Study of part of non-agricultural activities in rural areas of South-Central region of Bulgaria for the period 2010 – 2020

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Abstract. Rural areas (RA), according to their geographical determination, are determined by specific characteristics for each of them. The administrative affiliation, on the other hand, fixes the socio-economic profile and in relation to this direction, the aim of the scientific study is to investigate some of the non-agricultural activities - Hotel and restaurant industry (I), Education (P) and Human health and social work (Q) in the rural areas of the South-Central Region (SCR) for the period 2010-2020. The study includes employed persons and enterprises in the specified sub-sectors. The aim of the current development is to track the movement of employed persons and enterprises in the RA of the country. These sub-sectors are related to the socio-economic status of these territories. Deductive, comparative method and Localization Index (IL) have been applied. Analysis and conclusions are made based on the Index of localization of the various activities, comparing them to the territories according to the NUTS classification. The conclusion and the findings are based on the results indicated in the study. The Classification of Economic Activities (CEA) of 2008, EU Regulation No 1893/2006 of the European Parliament and of the Council of 20.12.2006 have been applied.

1 Introduction

In the scientific development, the author accepts the national definition for rural areas as "Rural areas - the municipalities of (LAU 1), in which there is no settlement (municipality) with a population of more than 30 000 persons". According to this definition, 232 of them are classified as rural, out of a total of 265 municipalities in Bulgaria for 2020. Rural areas cover approximately 82% of the country's territory and 35-38% of the country's population [13]. From the last two national censuses, related to the general European census, the statistical data indicate that for 2011 the population in RA of the country was 2 463 083, respectively in region 1 it was 1 511 400 or 61.31%. For the same year for region 2, the population numbered 951 683, or 38.63% of the total. For 2021, there are 2 234 791 people in RA, in region 1 the population is 1 299 699 people, or 58.15%, for region 2 there are 935

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092, or 41.84% (NSI). The study is based on the "old definition" of a rural area, but the methodology is also applicable to the new methodology for determining the type of municipality [19].

At the end of 2022, a new definition of rural areas was adopted in the Strategic Plan for the Development of Agriculture and Rural Areas of the Republic of Bulgaria for the period 2023-2027, namely: "rural area" defines the municipalities in which there is no inhabited place with population over 15 000".

On the table 1 are presented RAs, divided by districts, meeting the National definition for the same in 232 rural municipalities. The research covers a period of ten years, meeting the requirements for scientific study.

Table 1 Population in rural areas by districts of the SCR 2010 – 2020

District	2010	2015	2020
Kurdzhali	85165	83700	89461
Pazardzhik	126122	118817	95346
Plovdiv	230386	219407	216756
Smolyan	80019	73329	66599
Haskovo	101529	97195	93113

Source: NSI and author's calculations

The main role of the scientific research in this publication is to present the socio-economic picture in RA of the SCR, focusing on non-agricultural activities, which are related to the number of the population in the mentioned municipalities. Employment and enterprises, which in turn form GVA, which is part of the country's GDP, and all of this determines the socio-economic status of the population in these territories. Table 1 shows the number of the population by district in the RA of the same for a period of ten years. For the five mentioned districts, as part of the SCR, it can be seen that the population in RA decreased from the beginning to the end period, with the exception of Kardzhali district, which grew by 4.75%. Non-agricultural activities in the RA are subject to the CAP of the EU and Bulgaria, as a member of this Union, must take into account the political situation [1].

2 Methods

In development in the study and analysis of non-agricultural activities - Hotel and restaurant industry (I), Education (P) and Human health and social work (Q), as parts of the sphere of Services in the RA of the SCR, of based on: Classification of economic activities (CEA) of 2008, EC Regulation № 1893/2006 of the European Parliament and of the Council of 20.12.2006. To establish a statistical classification of economic activities NACE Rev. 2, and to amend Regulation (EEC) № 3037/90 of the Council, as well as some regulations (EC), regarding specific statistical areas at the regional level for the member countries. In the publication I refer to Section II, Art. (9 to 21) and Appendix I and II of the above CEA [10]. The purpose of the research is to reveal part of the non-agricultural activities in the field of Services Hotel and restaurant industry (I), Education (P) and Human health and social work (Q) in RA of the SCR. During the development of the material, from the statistical information for the region, administrative centers and settlements with a population of more than 30 000 peoples were removed, leaving only rural municipalities [8]. They are related to the socio-economic activities of this type of administrative-territorial units, bound by a law on Regional Development in force from 31.08.2008, State Gazette No 50 of May 30, 2008,

amended SG., No 21 of March 13, 2020, Chapter Two - Territorial basis of regional development, Art. 4. [2], [4-5], (suppl. - SG No 21/20, in force from 13.03.2020).

