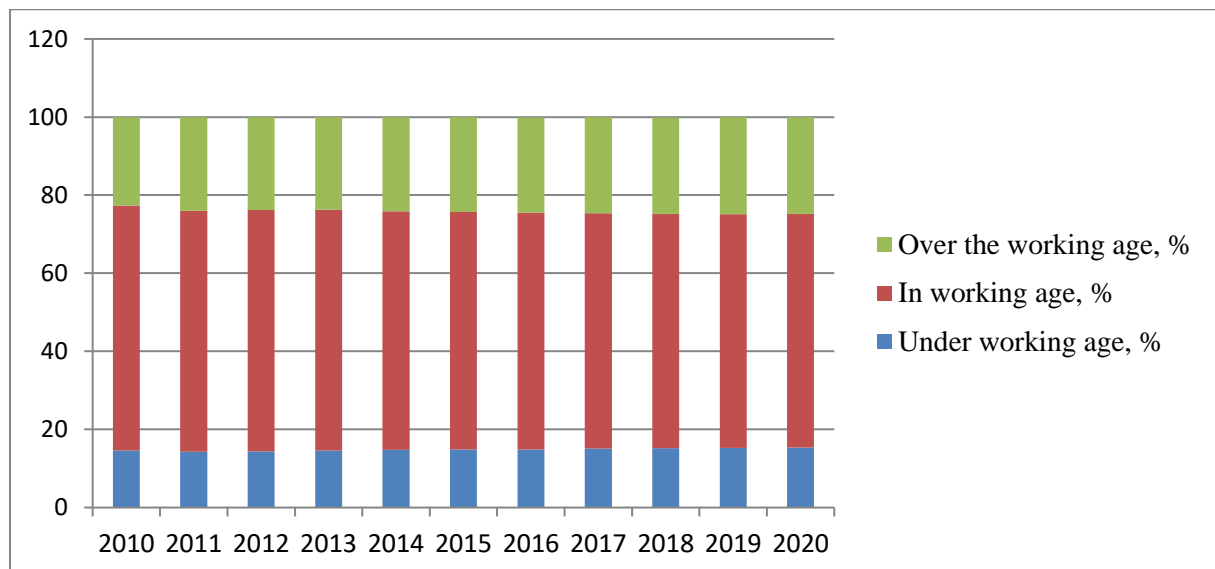
Shift-Share analysis is one of the well-known traditional tools for measuring and evaluating the differences of economic results in a regional aspect. It is assumed that the local changes in the number of the population are strongly influenced by national trends and reflect the regional impact. The purpose of including the population of non-working age is to obtain information about the share of this group in relation to the total population of rural areas in Bulgaria. The National statistical institute (NSI) defines "persons who live permanently (have a current address) in the country as of December 31 of the respective year and have not been absent from it for a period longer than 1 year. The number and structures of the population as of December 31 of each year are calculated on the basis of the data from the previous year and the data on the natural and mechanical movement of the population in the current year" (NSI Methodology, 2023). The 2010 data includes males aged 16 to 63 and females aged 16 to 60. For 2020, these

ranges are from 16 to the age of 61 years and 6 months for women and 64 years and 3 months for men (NSI Methodology 2023).

Results

According to NSI data for the period 2010-2020 in Bulgaria, the population under, in and over the working age shows some changes (Fig. 1). The population of working age has the highest rate of decrease. It decreased by 2.9 percent compared to the total population at the end of the period under review. A positive signal for the demographic level of the population is the fact that under working age increases by 0.8%. According to the data for the ten-year period, the population over the working age also reported an increase of 2.1%. This unfavorable general demographic picture of the population in the country has its impact on the considered indicators in rural areas as well.

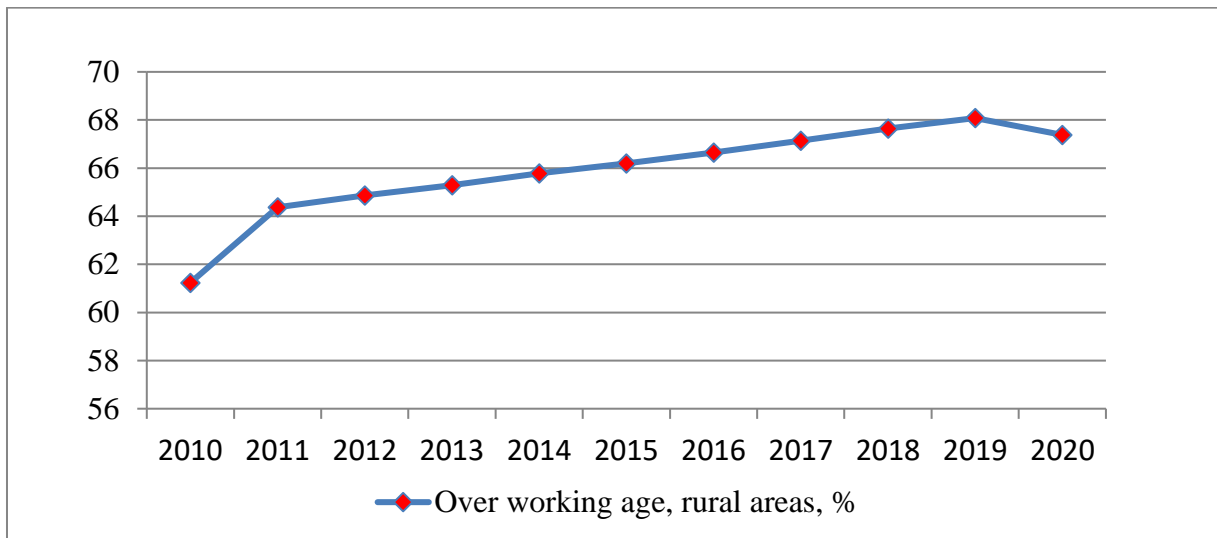
Figure 1. Change in the share of the population under, in and over working age in Bulgaria for the period 2010-2020, %



