

# NUMBER, DENSITY AND GEOGRAPHICAL DISTRIBUTION OF THE POPULATION IN THE STATISTICAL REGIONS OF THE REPUBLIC OF NORTH MACEDONIA, DURING THE YEARS 2008, 2013 AND 2019

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## Abstract

This paper deals with the number, density and distribution of the population in the statistical regions of the Republic of North Macedonia, comparing them with each other.

Special attention in this study is paid to the analysis of the process of changes in the number and density of the population during the years 2008, 2013 and 2019.

Numerous geographical and demographic changes in the regions have directly or indirectly affected the emergence of demographic problems. Therefore, by this paper we aim to highlight the changes in the population of the regions and the factors that lead to these changes.

Some of the methods used in this paper are the descriptive method, analytical, the comparative and statistical, graphic and cartographic method, having in mind the official data of the State Statistical Office for Population of the Republic of North Macedonia.

The dynamics of total movement of population in the Republic of North Macedonia is different in each of the regions, the region with the largest increase in the total population is the Skopje Region, which from 2008-2019 has increased for 35359 inhabitants (about 1.4%), while the Pelagonia Region has the most significant decrease for 7822 inhabitants (0.5%). Also, the density differs between the regions, where as a region with the highest population density is the Skopje Region with 348.3 inhabitants/km<sup>2</sup>, while with the lowest density is the Vardar Region, with 37.5 inhabitants/km<sup>2</sup>.

Population is one of the main factors affecting socio-economic development. Due to the differences of the population in the regions, there is a breakdown of the socio-economic balance. For this reason, we think that we should intervene in creating the relevant preconditions, which will enable territorial, homogeneous and socio-economic development in all geographical, political and regional areas.

**Keywords:** population, density, region, North Macedonia

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## 1. Introduction

Population is the main factor of development and progress of any country. But even it itself changes and develops depending on natural, social and economic conditions.

The study of the population is of great importance for the economic and social development of the regions and the state. The creation and expansion of economic production capacities that affect the increase of living standards, depends on the number of the population, the dynamics of its growth, territorial distribution, etc. Thus, the population is the bearer of economic and social development, i.e. of the general development of the state or its specific regions, therefore it cannot be studied separately from the space where it is located.

From the analysis made we notice that the dynamics of population movement in the Republic of North Macedonia is different in each of the statistical regions, due to the fact that the factors that affect the movement of population are different in each region, where due to these population differences in the regions, there is a breakdown of the socio-economic balance. For this reason,

this paper focuses on the analysis of the movement of the total number of the population, density and geographical distribution of the population in the statistical regions of North Macedonia, during the years 2008, 2013 and 2019.

According to official data presented by the State Statistical Office of the Republic of North Macedonia, for the ten-year period from 2008 to 2019, the population of the Republic of North Macedonia has marked an increase in the total population number of 27636 inhabitants (1.3%), i.e. from 2048619 inhabitants in 2008 to 2076255 inhabitants in 2019, while in terms of regions, four of them mark an increase in population such as: Southeast Region, Polog Region, Northeast Region and Skopje Region, while the regions with decreasing total population during this period are: Pelagonia Region, Eastern Region, Southwest Region and Vardar Region.