When developed, the Index of localization (IL) is a basic indicator that serves to compare regions, rural areas, municipalities and settlements according to the main, regional socio-economic activities for the same to the country [3]. When using IL for industry, sub-industry, production, employed persons in a given administrative-territorial unit and it is greater than 1 (unit), with a basic indicator for the country as a whole, then the production (activity) of the industry has a higher concentration in the region or municipality, which is an indicator of localization of the relevant economic or social activity. With a coefficient less than 1 (unit) in the respective territory, localization processes are absent or there is a small concentration of industries, sub-industries, productions and employed persons [11]. The use of the economic indicator IL can be tied to the number of the population of a certain territory, employed persons in various types of industries, sub-industries in production activities (specifically for the population of working age). The following formula is used to calculate IL:

$$\mathbf{\mathit{IL = (Sj / Nj) / (S / N) = (Sj / S) / (Nj / N)}} \quad \text{(1)}$$

Where:

IL –Index localization

Sj – the number of employed persons/enterprises in industry j in the region

S – the number of employed persons/enterprises in the processing industry in the area

Nj – the number of employed persons/enterprises in industry j in the country

N – the number of persons/enterprises employed in the manufacturing industry in the country

The research used the European NUTS classification, the definition of Rural Areas responsible for the country, the National Statistics Office of Bulgaria, statistical information from the NSI on the number of non-financial enterprises and employed persons for a period of ten years - 2010, 2015 and 2020, according to the CEA. Research is applicable, applying a comparative analysis, between the EU when using the NUTS classification and for smaller administrative-territorial units of the same. Microsoft Word and Excel were used in the research and analysis of statistical information.

3 Results

In the scientific publication, I examine the employed persons and non-financial enterprises in the RA by regions of the SCR for a period of ten years. I analyze the subsectors - Hotel and restaurant industry (I), Education (P) and Human health and social work (Q), which are in the sphere of the Services sector for the territory of the country [6]. The final result of IL in visualized in figures indicating the years and the territories considered above. In Figure 1, the IL of persons employed in a sub-sector is presented - Hotel and restaurant industry (I).

