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ABSTRACT

Of the dissertation submitted for the Degree of Doctor of Philosophy

**SOCIO-DEMOGRAPHIC DEVELOPMENT OF URBAN
REGIONS AND ECONOMIC-GEOGRAPHICAL PROBLEMS
OF URBAN SETTLEMENT IN NAKHCHIVAN
AUTONOMOUS REPUBLIC**

Specialty: 5401.01- Economic geography

Sphere of science: Geography

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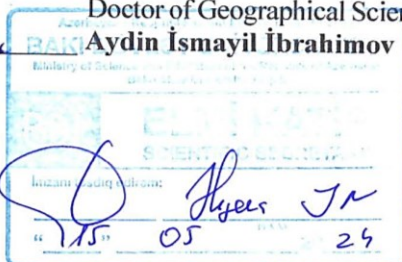
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INTRODUCTION

Rationale and level of development of the research topic. At the end of the 20th century, the problems in the area and territorial structure of the economy in our country led to the increase of unemployment, the spontaneous settlement of the population in the area, and the violation of the Unified Settlement System. This problem has become more acute for the Nakhchivan economic region. The region underwent cases of the population leaving the economic region and the flow of productive forces to the Arazboyu zone due to the disruption of the territorial organisation of the economy in the region. Consequently, the structure of the settlement was broken, and negative tendencies began to form in the demographic indicators. In recent times, the slowness of implemented reforms, lack of serious approach to regional measures, unplanned farming, and loss of activity of industrial enterprises have further increased the problem of unemployment, leading to the disruption of the rational distribution of productive forces. Therefore, the process of urbanisation in the economic region has been developing poorly for many years.

Our country prioritises close cooperation with the United Nations Habitat Program, the principle of creating a sustainable, inclusive, and safe city model. To achieve a balanced development of the regions, the country implements continuous regulatory measures in the socio-economic field. The State Program on Socio-Economic Development of the Nakhchivan Autonomous Republic in 2023-2027, adopted for the sustainable development of the Autonomous Republic, considers the increase of macroeconomic indicators, the improvement of employment of the population, the establishment of a favourable business environment, the development of trade, the development of export-oriented industry, the production of agricultural products and development of processing, improvement of social service and infrastructure, as well as the material well-being of the population. Innovative processes are developing in cities, while institutional structures are being transformed, and the management system of the region is improving. Therefore, the strategic development of cities should be considered as a part of regional strategic development. Solving

the socio-demographic growth trends of urban settlement in the economic region based on economic-geographical problems is a matter of urgency.

The dissertation conducts a comprehensive study of the importance of studying urban settlement, settlement factors, development trends of urban settlement, economic-geographical aspects of the regulation of efficient territorial organisation, prospective development of urban settlement, and regulation of demographic development.

Research object. The research object of the dissertation covers the urban settlements located in the economic district of Nakhchivan, their population, and the socio-economic problems of settlement.

Research subject. Subject of the research work includes production and non-production infrastructure in the economic district is mainly concentrated in the city of Nakhchivan. It also covers organising the field and territory structure of the farm, solving the employment problem, regulating demographic growth, effective use of labour resources, regulating settlement, and proper distribution of productive forces in the area.

Problem Statement. Currently, comprehensive research work has yet to be done regarding the economic-geographical problems of settlement in the process of socio-demographic development of urban settlements for the economic region. In this connection, the dissertation provided the need for a comprehensive study of the socio-demographic development of urban settlements, the equal distribution of productive forces in the area, migration, and employment problems in the modern era.

Purpose and objectives of the study. The main objective of the research work covers determining the prospective development directions of the socio-demographic development of urban settlements at the modern stage and preparing measures accordingly.

In this regard, the following tasks have been set:

- Determining the geostrategic position of the economic region and the development directions of urban settlement in accordance with the interests of the country;
- Comprehensive analysis of the natural and economic factors of

urban settlement in the economic region and showing the importance of efficient use of natural resources;

- Analysing the demographic development characteristics of the urban areas in the economic region and investigating the emerging demographic trends;

- Studying the modern state of urban settlement and determining the economic-geographical ways of efficient territorial organisation of labour resources;

- Approaching the regulation of the perspective development of urban settlement from the economic-geographical aspect and determining the role of the State Programs in the development of urbanistic processes.