## **2. Statistical regions in the Republic of North Macedonia and number of municipalities**

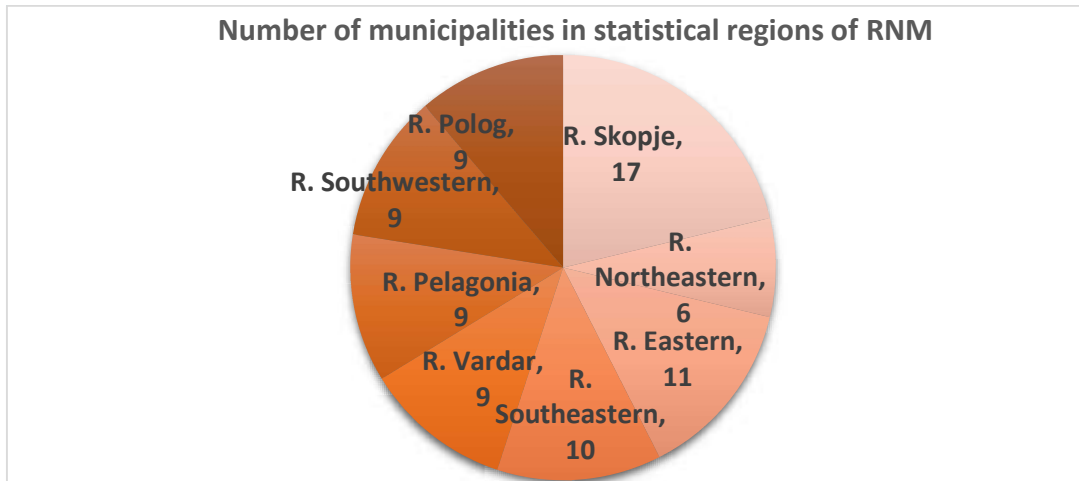
The Republic of North Macedonia is located in Southeastern Europe, respectively in the center of the Balkan Peninsula. It is divided into 8 statistical regions, and they are: Skopje Region, Northeast Region, Eastern Region, Southeast Region, Vardar Region, Pelagonia Region, Southwest Region and Polog Region.

In the Republic of North Macedonia there is a total of 80 municipalities, where each of the region includes some of them.

- Skopje Region includes seventeen (17) municipalities, ten municipalities of the city of Skopje such as: the municipality of Aerodrom, Butel, Gazi Baba, Gjorche Petrov, Karposh, Kisela Voda, Saraj, Centar, Chair and Shuto Orizari, as well as seven rural municipalities: the municipality of Arachinovo, Zelenikova, Ilinden, Studenihtani, Sopište, Petrovec and Chucher Sandeva.
- Northeast Region includes six (6) municipalities, three urban municipalities, namely the municipality of Kumanovo, Kriva Palanka and Kratovo, as well as three rural municipalities: the municipality of Lipkovo, Rankovce and the municipality of Staro Negorichane.
- Eastern Region includes eleven (11) municipalities, eight urban municipalities: the municipalities of Berovo, Delchevo, Kochani, Pehchevo, Probištip, Shtip, Vinica and Makedonska Kamenica, as well as three rural municipalities: the municipalities of Zrnovci, Karbinci and Chesinovo.
- Southeast Region includes ten (10) municipalities, six urban municipalities: the municipality of Bogdanci, Gevgelija, Valandovo, Strumica, Radovish, Dojran and four rural municipalities: the municipalities of Novo Selo, Bosilovo, Vasilevo and Konche.
- Vardar Region includes nine (9) municipalities, five urban municipalities: the municipality of Kavadarci, Demir Kapija, Negotino, Veles and Sveti Nicola and four rural municipalities: the municipality of Chaska, Rosoman, Lozova and Gradska.
- The Pelagonia Region includes nine (9) municipalities, five urban municipalities: the municipalities of Bitola, Prilep, Krushevo, Demir Hisar and Resen, as well as four rural municipalities: the municipality of Dolneni, Krivogashani, Novaci and Mogila.
- Southwest Region includes nine (9) municipalities, five urban municipalities: the municipality of Dibra, Kichevo, Ohrid, Struga and Makedonski Brod, as well as four rural municipalities: the municipality of Plasanica, Vevchani, Debarca and the municipality of Centar Zhupa.

