

## DEMOGRAPHIC CHARACTERISTICS OF THE POPULATION IN THE POLOG REGION

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### Abstract

This paper aims to analyze the demographic characteristics of the population in the Polog region, including changes in population numbers and population density, with a particular emphasis on natural population growth and mechanical population movement (both internal and external).

As in the rest of the world, in the Polog region too, the population plays a key role and is the main factor in the growth and development of the country.

The purpose of this paper is to provide a clear and detailed overview of the current state and demographic trends in the Polog region, with the aim of assisting in the planning of sustainable development policies.

Additionally, the paper addresses migration trends, birth and death rates, as well as the impact of socio-economic factors on the demographic development of the region.

In our opinion, in order to influence the values of the natural population growth rate and the overall population, specific policies should be undertaken. These would increase the birth rate and support families by first providing secure employment for parents, additional financial resources, and creating a future perspective that would help boost births and reduce migration.

*Keywords:* population, density, mechanical movement, natural growth, Polog region.

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### 1. Introduction

This paper will examine the key factors influencing the demographics of the Polog region, focusing on the natural population movement, changes in birth and death rates, as well as the impact of migration. In addition, it will analyze demographic trends and challenges that the region has experienced over the past decades and will propose possible measures and policies to promote sustainable demographic and economic development.

This paper will also discuss several demographic characteristics of the Polog region, with a particular emphasis on demographic components such as the general population movement, population density, natural population movement, and mechanical population movement within the region. These components will be analyzed at the municipal level, along with the ratio between the urban and rural populations.

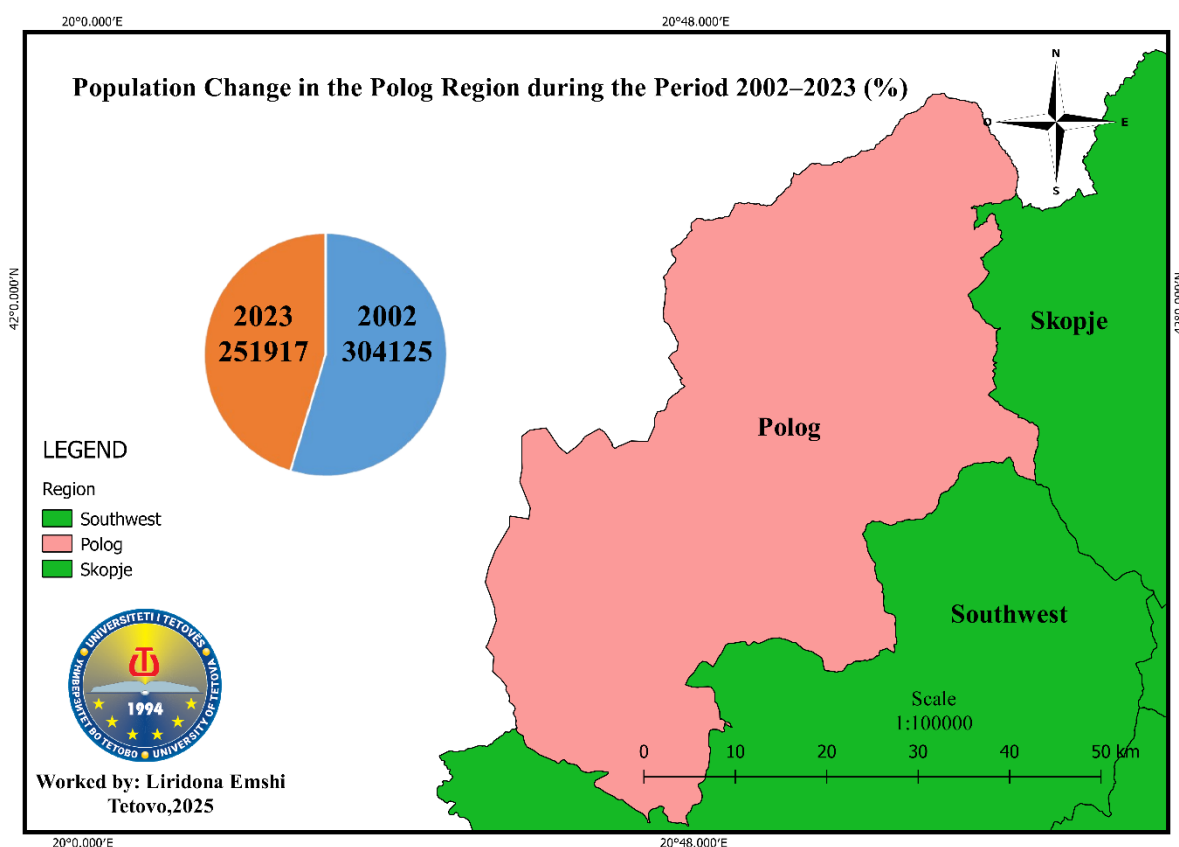
The aim of this paper is to provide a detailed, data-based overview of the current demographic situation in the Polog region, contributing to the development of informed policies for the region's advancement and the improvement of living conditions for its residents.