The theoretical basis and methods of research. The research includes the works of Azerbaijani and foreign scientists in the field of economic geography and population geography, adopted State Programs for the sustainable development of regions, the last three cycles of the population census, and other statistical collections and bulletins.

Statistical analysis, mathematical analysis, historical comparability, systematic analysis, extrapolation, SWOT analysis, cartographic and area acceleration coefficient research methods were used in conducting the research work.

The information base of the study compiles adopted State Programs, Nakhchivan State Statistics Committee, materials of ANAS Institute of Geography, and social survey.

The main provisions defended:

- Retrospective analysis of cities in the economic region and the role of natural-geographical and economic-geographical factors in the formation of urban settlement and directions for their effective use;

- The impact of socio-economic development programs implemented in the years of independence on strengthening the economic base of cities, solving the employment problem, and distributing productive forces in the area;

- Analysis of socio-demographic development characteristics of urban settlements in the economic region, determination of modern trends of urban settlement, and directions of their regulation;

- Economic-geographical aspects of efficient territorial

organisation of urban settlement and regulation of prospective development.

The scientific novelty of the study includes:

- The socio-demographic development features of urban areas in the economic region were thoroughly investigated, and the trends of modern urban settlement were studied. Short-term geographical forecasting of the urban population was carried out; and territorial differences of the quantitative and qualitative indicators of migration were studied, as well as the role in the development of cities was studied.

- The economic-geographical parameters of the optimal development of the settlement in the economic region with the regulation of the territorial organisation of the urban settlement, the efficient use of labour resources, and the regulation of the demographic development have been studied, and the role of sustainable development measures has been determined.

The theoretical and practical significance of research. The results of research on urban settlement in the economic region of Nakhchivan are deemed necessary for ensuring the sustainable development of the economic region. The research work can be used by local executive bodies in cities, the State Urban Planning and Architecture Committee of the Nakhchivan AR, as well as relevant institutions dealing with urban problems. It can also be of practical importance in the study of geourbanistics and population geography in higher education institutions.

Approbation and application of the study. The results obtained from the research work were presented at the following scientific conferences: Human geography in Azerbaijan and Russia: the main ways of development in the 21st century (Baku, 2019); Ankara 2nd International Scientific Research Congress (Ankara, 2020); The 5th international congress on social sciences (Kyiv, 2020); In oral and technical presentation, recognition and appreciation of research contributions to international conference on evolving trends in interdisciplinary research and practices III (New York City, 2020); Unity of education, research, and innovation (Nakhchivan, 2021); Modern problems of geography: integration of science and education (Baku, 2022); Unity of education, research, and innovation (Nakhchivan, 2022);

Current problems of modern natural and economic sciences (Ganja, 2022); Economics, law, innovations: experience, problems, prospects (Minsk 2022); International Silk Road and Nakhchivan (Nakhchivan, 2022); Proceedings of the XVI International Scientific and Practical Conference Principles of science. Ideals, norms, values in science and style of scientific thinking (Tallinn, 2023), Proceedings of the 18th International Scientific and Practical Conference Developing an understanding of the specificities and functions of scientific language (Zurich, 2023).

The name of the institution where the dissertation work has been developed: Natural Sciences Department of the Nakhchivan University.

The volume, structure, and main content of the dissertation.

The dissertation introduction – 5 pages, (7890 marks), 3 chapters, 11 subchapters, including chapter I 41 pages (71510 marks), chapter II 64 pages (78767 marks), chapter III 28 pages (39111 marks) results and suggestions - 3 pages, (3780 marks), 69 tables, 1 map-scheme, 5 maps, 7 diagrams, 8 graphs, 6 figure are added from the list of literature with 158 sources of literature, including reference to the publication. The dissertation has 182 computer pages and consists of 201058 signs.

THE MAIN CONTENT OF THE RESEARCH

The introduction of the work defines the relevance of the topic, goals and tasks, theoretical and methodological bases, object and subject of the research, and scientific innovations and practical importance.

The first chapter covers the theme “**The importance of studying the urban settlement and the natural-economic factors of its formation**”. The subchapters of this chapter depict the study of the importance of cities in the settlement system, the theoretical-methodical bases of the study of cities, natural-geographical, and economic-geographical development factors and show the stages of urban settlement in chronological order.