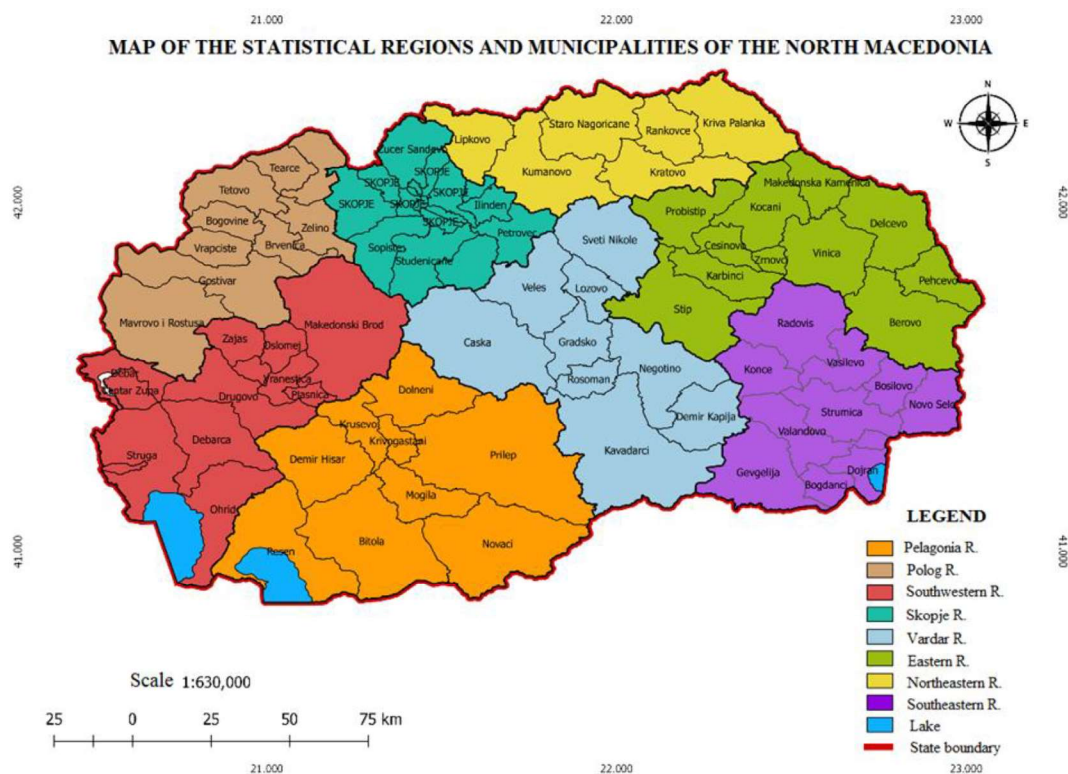
- Polog Region includes nine (9) municipalities, two urban municipalities: Tetovo and Gostivar, as well as seven rural municipalities: the municipalities of Bogovinje, Tearce, Brvenica, Zhelina, Jegunovce, Vrapchiste, Mavrovo and Rostusha. [7].

Regarding the municipalities in the Republic of North Macedonia, the largest municipality in terms of territory is the municipality of Prilep, which is located in the Pelagonia Region and has an area of 1194 km<sup>2</sup>, while the municipality with the smallest territory is the municipality of Vevchani with an area of 22.8 km<sup>2</sup>, which is located in the Southwest Region.



**Figure 1.** Number of municipalities in statistical regions of North Macedonia

In the following map we have presented, in a cartographic way, the statistical regions of the Republic of North Macedonia together with the administrative units that include each region.



**Figure 2.** Map of the statistical regions and municipalities of the North Macedonia

### 3. Dynamics of population movement in the regions of Republic of North Macedonia

The dynamics of population movement in the Republic of North Macedonia is different in each of the statistical regions, due to the fact that the factors that affect the movement of population are different in each region. Among the important factors influencing the movement of population are the fertility rate, birth rate, mortality rate reduction, population migration, female emancipation, increasing living standards, as well as political and socio-economic factors.

According to official data presented by the State Statistical Office of the Republic of North Macedonia, for the ten-year period from 2008 to 2019, the population of the Republic of North Macedonia has marked an increase in the total population number per 27636 inhabitants (1,3%), i.e. from 2048619 inhabitants in 2008 to 2076255 inhabitants in 2019. [11].

According to the data for the regions, presented in the table below, we notice that four statistical regions of the Republic of North Macedonia mark an increase in population: Southeast Region, Polog Region, Northeast Region and Skopje Region.