### 2. Population Change in the Polog Region

The first official population censuses in North Macedonia were conducted in 1921 and 1931. However, the data from those censuses are incomplete and biased. The Polog region is characterized by relatively good population density and very dynamic demographic developments. In this context, the study of the population is of great importance for the economic and social development of the municipality, the region, and the country as a whole.

The creation and expansion of productive economic capacities that influence the improvement of living standards depend on the population size, its growth dynamics, territorial distribution, etc. The population is the main factor of development and progress in any country. However, the population itself also changes and develops depending on natural, social, and economic conditions.

Based on the existing data on the population numbers in the Polog region, it is evident that the population size in each municipality of Polog has changed. Analyzing the table below, it becomes clear that among the nine municipalities in the Polog region, a population decline is observed only in Mavrovo and Rostuša, where the Slavic population dominates. This decline is mainly due to a decrease in birth rates and migration toward urban centers such as Gostivar, Skopje, and other urban areas.



Map I. Population Change in the Polog Region during the Period (2002–2023)

Table 1. Population Change in the Polog Region during the Period 2002–2023 (%)

Year	2002	2007	2012	2017	2022	2023
M. Bogovinje	28997	29875	30368	30964	22905	22937
%	9.53	9.59	9.57	9.64	9.10	9.10
M.Brvenica	15855	16229	16462	16600	13633	13625
%	5.21	5.21	5.19	5.16	5.41	5.40
M.Jegunovce	10790	10829	10834	10412	8856	8832
%	3.54	3.47	3.41	3.24	3.51	3.50
M. Želino	24390	25885	27118	28114	19060	19169
%	8.01	8.31	8.55	8.75	7.57	7.60
M.Tearce	22454	22631	22818	22940	17685	17661
%	7.38	7.26	7.19	7.14	7.02	7.01

M.Tetovo	86580	88549	90489	91988	84865	85033
%	28.4	28.4	28.5	28.6	33.7	33.7
M.Gostivar	81042	82233	82916	83738	59781	59777
%	26.6	26.4	26.1	26.07	23.7	23.7
M.Mavrovo and Rostusha	8618	8808	8881	8893	5026	5008
%	2.83	2.82	2.80	2.76	1.99	1.98
M.Vrapčište	25399	26443	27117	27550	19879	19875
%	8.35	8.48	8.55	8.57	7.89	7.88
Total for Polog region	304125	311482	317003	321199	251690	251917
%	100	100	100	100	100	100

Source: SSO, 2002-2023(data processed by author)