Cities play a special role in forming a proportional settlement system, supporting economic growth, deploying productive forces, ensuring sustainable settlement of the population in the surrounding

areas, regulating demographic indicators, ensuring population employment, and efficient use of labour resources. Currently, the level of urbanisation in the economic region makes 35.4%, which is considered 'average' in terms of urbanisation indicators. At present, there are one large and five small cities in the economic region in terms of population. Both big and small cities can act as the reference frame of the settlement system. 40.4% of the total urban population of the economic region lives in small towns. As the city of Nakhchivan is a multifunctional one, the radius-distance of the sphere of influence expands peripherally and ensures the functional specialisation of surrounding residential areas due to cheap plots of land. The small towns of the region do not play a significant role in the economic, social, and demographic development of the country and the surrounding villages. They mainly carry administrative-management, economic-organisation, trade-distributive, and socio-cultural functions.

Although the science of urbanisation has an interdisciplinary nature, the first study of the process is carried out within the framework of the science of geography. The studies of the world geographers as M. Weber, G. Lappo, E. Persik et al., local researchers as A. A. Nadirov, A. M. Hajizade, S. A. Goychayli, E. G. Mehraliyev, Sh.K. Demirgayayev, M.A. Abramov, K.M. Mammadov, Z.N. Eminov, V.A. Efandiyev, S.G. Nagiyev, N.H. Ayyubov, Sh. Demirgayayev, Sh. Muradov, N.A. Pashayev, E.S. Badalov, H.M. Tahirov, and many scientists are of particular importance.

Cities are settlements with a complex structure formed by physical, historical, and economic factors, connected with each other in cause-and-effect relationships. The development of urbanisation in our country is determined by the economic geographical position of the area, natural and socio-economic factors, development of transport, and administrative-legal legislation. Its economic-geographic and geopolitical position, along with natural factors, led to the historical settlement of the region. Based on socio-political relations in historical stages, economic-geographical location has had positive and negative impacts on the development of the region. Bordering with foreign countries increases the uniqueness of the transport position. Currently, the economic region has three customs points on the border with the

Republic of Türkiye and the Islamic Republic of Iran.

The individual and total potential value of prospective economic and cultural development of small towns is determined by considering the natural conditions and natural resources. The results of the analysis of the factors of natural conditions revealed that the agro-climatic resources of the area, minerals, underground and surface water resources, and relief conditions create optimal conditions for population settlement. The contrast of the relief, uneven distribution of the river network in the area, water scarcity, poor development of soil cover, salinisation, and low level of plant productivity serve as unfavourable natural factors that have a negative impact on settlement. Unfavourable environmental factors should be considered in the development of future urban projects in the urban settlement system. The engineering and technical system necessary to eliminate the problems caused by unfavourable is factors, at the same time increases the man-made load on the environment. It also creates additional costs and causes the degradation of the area. The relief conditions of the area have led to the emergence of vertical urbanisation. The main settlement areas in the Nakhchivan economic region are plains, foothills, and river bottoms. Although the urban areas in the mountainous Nakhchivan are different from other economic regions due to their high population, they have a slow pace of development. 96.7% of the city's population live at an altitude of 500-1000 meters, 3.2% at an altitude of 1000-1500 meters, and 0.1% at an altitude of 2000-2500 meters. This economic region of the Republic has the least precipitation and the most evaporation indicators. Taking this into account, reclamation and irrigation measures are being carried out under state programs. At the same time, most solar energy potential in Azerbaijan falls within the territory of this region.

Reservoirs created on rivers are also a source of hydropower. Currently, the alternative energy supply of the autonomous republic is more than 60% due to these resources, including wind and wind-solar hybrid. Considering the small availability of fertile land in the area, creating new urban buildings in badlands can save soils. Industrial processing in the autonomous republic, rich in mineral water reserves, has started since 1947. Many of these exotic-looking water sources are also important for resort recreation.