**Table 1.** Total movement of population in statistical regions of North Macedonia, 2008, 2013 and 2019

Regions of North Macedonia	Year						Difference between 2008-2019	
	2008	%	2013	%	2019	%	2008-2019	%
<b>Skopje R.</b>	597914	29.1	614254	29.7	633273	30.5	35359	1.4
<b>Northeastern R.</b>	174415	8.5	175863	8.5	175973	8.5	1558	0
<b>Eastern R.</b>	180100	8.7	177988	8.6	173804	8.4	-6296	-0.3

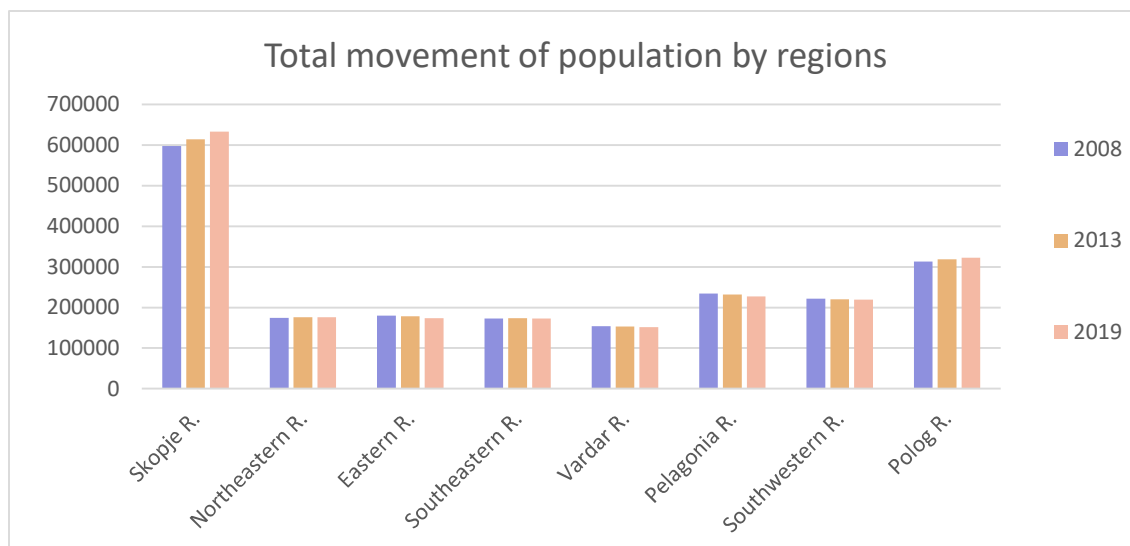
<b>Souteastern R.</b>	172485	8.4	173472	8.3	172824	8.3	339	-0.1
<b>Vardar R.</b>	153872	7.5	153422	7.4	151492	7.3	-2380	-0.2
<b>Pelagonia R.</b>	234659	11.4	232113	11.2	226837	10.9	-7822	-0.5
<b>Southwestern R.</b>	222064	10.8	220199	10.6	219180	10.6	-2884	-0.2
<b>Polog R.</b>	313110	15.2	318458	15.4	322872	15.6	9762	0.4
<b>North Macedonia</b>	2048619	100	2065769	100	2076255	100	27636	1.3

Source: SSO, 2006-2018 (data processed by the author)

The region, which during this decade, has had the largest increase in the total population is the Region of Skopje, which in 2008 had 597914 inhabitants (29.1%), in 2019 reached 633273 inhabitants or (30.5%), which means that the population has increased per 35359 inhabitants (about 1.4%). As a cause for the population number increase in this region is considered the inner migrations and the high natural growth. The capital of the country, Skopje, is to be found in this region, towards which the internal migrations in the country are oriented. Also, in this region we have the municipality with the highest natural growth rate in Republic of North Macedonia, the municipality of Studenichan with a natural growth rate of 15.5 %. [10]

The second region with the largest population in the Republic of North Macedonia, after the Skopje Region is the Polog Region, which in 2019 at the state level constitutes 15.6% of the population. Polog region, in addition to having a larger number of inhabitants compared to other regions, also has a higher increase in population during the period 2008-2019 per 9762 inhabitants or 0.4% at the level of state, where from 313110 inhabitants (15.2%) in 2008 reaches 322872 inhabitants (15.6%) in 2019. The increase of the population in this region is due to the high natural growth that the municipalities with Albanian population have, and also the internal migrations carried out for various purposes such as employment, marriage, etc.