Source: NSI (2023).

A reflection of the demographic trends in the country is the dynamics of the change in the population over working age in rural areas. For the period 2010-2020, this indicator increased by 6.1% (Fig. 2.). If in 2010 it was 61.2%, then in 2020 it reached 67.4% compared to the total population over working age on average for the country. A noticeable "peak" in this unfavorable trend was reported in 2019, when the population over working age in rural areas reached 68.1%. All this is a solid indicator of the aging of the population not only in Bulgaria, but also in rural areas in particular.

Figure 2. Change in the share of the population over working age in rural areas of Bulgaria, 2010-2020, %

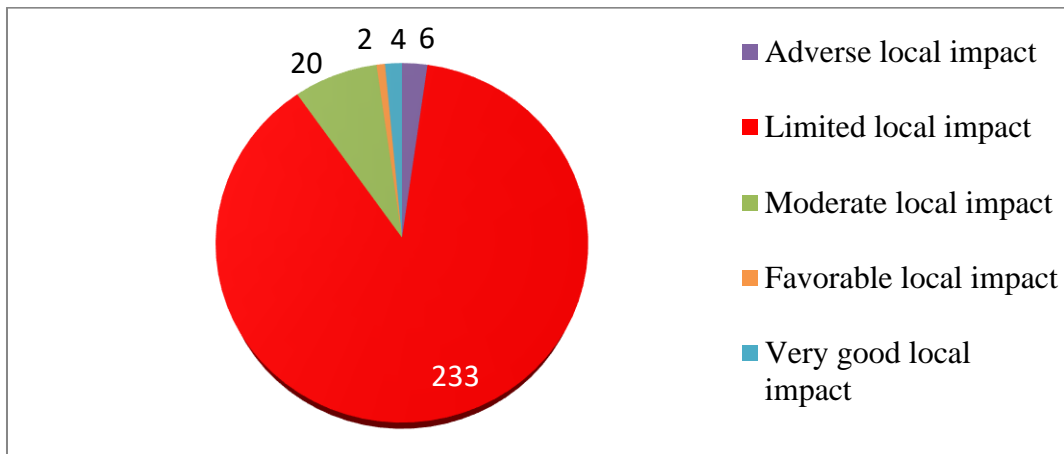


Source: NSI (2023).

This part analyzes the influence of local factors on changes in the population of rural areas in Bulgaria for the period 2010-2020 (Fig. 3.). Stara Zagora, Yambol, Pleven, Svishtov, Shumen and Ruse municipalities, local factors in the socio-economic aspect have an unfavorable influence on the population change. These six municipalities fall into the grouping with a coefficient range from 0 to 0.2, which is the furthest away from the national average. The results show that more than half of the municipalities (233) fall into a group with a 0.21-0.45 coefficient, which means that local factors had a very limited influence on the trend of population change during the considered period. In this case, national and regional trends have affected the rural population to a greater extent. There are 20 municipalities in the middle range (0.46-0.55), which is comparable to the national average. The respective municipalities have similar results to the average for the country and for all regions. Capital (Stolichna), Burgas, Varna and Sliven Municipality have the highest coefficient and accordingly local factors have had a strong and positive influence on regional and national priorities. The municipality of Plovdiv and Veliko Tarnovo are the two municipalities in which local factors also had a favorable impact on demographic indicators in general.