Nakhchivan is an economic region with a special role in the country's economy with sufficient raw materials, labour experience and habits, labour resources, and consumer potential. Metal, non-metal, and mineral water resources of the economic region are the basis of production factors. However, currently, the exclave conditions of the region do not allow full and efficient use of these resources. The pre-revolutionary industry in the economic region consisted only of cocooning, cotton ginning, and salt mining. The region developed new industries, such as mining industry from the second half of the 20th century, chemistry, machine building, metallurgy, forestry, wood processing, etc. in the 1970s. Sharur Cotton Ginning, Ordubad Silk Factory, and Ordubad Canning Plant, sewing and knitting plants, as well as aluminum plant in Nakhchivan city were considered the huge enterprises of that time. The food and light industry accounted for over 90% of the total industrial output. The development of industrial enterprises of this type laid the foundation for a new urban settlement in Nakhchivan. Since the main line of economic development of the region is located around the transport roads in the direction of Ordubad - Julfa - Babek - Nakhchivan - Kangarli - Sharur - Sadarak, cities have also been created here. After gaining the state independence, the economy of Nakhchivan economic region was mainly represented by mining, food, and light industries (Figure 1). Agriculture has the highest share (50%) in the distribution of the employed population by sectors of the economy. As a result of the implemented state programs, preparation of other concepts and projects, as well as the declaration of the 'Year of Export' and 'Year of Industry' in the autonomous republic, the amount of industrial output increased 25 times in 2005-2022, and its amount per person - 33.1 times. In addition, the average number of employees in the industry has increased by 4.5 times, while conditions have been created to produce new products and the introduction of innovations. As a result of the effective use of existing opportunities, 4.5% of total product production, 2.8% of industrial product production, 5.5% of people working in the industry, including 6% of people working in the processing industry are concentrated in the economic district. 62.9% of the population employed in cities, and 78% of those working in industry, are concentrated in the Nakhchivan urban

agglomeration.

The share of the production industry in the sectoral structure of industrial production in cities makes 0.1%, the share of the production of the processing industry products is 92.5%, the supply of electricity, gas, steam, and air conditioning is 7.1%, water supply, sewage, and waste treatment make 0.5%. 56.1% of the processing industry falls to the share of the food industry and 4.7% to the light industry. In 2008-2015, measures such as the “State Program on a reliable supply of food products to the population”, “State Program for the development of tobacco farming in the Republic of Azerbaijan for 2017-2021”, “State Program on stimulating the production, processing, and export of agricultural products in the Autonomous Republic in 2021-2025” have become a priority direction for the development of the food industry in the Nakhchivan AR. However, the industrialisation of the agricultural sector remains the main issue in the economic region. Although the number of total and employed population has increased in recent decades, the growth rate has weakened.

D.L. Lopatnikov’s territorial development index could be used to analyse the economic region from the point of view of socio-economic development¹. The following mathematical dependence is used to find the index.

$$I = 0,1 \sqrt{\frac{V^2}{N S}}$$

Here, V - value of the gross domestic product of the region, thousand manats,

N - Population of the region, thousand people,

S - Area of the region, thousand km².

The limit of the formula varies from 0.5 to 3.0. An indicator higher than 3 indicates high concentration. Based on the made calculations, the the highest territorial development index is observed in the

¹ Lopatnikov, D.L., Esterov, A.I. Possibilities of using the index of economic development of a territory in comparative economic-geographical analysis // - Moscow: News of the Russian Academy of Sciences, Geography series, - 1997. No. 2, - pp. 84-87.

Nakhchivan city and the lowest one in Ordubad, Julfa, and Sadarak districts (table 1).

Table 1

**Territorial development index of cities and administrative regions
in the Nakhchivan economic region in 2022 (formula)**

Name of administrative districts	Area, km ²	Population, thousand people	Total value of industrial products, million manats	Territorial Development Index
Nakhchivan city	0,19	95,6	764,0	17,8
Sharur	0,87	111,5	9,8	0,1
Babek	0,83	76,5	129,2	1,6
Ordubad	0,98	50,4	9,8	0,1
Julfa	0,93	47,3	9,2	0,1
Kangarli	0,7	32,9	20,6	0,4
Shahbuz	0,84	25,3	12,2	0,3
Sadarak	0,16	22,7	0,5	0,1
Nakhchivan economic region	5,5	463,1	1048,6	2,1

Source: Industry of Azerbaijan (statistical collection) / Head of the collection T. Budagov. - Baku: SSC - 2023, - 217 pp;
Demographic indicators of Azerbaijan / Head of the collection T. Budagov. - Baku: SSC - 2023, - 593.