The other region which has had an increase in population during the period 2008-2019 is the Northeast Region with an increase of 1558 inhabitants, which in relation to the total number at the state level remains the same in both 2008, also in 2019 its share is 8.5%. Whereas the Southeast Region in the period 2008-2019 is presented with an increase in population per 339 inhabitants, while in relation to the total number of the state it decreases by 0.1%. In these two regions, as a result of low natural growth, there has been marked very small population increase.



**Figure 3.** Total movement of population by regions in North Macedonia, 2008, 2013 and 2019

Other regions of the Republic of North Macedonia mark a decrease in the total population during this period, among them are the Region of Pelagonia, the Eastern Region, the Southwest Region and the Region of Vardar. The most significant decrease in the total population has the Pelagonia Region with a decrease of 7822 inhabitants (0.5%), where from 234659 inhabitants (11.4%) in 2008 it decreases to 226837 inhabitants (10.6%) in 2019. Also with a large decrease is the Eastern Region, which from 180100 inhabitants (8.7%) in 2008, decreases to 173804 inhabitants (8.4%) in 2019, and marks a loss of 6296 inhabitants (0.3%). [10]

Among the statistical regions that mark a decrease in the total population and also in their participation at the state level during the period 2008-2019 are the Southwest Region and the Vardar Region, which have a decrease in population by 0.2%. The reason for the decrease in population is the migration of the population and the low natural growth, respectively negative natural increase, where as a consequence in these regions we have a decrease of the young population and an increase of the old population.

The differences in the number of population from 2008 to the present day in the Republic of North Macedonia can be more clearly seen in the following map, where, in a cartographic way, we have presented the dynamics of the population movement for each statistical region in particular.