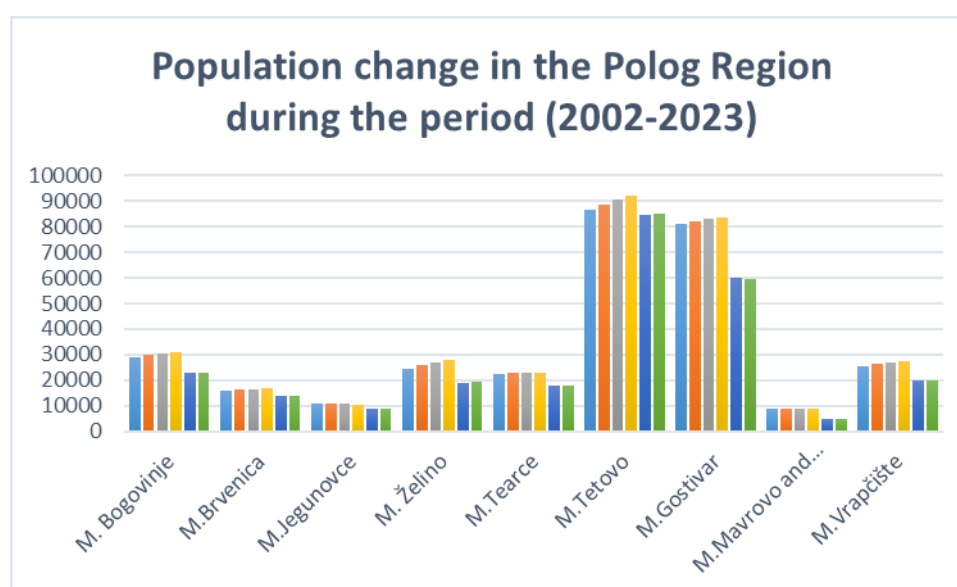


Chart 1. Population Change in the Polog Region (2002–2023)

### 3. Population density

The population in the Polog region is not evenly distributed across the entire area. The highest population density is found in the flatlands near the Polog mountains (Lower Polog), while the lowest density is in the mountainous zones. More than 80% of the region's population is concentrated in the central part of the Polog region.

Population density in this region tends to increase, as both natural growth and migration toward the area are expected to continue in the future. According to the analysis of the table below, compared to the year 2023, the population density in the Polog Region is **104.2 inhabitants per km<sup>2</sup>**.

Table 2. Population Density (inhabitants per km<sup>2</sup>) in the Polog Region (2002–2023)

Year	2002	2007	2012	2017	2022	2023
M.Bogovinje	204,7	210,9	214,3	218,5	161,7	161,9
M.Brvenica	96,5	98,7	100,1	101	82,9	82,9
M.Jegunovce	60,9	61,2	61,2	58,8	50	49,9
M. Želino	121,3	128,7	134,8	139,8	94,8	95,3
M.Tearce	164,4	165,7	167,1	168	129,5	129,3
M.Tetovo	330,5	338,1	345,5	351,2	324	324,6
M.Gostivar	157,8	160,1	161,5	163,1	116,4	116,4
M. Vrapčište	160,7	167,3	171,6	174,3	125,8	125,8
M.Mavro-Ro	12,9	13,2	13,3	13,4	7,57	7,55
T.Polog	125,8	128,8	131,1	132,8	104,1	104,2

Source: SSO, 2002-2023(data processed by author)