The amount of total product decreased in administrative district centers, while it increased only in the city of Nakhchivan, where the number of employees also decreased. In addition to the small number of industrial enterprises, their production is also at a low level, and industrial enterprises do not fully provide employment to the population of the economic region. In this regard, an adequate living environment should be created in accordance with the progressive trends of socio-economic development by effectively using natural resources, territory, and labour resources for the sustainable development of small cities.

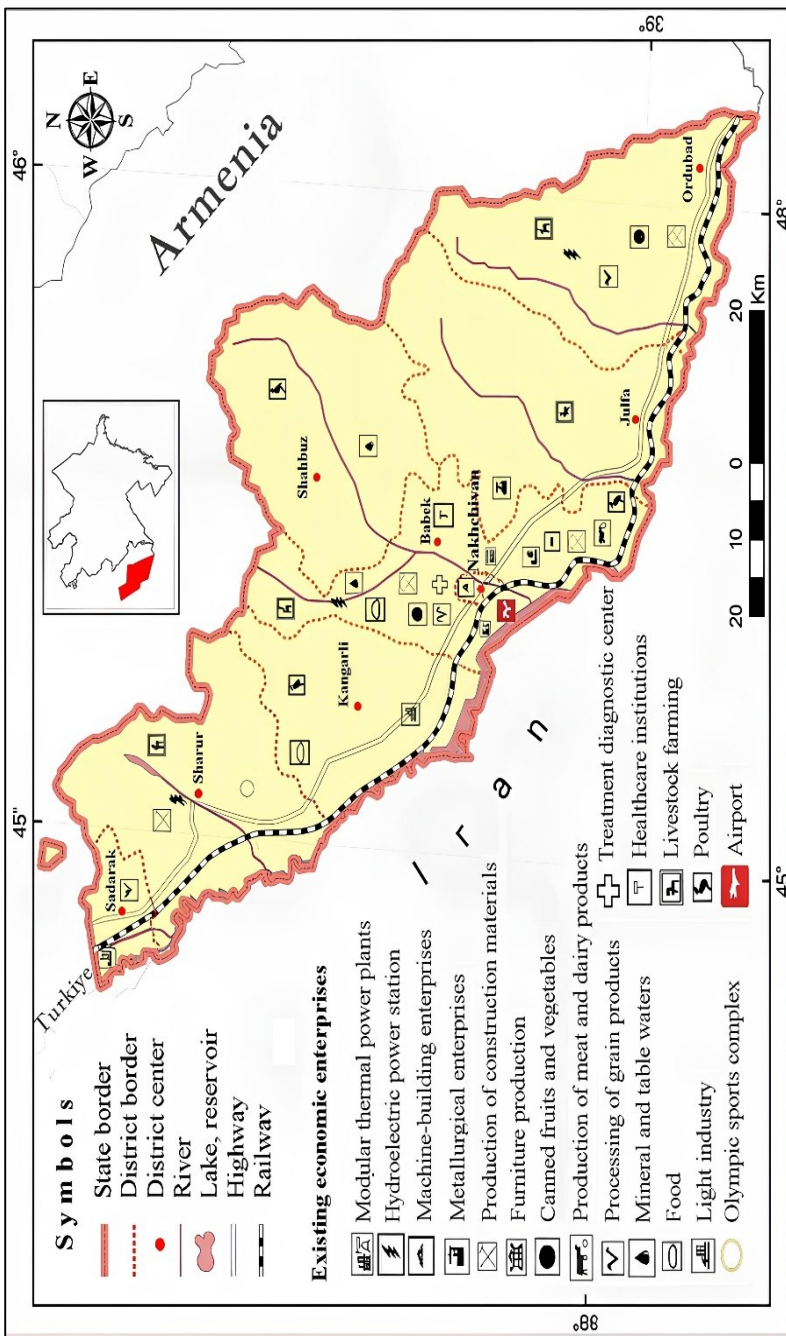


Figure 1. Map-scheme of farm objects operated in the Nakhchivan AR during the years of istae independence

The second chapter of the dissertation work is dedicated to **“Demographic development characteristics of urban areas and economic-geographical problems of urban settlement”**. This chapter presents a comprehensive study of the dynamics of the demographic development of urban areas, its components, and characteristics from the beginning of the 21st century to the present day. Although the factors that define cities are very diverse, population size is considered the main criterion in most countries. Based on the analysis of official statistical data, it was determined that the growth of the urban population at the modern stage was at a slow pace, and mainly the changes in the administrative territory of different years were the factors determining the trends in the number of the urban population.