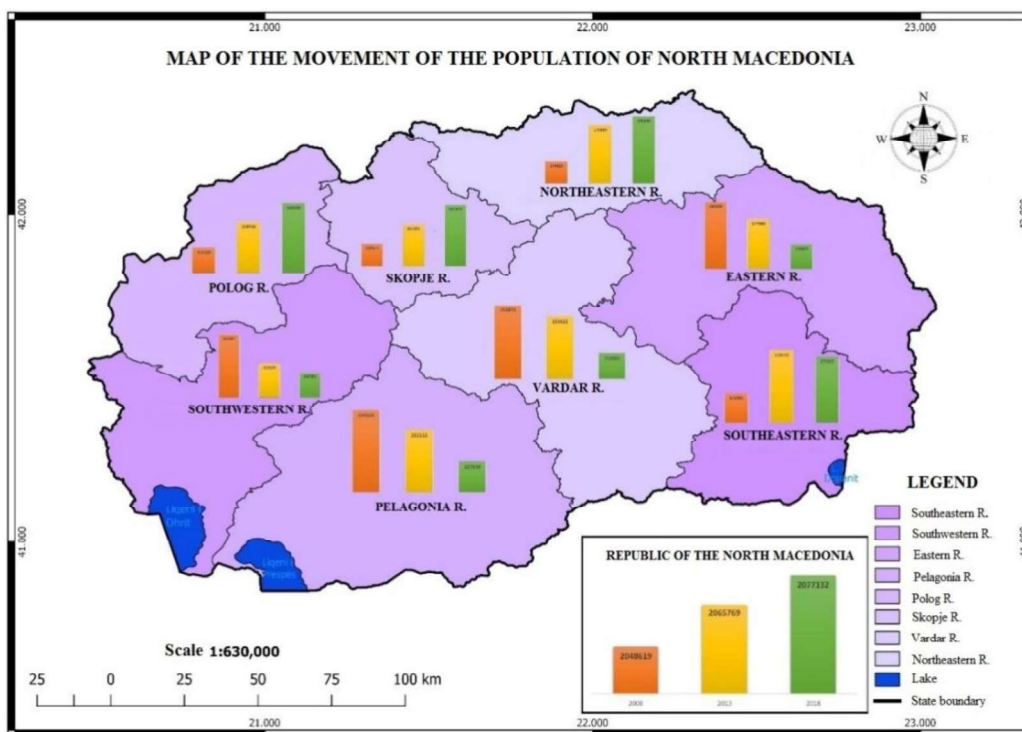


Figure 4. Map of the movement of the population of North Macedonia

#### 4. Density and geographical distribution of the population

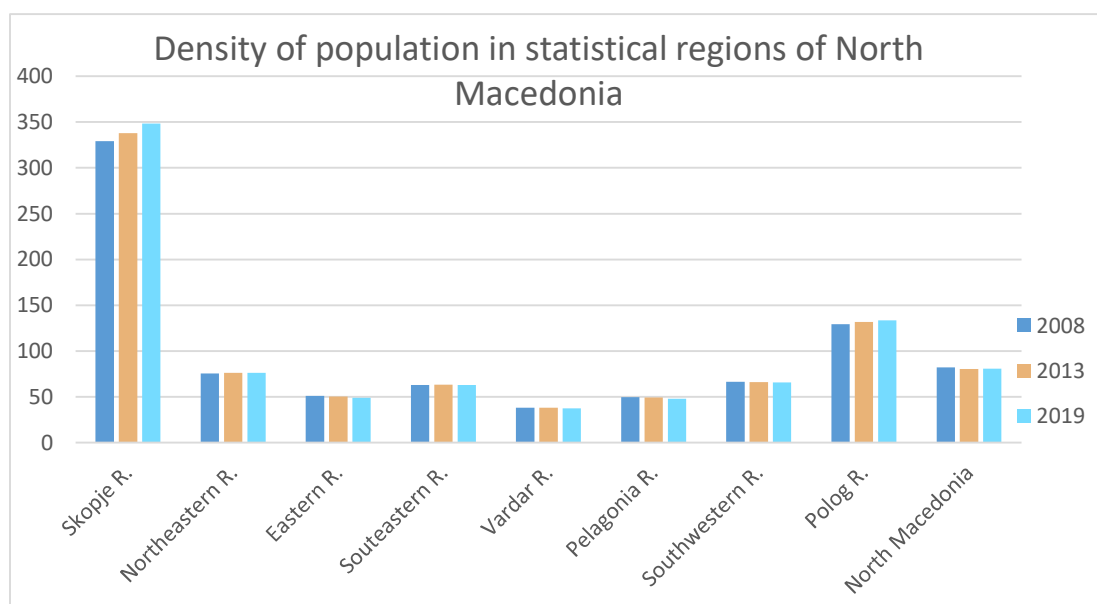
In addition to the total population, the geographical distribution and population density have also changed, both at the state and regional levels. In 2008, the average population density in the Republic of North Macedonia was 79.7 inhabitants /km<sup>2</sup>, which has continuously increased and in 2019 reaches 80.7 inhabitants/km<sup>2</sup>.