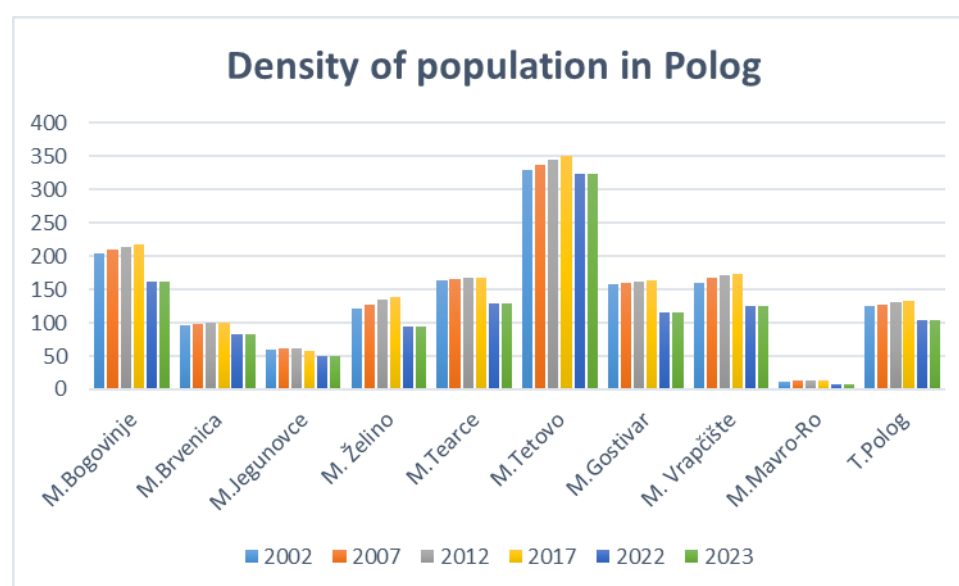


Chart 2. Density of population in Polog (2002-2023)

There is a higher population concentration in the flatland municipalities, where the density exceeds 100 inhabitants per km<sup>2</sup>. This includes two municipalities from Upper Polog: **Gostivar**, with 116.4 inhabitants/km<sup>2</sup>, and **Vrapčište**, with 125.8 inhabitants/km<sup>2</sup>; as well as municipalities from Lower Polog: **Tetovo**, with 324.6 inhabitants/km<sup>2</sup>, and **Bogovinje**, with 161.9 inhabitants/km<sup>2</sup>. These data highlight the differences between regions and municipalities within the Polog area.

#### 4. The natural movement of the population

The natural movement of the population is one of the main components of the overall population dynamics. It is also a biological process, but it cannot be viewed in isolation, detached from the interaction with a variety of factors, which manifest in different ways—either directly or indirectly.

From a spatial perspective, the natural population growth in the Polog region shows significant variations, which are the result of ethnic, socio-economic, political, and other factors. The highest indicators of natural population growth in the Polog region are found in the Albanian-majority municipalities, such as Tetovo with 1.76%, while the Polog region as a whole shows a natural growth rate of -0.40%.

Table 3. The natural movement of the population in the Polog Region (2023‰)

No.	Municipality	Natality	‰	Mortality	‰	Natural growth of population	‰
1	Bogovinje	213	9.28	197	8.58	16	0.69
2	Brvenica	115	8.44	124	9.10	-9	-0.66
3	Jegunovce	70	7.92	98	11.09	-28	-3.17
4	Želino	228	11.89	133	6.93	95	4.95
5	Tearce	156	8.83	164	9.28	-8	-0.45
6	Tetovo	864	10.16	714	8.39	150	1.76
7	Vrapčište	156	7.84	169	8.50	-13	-0.65
8	Gostivar	477	7.97	595	9.95	-118	-1.97
9	Mavr-Ros	32	6.38	42	8.38	-10	-1.99
10	Polog	2167	8.60	2269	9.00	-102	-0.40

Source: Statistical Office of North Macedonia (data processed by author)

According to data from 2024, the situation in the municipalities of Polog is as follows: out of a total of 9 municipalities, only two have a high natural increase: the Municipality of Tetovo with 1.76‰ and the Municipality of Zhelina with 4.95‰.