Analysis of IL in Figure 1 reveals that there is the highest localization of I in the RA of Smolyan region for the entire study period. According to the IL for employed persons in the RA of Plovdiv region, they occupy a smaller concentration in subsector - I and both territories have an indicator above 1. South Central Bulgaria, relative to the country, IL is above one for the entire period of research, there is a specialization in subsector I. Rural municipalities in the SCR, throughout the study period report an index above 1, the territory has a specialization in this subsector. With values below one is the RAs of Pazardzhik, Haskovo and Kardzhali districts [2].
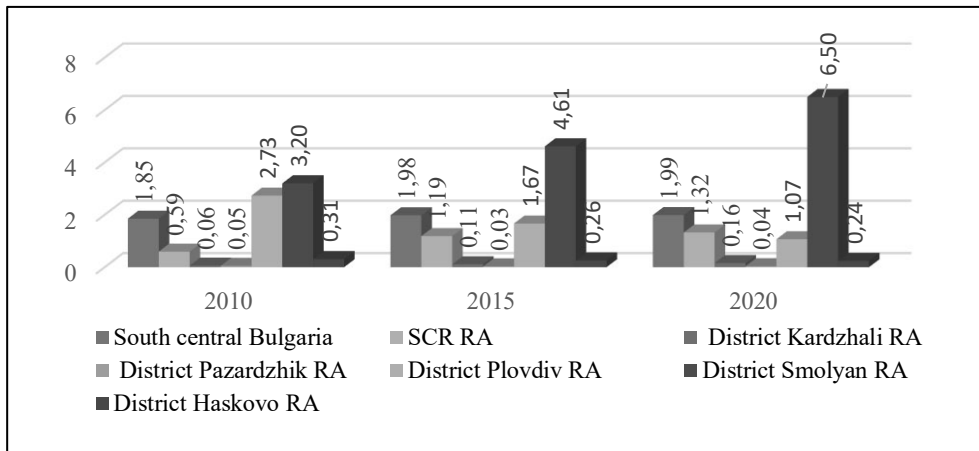
Fig. 1. Employed persons under CEA – I by Regions for RA by IL for Bulgaria
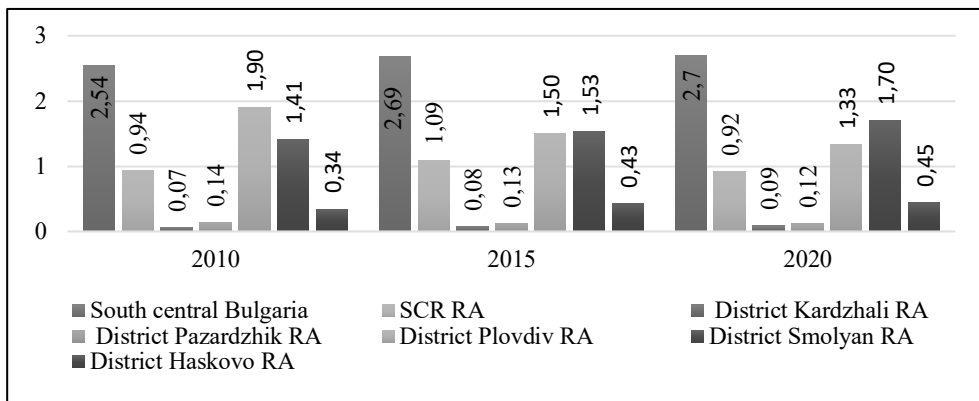Source: NSI and author's calculations

Fig. 2. Non-financial enterprises under CEA – I by Regions for RA under IL for BG
Source: NSI and author's calculations

The Index localization for non-financial enterprises during the research period reports specialization above one in subsector - I for South Central Bulgaria relative to the country. From RA by regions with an index above one is Smolyan and Plovdiv, and in 2010, the latter surpassed the former with an index of 0.49. In the following years, there is an equalization and overtaking in the localization of non-financial enterprises in I. For the RA of the SCR during the study period, IL reports values below one compared to the country at the end of the period, there is an increase of 0.2 index. Values above one or close to the index indicate specialization of the area [4]. The rest of the RAs in Pazardzhik, Kardjali and Haskovo districts are under one, they have minimal localization of this type of non-financial enterprises from sub-sector - I. In Figure 3, the IL of persons employed in a sub-sector is presented - Education (P).
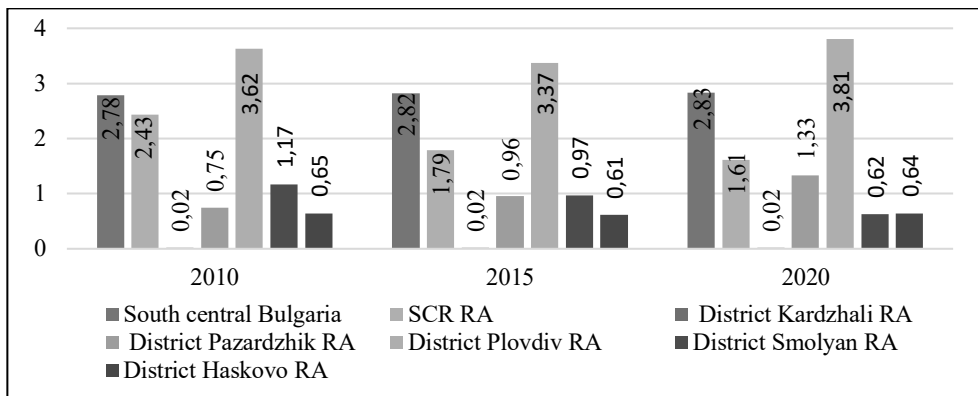
Fig. 3. Employed persons under CEA – P by Regions for RA by IL for Bulgaria
Source: NSI and author's calculations