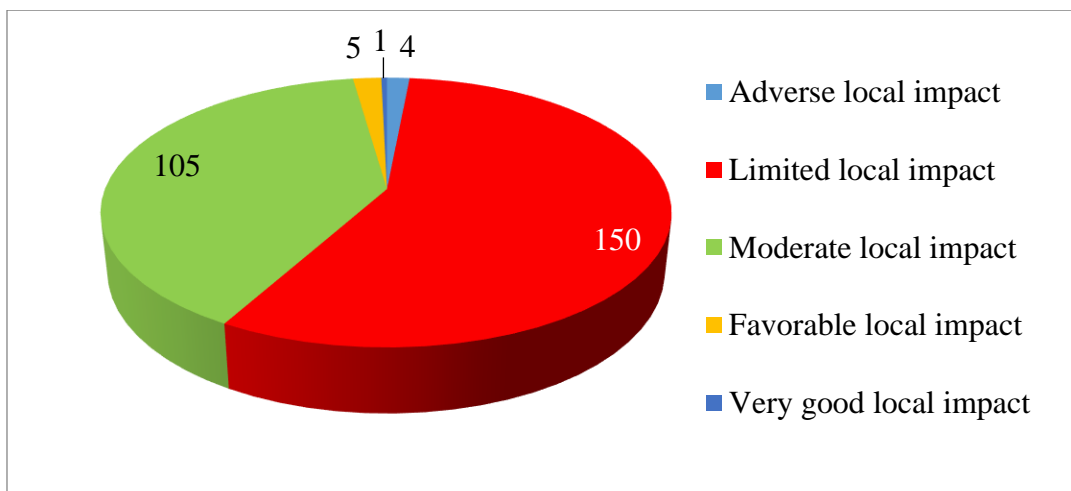
There are 105 municipalities with a moderate impact of local factors on the population over working age, where the estimate of the adjusted RS coefficient falls within the range of 0.46 to 0.55 (Fig. 4.). In these municipalities, the change in the population over working age approaches the average for the country. There are five municipalities that fall within the scale of 0.56-0.80 - Makresh, Ruzhintsi, Svishtov, Nedelino and Smolyan. In these municipalities, a favorable impact of local factors is reported, which reflect on the studied indicator in the direction of increasing the coefficient to that of the national average between 2010 and 2020.

Figure 3. Distribution of municipalities according to the influence of local factors on population change



Source: author's calculations according to NSI data according to the methodology of Ivanov (2023).

Figure 4. Distribution of municipalities according to the influence of local factors on the change in the number of the population over working age in Bulgaria



Source: author's calculations according to NSI data according to the methodology of Ivanov (2023).

The five municipalities are located in the border regions of Bulgaria, which means that there work is being done to strengthen the territorial convergence of the cross-border regions of the countries. Novo Selo municipality, which is also located in the border region of Vidin region, has the highest coefficient (0.82), which is closest to the average for the country. In this case, there is a very good influence of local factors on the change of the population over working age. According to the calculations in 4 rural municipalities, local factors had an adverse impact on the population over working age 2020 compared to 2010. The coefficient falls in the range of 0-0.2 coefficient and is at the farthest point from the national average. The most negative impact of local factors is reported in Chuprene (with the lowest: 0.01 coefficient), Gramada, Kuklen, Svilengrad municipality. In this municipality, the priority for politicians who are involved in the development of territorial development strategies is to consolidate their political actions.

They should be suitable for achieving the goals set in the priorities for regional development. It could be assumed that in 150 municipalities the influence of local factors is limited. They, in turn, occupy the largest share compared to the total population in the country.

Discussion

Determining an appropriate territorial focus for a strategy is essential for the development of specific regions, because if it does not respond to their challenges, the successful implementation of the strategy will be difficult or even ineffective. attitude to cover independently one region from another.

Public policies with a focus on regional and local development are on a differentiated basis from the point of view of territorial priorities. In this regard, however, most often, local development strategies target an entire territorial administrative unit. It also includes towns located in rural areas that go beyond the administrative boundaries. Therefore, when a territorial analysis is constructed, the focus is precisely on what is the strength of the influence of local factors on the trend of selected indicators. In the large administrative centers of the country, the local socio-economic climate has an extremely strong impact on the demographic indicators - in this case, the number of the population. Favorable opportunities and a high potential for the development of public services and local infrastructure have been created in these centers, which in turn have an attractive force on the concentration of the working-age population. In small settlements, of course, the opposite trend is observed. Local factors have a negative impact on the development of these municipalities. Most often, these are rural areas, located in border areas and far from large administrative centers. Strategies for the development of organic agriculture, social activities (development of community activities), social entrepreneurship (encouragement of cooperation), including rural, agrarian and eco-tourism should be directed here. In the strategies for territorial and local development in the programming period 2014-2020, emphasis was placed on the functional approach and not only on the territorial scope. This means going beyond the administrative boundaries of adopted strategies and policies. However, it turns out that rural and non-rural municipalities are in constant interaction and it would be difficult to separate them when defining regional development policies.

Conclusion

Based on the results obtained for the period 2020 compared to 2010, the following conclusion can be drawn. The absolute number of the population and the relative share of the population over working age in smaller and especially border rural areas is decreasing compared to large administrative centers. However, the share of the population over working age in relation to the total population in these areas is higher than in the larger administrative centers. This could be explained by the fact, on the one hand, that rural areas are increasingly dominated by aging population, and on the other, with the higher mortality rate characteristic of this demographic group of the population. Regarding the influence of local socio-economic factors in rural areas, they mostly have a limited or moderate impact on the considered indicators. Only in isolated cases is the very strong or adverse impact on the population as a whole and above working age in particular reported.

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