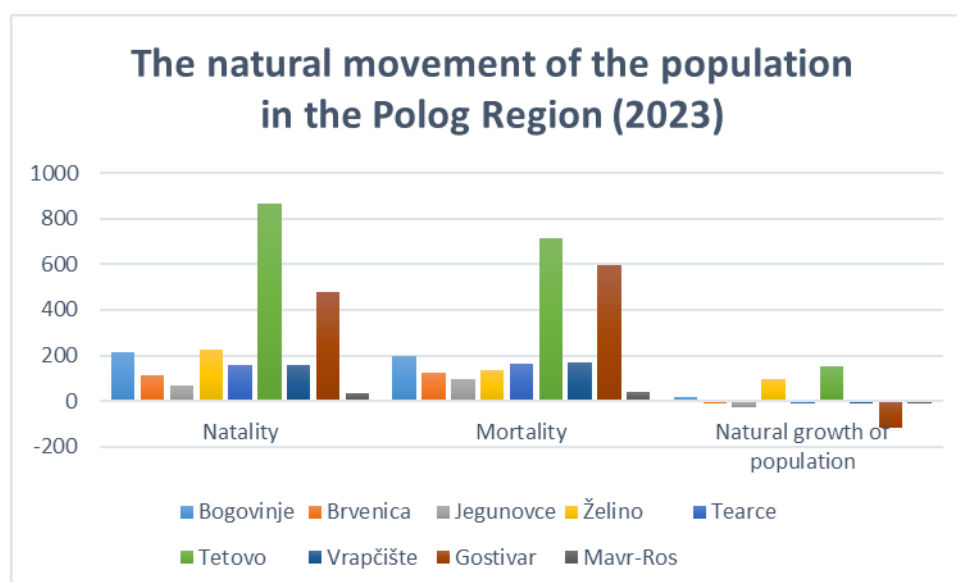


Chart 3. The natural movement of the population in the Polog Region (2023‰)

## 5. The mechanical movement of the population

From the data presented on population migrations at the municipal level for the year 2023, we see that there is migration; however, in the urban municipalities of Tetovo and Gostivar, there is more migration from the population of North Macedonia.

Table 4. The mechanical movement of the population in the Polog Region (2023‰)

No.	Municipality	Emigration	‰	Immigration	‰	Migration balance	‰
1	Bogovinje	61	2.65	112	4.88	-51	-2.22
2	Brvenica	29	2.12	72	5.28	-43	-3.15
3	Jegunovce	19	2.15	54	6.11	-35	-3.96
4	Želino	54	2.81	102	5.32	-48	-2.50
5	Tearce	37	2.09	93	5.26	-56	-3.17
6	Tetovo	208	2.44	406	4.77	-198	-2.32
7	Gostivar	625	10.45	558	9.33	67	1.12
8	Vrapčište	167	8.40	183	9.20	-16	-0.80
9	Mavr-Ros	65	12.97	68	13.57	-3	-0.59
10	Polog	1265	5.02	1648	6.54	-383	-1.52

Source: Statistical Office of North Macedonia (data processed by author)

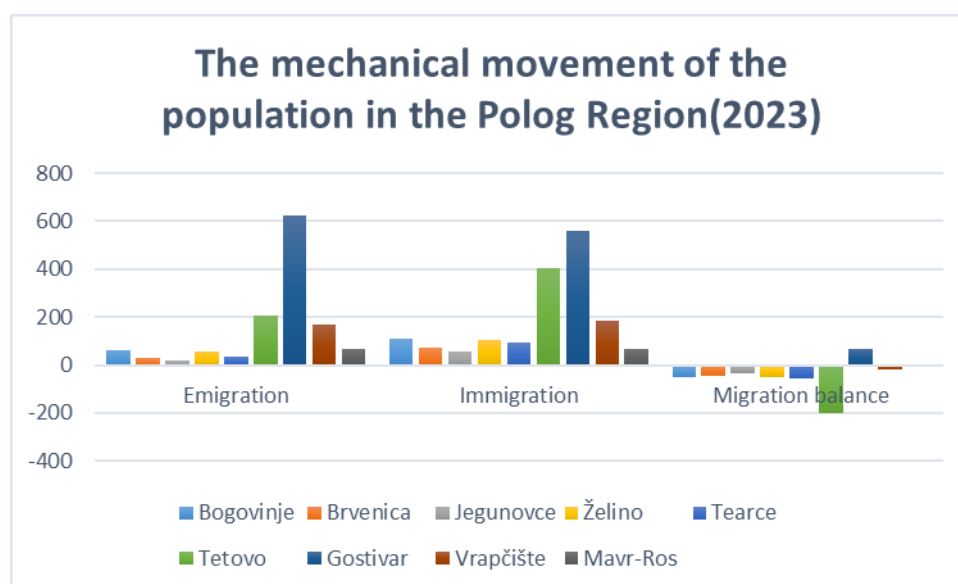


Chart 4. The mechanical movement of the population in the Polog Region (2023‰)

These population migrations can be seen more clearly in the graph, where we observe that there is population migration in all municipalities.