Regarding the population of the Republic of North Macedonia, it is not evenly distributed throughout the country, as the territory of the state itself is close to 80% with hilly-mountainous relief. The flat part of the state, mainly the plains, is distinguished by the highest population density, while the mountainous areas are distinguished by the lowest density. Density and geographical distribution of the population in the Republic of North Macedonia differs amid the regions, where as a region with the highest population density is the Skopje Region with 348.3 inhabitants/km<sup>2</sup>, while with the lowest density is the Region of Vardar, with 37.5 inhabitants/km<sup>2</sup>. In the table below, we have presented the population density in the regions of Republic of North Macedonia, during the period 2008-2019, where we note that the region with the highest population density is the Skopje Region, with 348.3 inhabitants/km<sup>2</sup> for the year 2019, since the capital itself is located there consequently we have a greater concentration of population there. After the Skopje Region with high density follows the Polog Region, with 133.6 inhabitants/km<sup>2</sup> for 2019, where several have their impact, such as: the presence of two universities, the presence of two major cities, Tetovo and Gostivar, etc. The region with the lowest density is the Vardar region, with 37.5 inhabitants/km<sup>2</sup>. As for other regions, the distribution of population is expressed this way: Northeast Region with 76.2 inhabitants/km<sup>2</sup>, Southwest Region with 65.6 inhabitants/km<sup>2</sup>, Southeast Region with 63.1 inhabitants/km<sup>2</sup>, Eastern Region with 49.1 inhabitants/km<sup>2</sup> and the Region of Pelagonia 48.1 inhabitants/km<sup>2</sup>. [10]

**Table 2.** The density of population in statistical regions of North Macedonia, 2008, 2013 and 2019

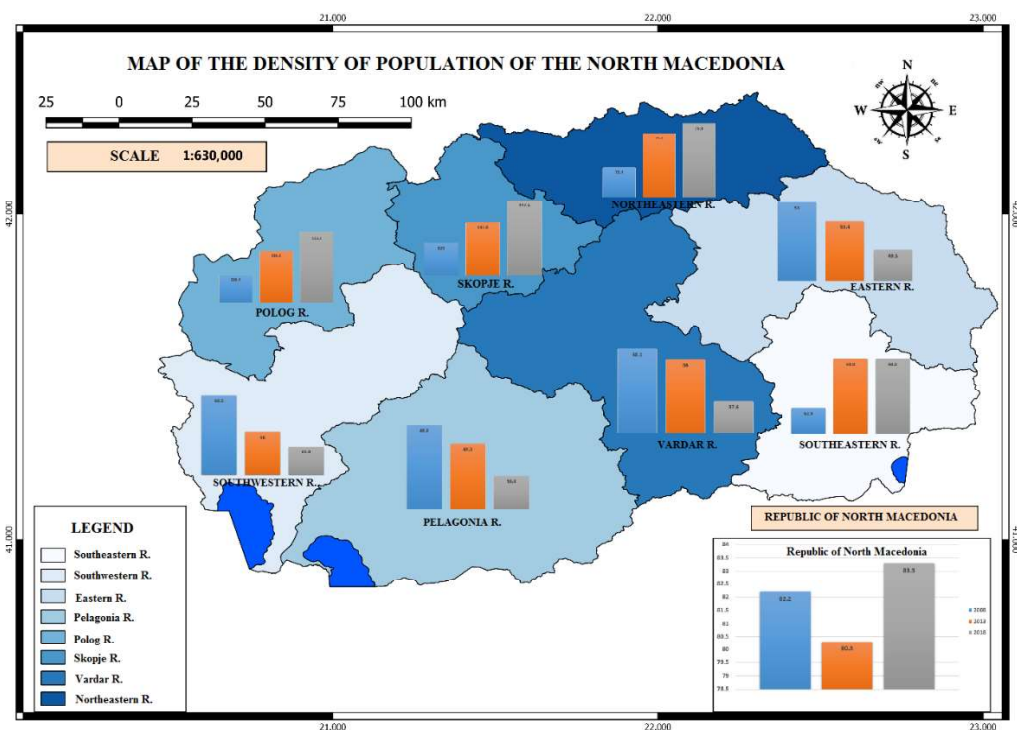
Regions of North Macedonia	Surface area km <sup>2</sup>	Density of population (inhabitants /km <sup>2</sup> )			
		2008	2013	2019	Difference between 2008-2019
Skopje R.	1818	328,9	337,8	348,3	19,3
Northeastern R.	2310	75,5	76,1	76,2	0,8
Eastern R.	3537	50,9	50,4	49,1	-1,9
Souteastern R.	2739	63,0	63,3	63,1	0,2
Vardar R.	4042	38,1	38,0	37,5	-0,6
Pelagonia R.	4717	49,8	49,3	48,1	-1,7
Southwestern R.	3340	66,5	66,0	65,6	-0,9
Polog R.	2416	129,6	131,8	133,6	4,2
North Macedonia	25713	79,7	80,3	80,7	-1,5