Figure 3 visualizes the IL in the Education sub-sector in the RA of the SCR and the comparative scales analyzing the state. With the highest indices of localization, there are in the RA of the South-Central Bulgaria (SCB), which gave rise to the high concentration of population and the large number of settlements, as well as the RA of the Plovdiv region throughout the study period. As in the latter territory, the largest number of educational institutions covering the needs of the investigated sub-sectors are located [6]. RAs in the SCR also have their own specialization that meets the needs and requirements of the other subsectors. With the lowest concentration are the RAs of the Kardzhali region, due to the specifics of the region of a social nature. RAs of Smolyan and Pazardzhik localize their specialization approaching unity.
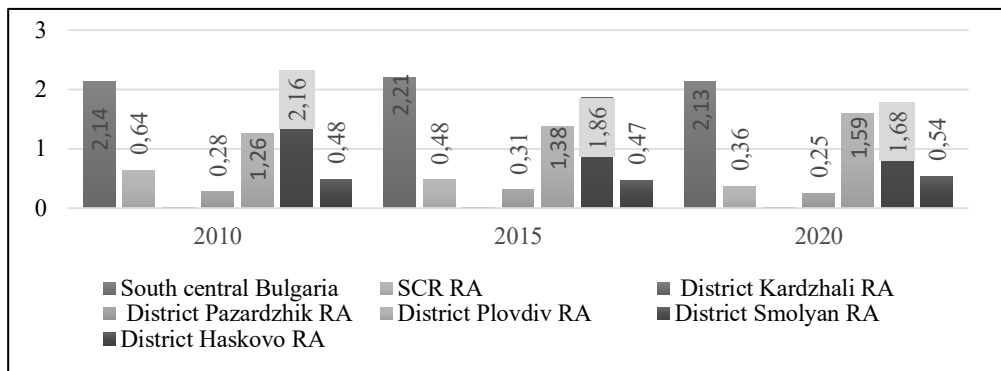

Fig. 4. Non-financial enterprises under CEA – P by Regions for RA under IL for BG
Source: NSI and author's calculations

Figure 4 presents the IL of non-financial enterprises for the Education sub-sector, with a high concentration being distinguished by the RAs of the SCB - available educational infrastructure. RA of Smolyan region also note a high concentration of enterprises from (P), the main reason being the sheltered schools in small settlements [15]. They are followed by the RA of the Plovdiv region - there are leading specialized schools on the territory of the municipalities. Compared to the country, the RAs of the South-Central Bulgaria have a low specialization in this subsector. RA of Pazardzhik and Haskovo regions have localization of specialization under one unit, due to closure of a number of educational institutions in recent decades [12]. Figures 5 and 6 present the analysis of the sub-sector Human health and social

work (Q) based on employed persons and non-financial enterprises for a period of ten years in the RA of the SCR and compared with the RA of the SCB.
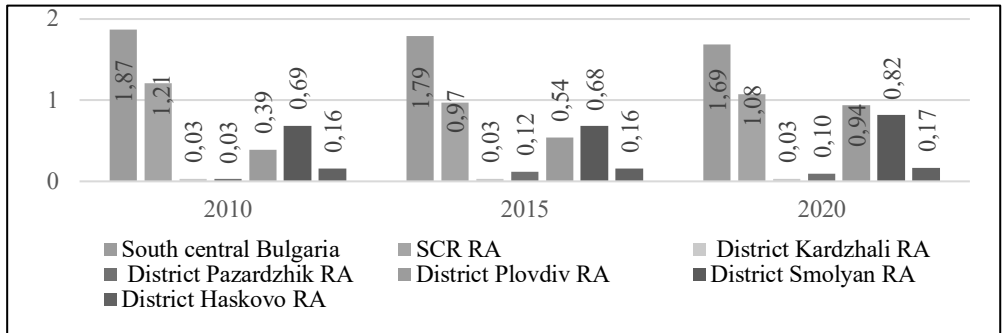

Fig. 5. Employed persons under CEA – Q by Regions for RA by IL for Bulgaria
Source: NSI and author's calculations