## 6. Report on urban and rural population

**As a result of various natural, historical, and socio-economic conditions, the Polog region has developed two cities and 183 rural settlements, which differ in location, size, and appearance.**

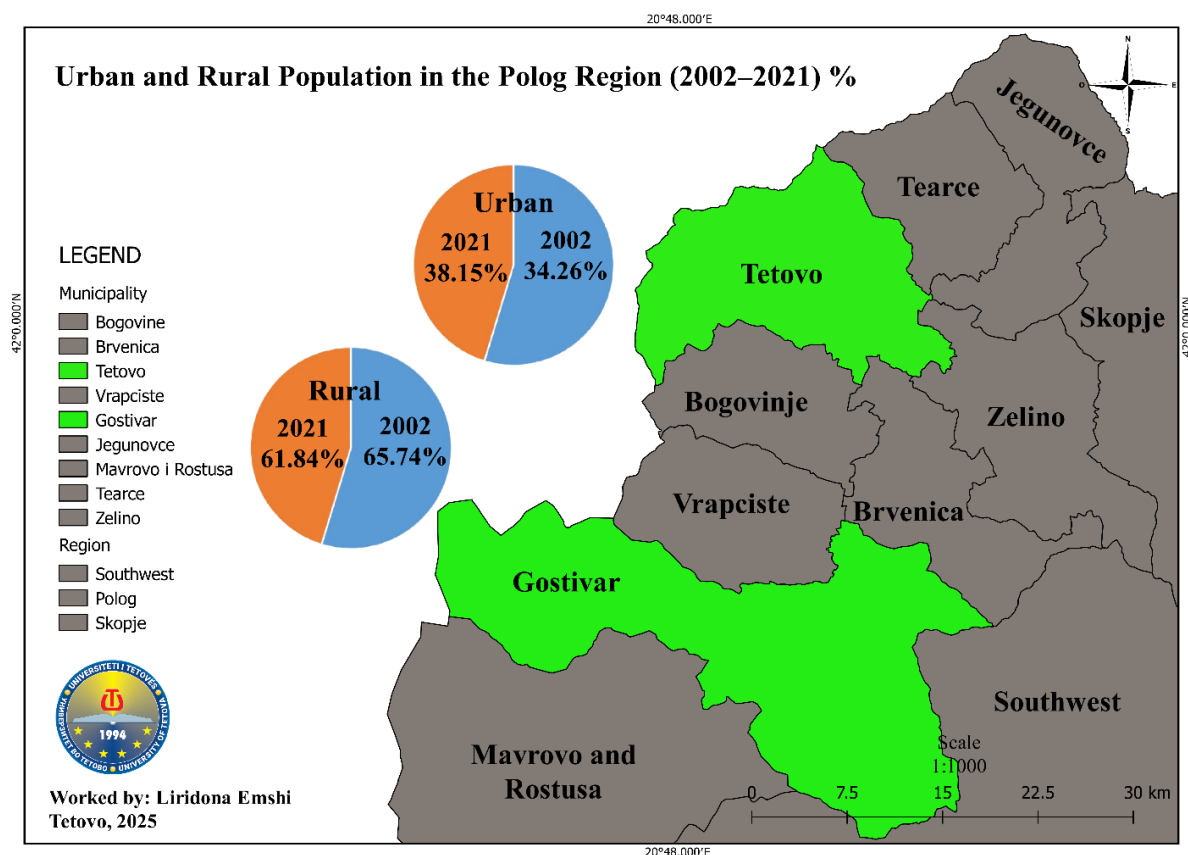
Nevertheless, the Polog region has the highest percentage of urban population (38.15%) in North Macedonia. It is one of the few regions in the country where, alongside the growth of the urban population, the rural population is also increasing—although at a lower rate. This is a positive factor for the development of all economic sectors, especially when compared to national trends where rural-to-urban migration has been strongly expressed.

The acceleration of urbanization has been influenced by the high natural population growth in urban areas compared to the general population. However, industrialization, deagrarianization, and migration have also played a significant role in this process.

Rapid urbanization is largely a result of rural exodus. The faster pace of urbanization in the Polog region is not only due to high natural population growth but also the inclusion of several peripheral neighborhoods into the urban zones of Tetovo and Gostivar.