Based on the social survey conducted among 53 people in the city of Shahbuz to increase the accuracy of the research, including five officials, the available official statistics do not fully reflect the population of the city. Thus, at present, only 3000 people live in the city together with the village of Garababa, which was merged with it in 2013. This is 1,600 people less than the official figure. The process takes place based on the socio-economic relations. The limitation of urban economic areas has led to a decrease in the population.

The analysis of natural growth indicators of the population during the years 2000-2019 shows that the natural growth rate and birth rate decreased in all administrative districts, while the death rate remained relatively stable. During 2010-2019, the natural growth rate of the urban population in the country decreased by 1.59 times and by 2.98 times in the economic region. The natural growth of the urban population of Kangarli and Sadarak administrative districts was 1.4-1.3 times higher. In 2010, there was a peak in all indicators of natural growth. However, after 2010, natural growth decreased, and in 2020, it was ahead of the Ganja-Kazakh economic region only. In addition, absolute indicators of natural growth were less than all economic regions. The number of deceased people in absolute and relative terms among the urban population of both the economic region and the republic fell to the share of men. Also, the relative indicators of birth and death decreased and lagged behind all other economic regions. In

the economic region, the death rate of children under one year is 3.6 per 1000 live births, while this number is 16.7 in the country. The mortality of children under 1 year per 1,000 live births of the urban population is higher than that of the rural population. The standard of living of the population does not fully reflect the birth rates. However, women's employment, being content with having few children, and the level of education affect the decrease in births. In 2020, the villages of Nehram and Jahri, distinguished by their demographic potential, received the status of settlements, which created a perspective for the increase of the natural growth indicators of the urban population in the economic region. In addition, 53.3% of the births fell to the share of boys.

Migration processes stimulate the demographic situation and socio-economic development of the country and its regions. Migration plays a special role in distributing productive forces, efficient use of labour resources, and regional development differences. Socio-political, socio-economic, and socio-psychological factors determine the direction and intensity of migration. Internal migration in the Autonomous Republic is characterised by migrating more people from villages to cities. The villages of Surmelik and Sust in the Nakhchivan Autonomous Republic, where the problem of water shortage is acute, should be especially mentioned as they were destroyed due to floods. The population of these villages was transferred to the city of Nakhchivan. In 1991-2000, more than 11 thousand people left the area². Since 2004, the jobs created under the socio-economic development programs have relatively prevented the outflow of the population. Migration indicators of the economic region change mainly at the expense of the city of Nakhchivan. During the 2000-2010s, the migration growth of the urban population was 11.2 thousand people. 12.1 thousand people increased by natural growth, and 9.3 thousand people increased due to migration. During 2011-2020, 3,769 urban residents left the economic district, and 5,138 people arrived, making the migration balance a positive indicator (table 2). The intensity coefficient of migration was 8.1 ‰ in 2011, 7.9

² Eminov, Z.N. Population of Azerbaijan / Z.N. Eminov.-Baku,-2005,-560 p.

% in 2016, 14.8 % in 2019, and 4.5 % in 2020. Nakhchivan city accounted for 79.1% of arrivals and 61.4% of departures in the economic district. In this regard, the population density in the city is also high (figure 2). 46.9% of those who came to cities in 2019 were due to family status, 32.6% were due to changes in living conditions, and 18.9% were due to other reasons (2019). Also, 62.9% of the arrived people were women. In 2020, the migration balance of Nakhchivan, Babek, and Julfa cities, Aliabad, Givrag and Hyderabad settlements was positive, while the rest were negative.

Table 2

Natural and migration growth of urban population in Nakhchivan economic region in 2011-2020 (people)

Year	Natural growth	Total growth	Migration balance
2011	2113	2145	32
2012	2189	2269	80
2013	2038	2196	158
2014	1179	1023	-156
2015	1199	1159	-40
2016	1190	1417	227
2017	849	1129	280
2018	765	955	190
2019	748	1047	299
2020	426	725	299
Total	12696	14065	1369

Source: Information was compiled based on the statistical data of the Nakhchivan State Statistics Committee.

Since migration is a process that can be counted, P.V. Vasilenko determined the flow direction of migrants by calculating the coefficient of attraction for the quality assessment of the territory with the following formula³.