With the highest location index value at (Q) reported in the SCB throughout the period, followed by the RAs of the SCR, as a whole. There are health professionals with high specialization in Smolyan and Plovdiv RAs. The remaining three regions have a low localization, and in the RA of Kardzhali district, the values of IL approach zero [14]. On the territory of the city of Plovdiv there are several educational institutions that create personnel for the subsector Human health and social work (Q).
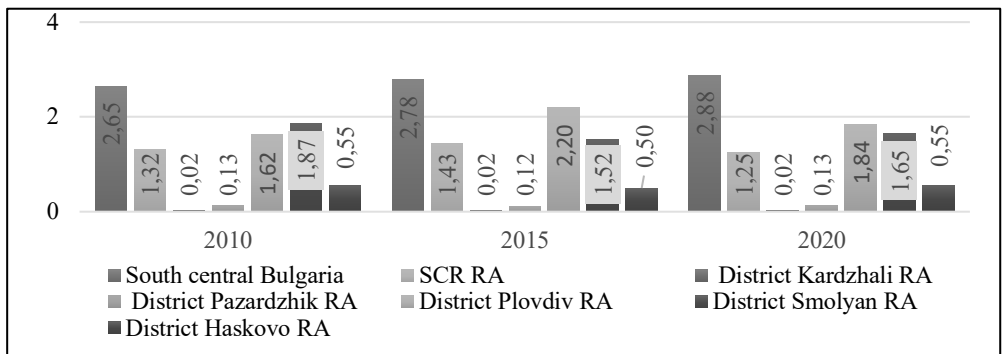

Fig. 6. Non-financial enterprises under CEA – Q by Regions for RA under IL for BG
Source: NSI and author's calculations

Figure 6 visualizes the IL for the non-financial enterprises in the subsector (Q), with the index again reporting a high concentration of the same in the SCB, RA of the SCR and such in the RA of Smolyan region. In the case of the first two, the large localization is due to the urbanization processes in the central parts of Bulgaria, while in the case of the latter there is preservation of the structure of the sub-sector, due to the specific socio-economic factors in the mountainous regions. RAs of the Plovdiv region also report high specialization in (Q), the proximity of the urbanized center has an impact on the social way of life. There are low indicators of specialization in the non-financial enterprises for (Q) in the RA of Pazardzhik and Haskovo region [5].

4 Conclusion

The localization index is applicable at the macro level in the RA in Bulgaria in the specific publication, for the analysis of employed persons and non-financial enterprises for a certain

period of time. The study of the three sub-sectors has a logical connection in their participation in the Services sector. The employment of the population in the socio-economic life of a certain territory (RA in the SCR) is always a leading indicator of the status of the population. Employment in the Hotel and restaurant industry (I) is a key element - on the one hand, it provides a livelihood for the population, allows the development of private initiative, provides recreational activity with labor at all levels of management. Employment keeps the working population in the RA in the SCR and helps to develop non-agricultural activities based on the natural resource potential of the territory [18]. Persons employed in Education create personnel, which in turn is a part of the remaining two sub-sectors Hotel and restaurant industry and Human health and social work. On the other hand, the persons employed in Human health and social work serve the other activities in RA of the SCR. The interconnectedness of the persons employed in the above-mentioned activities is important because they stop the depopulation of territories that are specific in terms of nature and socio-economics [20].

The non-financial enterprises for the Hotel and restaurant industry (I) subsector, for the RA of the SCR, are part of the social infrastructure that provides the opportunity to implement economic activities in areas that are very specific in terms of natural, social and economic nature. South-central Bulgaria has a high localization in this sub-sector of the economy based on natural and socio-economic conditions. RAs of the SCR also have a high localization for this type of activity, with the regions of Smolyan and Plovdiv leading the way due to their uniqueness and specificity. In the Education (P) sub-sector of the region during the study period, there is also specialization, despite the drastic decline of educational institutions, in general, in the country due to the deteriorated geo-demographic picture. With high localization are Smolyan and Plovdiv RAs, with the lowest values are Haskovo and Kardzhali RAs (due to the ethnic composition of the population in the latter two). The last sub-sector of the study is Human health and social work (Q), where there is a high localization of activities in the RA of the SCB, SCR, Smolyan and Plovdiv regions. For the rest, there are underestimated values due to the depopulation of the regions and the ethnic specificity of the population [16]. This sub-sector has a social character and importance for the population living in the RA and is linked to the previous two, serving their needs (9).

The study of RAs at the local and continental level is important, as it tracks the socio-economic status of the population in the smallest administrative units and acquires the most accurate picture of them.

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