In fact, today, 38.15% of the population in the Polog region lives in the cities of Tetovo and Gostivar, while the remaining 61.85% live in villages.

The urban population in the Polog region increased from 34.26% in 2002 to 38.15% in 2021.



Map 2. Urban and Rural Population in the Polog Region (2002–2021) %

Table 5. Urban and Rural population in the Polog region (2002-2021)

Year		2002			2021	
	Total	Urban	Rural	Total	Urban	Rural
Polog Region	304125	88762	215363	251552	95989	155563
Tetovo	189066	52915	136151	84770	63176	21594
Gostivar	115059	35847	79212	5977	32814	26956
		Percentage %				
Polog Region	100	34.26	65.74	100	38.15	61.84
Tetovo	100	35.7	64.3	100	74.52	25.47
Gostivar	100	32.1	67.9	100	54.9	45.09

Source: Statistical Office of North Macedonia (data processed by author)

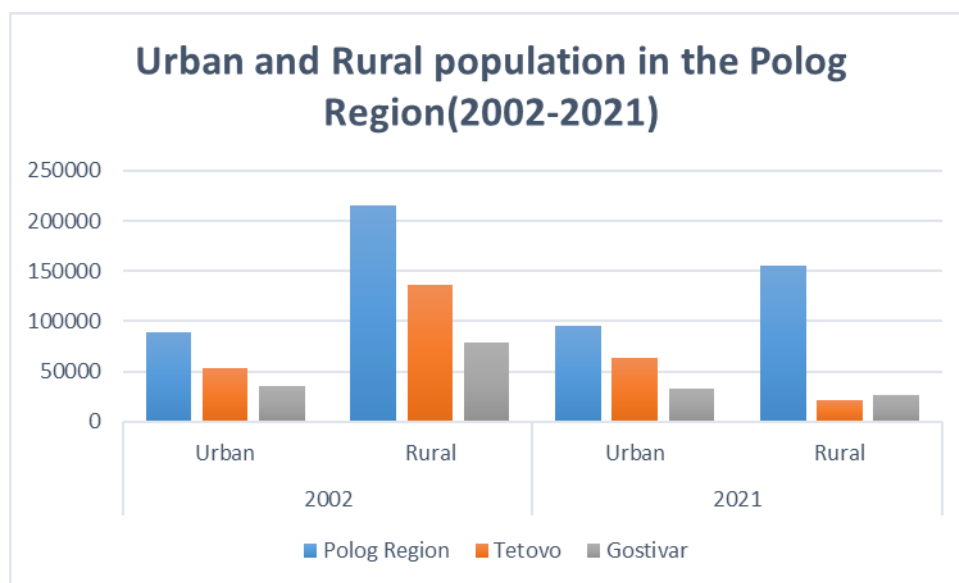


Chart 5. Urban and Rural population in the Polog region (2002-2021)

**Rural settlements represent a true mosaic, undergoing rapid changes, especially after 1990 when some remote mountain villages began to grow rapidly in population, while others, with better location and conditions than the former, remained almost unchanged, despite their proximity to major traffic routes and urban centers.**

The latter experienced population growth, expansion of area, and development of the economy, infrastructure, and more. Of particular interest are the timing, conditions, and factors that influenced the formation and evolution of the villages, as well as their demographic and spatial development. The formation and development of settlements in the Polog region have been influenced by several factors, including: relief, climate and water resources, soil quality, socio-economic conditions, and communication possibilities, among others.

## 7. Conclusion

In this paper, we explored the topic of demographic characteristics in the Polog region during the period 2002–2023. Through the analysis of demographic and social changes over this period, we observed a wide range of factors that have influenced these processes, including political and economic factors, climate change, political conflicts, and developments on the international stage.

The Polog region is characterized by relatively positive and interesting demographic developments. The rapid population growth in this region, as well as at the national level, has raised concerns regarding the relationship between population and natural resources, as well as the economic capacity to provide food, water, and other essential goods.

The challenges and opportunities arising from this phenomenon are numerous and complex, but with a dedicated and coordinated approach, effective solutions can be found to address these realities and to build a more sustainable and equitable society for all citizens.

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