³ Vasilenko.P.V. Methodology for assessing the migration attractiveness of a territory / Geographical Bulletin, Social and Economic Geography No. 1, - 2014, p. 38-46.

$$K = \frac{\frac{P_t}{P_r}}{\frac{M_t}{M_r}}$$

Here, K is the attractiveness coefficient of the area, P(t)-the number of people living in the economic-geographical region, P(r)-the number of people living in separate administrative regions, M(t)-the number of people coming to the economic-geographical region, M(r)-the number of people who come to separate administrative regions. According to calculations using this formula, although the city of Nakhchivan has the highest attractiveness coefficient, its attractiveness has shown a decrease in recent times (diagram 1).

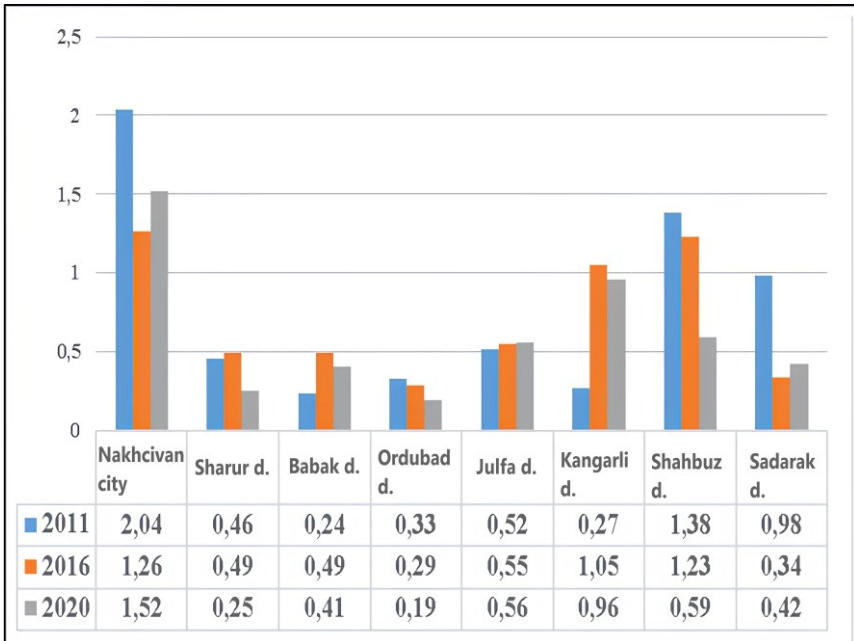


Diagram 1. Urban attractiveness coefficient in the Nakhchivan economic region

While the increase in the number of children, especially the population under the age of 5, is influenced by birth rates and infant mortality, the number of young people is affected by socio-economic factors, unemployment, marriage contracts, migration processes, and the number of older people is affected by more deaths, life expectancy, and the development of healthcare. affect. The increase in jobs in cities leads to an increase in the working-age population. In this regard, while the number of the young generation is increasing in the city, the number of the elderly population is increasing in the villages. Based on the analysis of the last three population censuses, the growth rate of children in the 0-4 age group has decreased. This is due to the decrease in the number of births after 2010. While the growth of the working age population in 1999-2009 was 143.4%, in 2009-2019 the growth decreased to 115.5%. 15-19, 20-24, 25-29, and 45-49 age groups were the main reason for the decrease. The growth of the elderly population over working age was 139.3% in 1999-2009 and 147.1% in 2009-2019.

Until 1999, the number of women in the population below the working age and in the working age population increased, and then, the number of men in the same category increased. The number of women in the population in the age group older than working age was more than twice that of men in 1999. In 2009, it was twice less, and in 2019, the number of women was twice more.

From the analysis of the growth rate of the urban population by age-sex structure, it can be concluded that such a growth rate can have a negative impact on the economic and social development of the cities of the economic region in the medium - and long-term perspective. The main reason for the absolute numerical superiority of women in cities is that the average life expectancy of women is longer than the average life expectancy of men.

The analysis of age-gender indicators indicates that the age-sex pyramids of 1999 and 2009 correspond to the form of 'beehive' pyramids. Pyramids of this type are characterised by a large number of active populations. The age-gender pyramid of 2019 comprises children aged 0-4 years old, the age group of 9-34 years old, which is increasing with trends, and the population group over 35 years old,

which is gradually decreasing. The age pyramid of 2019 differs from others by the decrease of births in both sexes; the reduction of the 5-9 age group and the elderly population in both genders (diagram 2). Based on all three age pyramids, it could be stated that most of the babies born are boys.