Source: SSO, 2006-2018 (data processed by the author)



**Figure 5.** The density of population in statistical regions of North Macedonia, 2008, 2013 and 2019

During the study of population density in the regions of Republic of North Macedonia, the population density was also calculated for the municipality with the highest population density, which is the Municipality of Karposh, with 1731.9 inhabitants/km<sup>2</sup> in 2019, located in the Region of Skopje, and the municipality with the lowest population density which is the Municipality of Novac, with 4 inhabitants/km<sup>2</sup> in 2019, located in the Region of Pelagonia.



**Figure 6.** Map of the density of population of North Macedonia

## 5. Conclusions

This paper analyzes the movement of the total population number, density and geographical distribution of the population in the statistical regions of the Republic of North Macedonia in 2008, 2013, 2019, which is important for the socio-economic development. The Republic of North Macedonia is divided into 8 statistical regions, as follows: Skopje Region, Northeast Region, Eastern Region, Southeast Region, Vardar Region, Pelagonia Region, Southwest Region and Polog Region. Each of the regions of the Republic of North Macedonia includes several administrative units, out of a total of 80, seventeen (17) of them belong to the Skopje Region, which is also the region with the most municipalities in the country, followed by the Eastern Region with 11 municipalities, then the Southeast Region with 10 municipalities and four regions with 9 municipalities each are: Vardar Region, Pelagonia Region, Southwest Region and Polog Region, while the region with the least number of municipalities is the Northeast Region, which includes six (6) municipalities.

Each of the statistical regions is different from the other, especially in terms of demographics. Among the important factors influencing the movement of population in the regions are the population fertility rate, birth rate, mortality rate reduction, population migration, population emancipation, increasing living standards, as well as political and socio-economic factors.

According to official data presented by the State Statistical Office of the Republic of North Macedonia, for the ten-year period from 2008 to 2019, the population of the Republic of North Macedonia has marked an increase in the total population number of 27636 inhabitants (1.3%), i.e. from 2048619 inhabitants in 2008 to 2076255 inhabitants in 2019.

In terms of population number, it has grown rapidly in some regions, such as in the Polog, Skopje, Northeast and Southeast regions, while in the other four regions: The Eastern, Vardar,

Southwestern and Pelagonia regions there is a decline of the population number. The dynamics of movement number of population in the Republic of North Macedonia is different in each of the statistical regions, the region with the largest increase in the total population is the Skopje Region, which from 2008-2019 has increased by about 1.4% or for 35359 inhabitants, while the Pelagonia Region has the most significant decrease for 7822 inhabitants or 0.5%. The reason for the increase in population appear to be the internal migrations, carried out for various purposes such as employment, marriage, etc. and the high natural growth of the municipalities with Albanian population, while the reason for the decrease of the population number in other regions are the migrations of the population and the low natural growth, respectively negative growth, where as a consequence we have decrease of the young population and increase of the elderly population.

Population density certainly varies from region to region. In 2019, the population density of North Macedonia was 80,7 inhabitants / km<sup>2</sup>, while the region with the highest density is the Skopje Region, with 348.3 inhabitants / km<sup>2</sup>, because in this region is located the state capital Skopje, which is considered a gravitating center for the population, while the region with the lowest density is the Vardar Region, with a density of 37.5 inhabitants / km<sup>2</sup>.

From the analysis made we can conclude that the dynamics of population movement number and population density in the Republic of North Macedonia is different in each of the statistical regions due to the fact that the factors affecting the movement of population are different in each region. Due to these population differences in the regions, there is a breakdown of the socio-economic balance. For this reason, we think that we should intervene in creating the relevant preconditions, which will enable territorial, homogeneous and socio-economic development in all geographical, political and regional spaces.

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