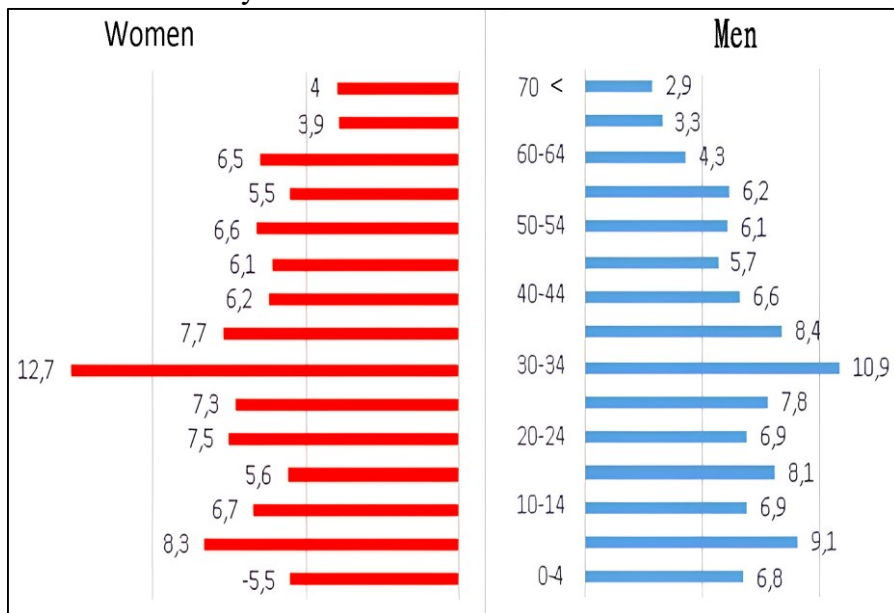


Diagram 2. Gender and age pyramid of the urban population, 2019

The number of marriages and divorces among the urban population in the Nakhchivan economic region depends on its total number, gender and age structure, women's cultural and educational level, and their work in economic affairs. Divorce cases are increasing stemming from the violation of the economic function, educational function, and restorative functions, which are the functions of the family. Between 2010 and 2020, marriages decreased, while divorces increased. Compared to 2010, in 2020, the absolute number of marriages across the country decreased by 2.3 times, and the number of marriages by economic region decreased by 1.7 times. In 2010-2020, the number of marriages decreased in the Ordubad and Julfa regions. The number of divorces increased sharply in Sharur, Babek,

and Kangarli regions. The absolute number of marriages and divorces among the urban population in the Babek region has increased mechanically.

According to the analysis of the national-ethnic composition of the population in 2019, more than 99.9% of the city's population was made up of Azerbaijanis. There are more Turks and Russians than other nations, and most of them live in the city of Nakhchivan.

Table 3
Grouping of urban areas by population in 2021

	According to the number of their population								
	Şəhər yerlərinin sayı	3000-dək	3000-5000	5000-10000	10000-20000	20000-50000	50000-100000	100000-500000	500000 və yuxarı
Azerbaijan Republic									
Cities and Settlements	341	169	21	42	52	41	11	4	1
Cities	79	1	1	13	27	26	6	4	1
Settlements	262	168	20	29	25	15	5	-	-
Nakhchivan Autonomous Republic									
Total of cities and settlements	15	6	1	3	4	- -	1	-	-
Cities	6	-	1	2	2	-	1	-	-
Settlements	9	6	-	1	2	-	-	-	

Source: Demographic indicators of Azerbaijan, Baku 2022, 560 p.SSCRA

The number of urban settlements with a population of 3,000, 5,000-10,000, and 50,000-80,000 people has decreased in the economic region (table 3). Cities with a population of 5,000-10,000 and 10,000-20,000 occupy 15.4% and 7.4% of the country's cities, respectively, and cities with a population of 50,000-100,000 thousand make up 16.7%.

Considering the importance of demographic forecasts in solving demographic problems, the following mathematical dependence was used by the extrapolation method to prepare the urban population forecast⁴:

$$P_1 = P_0 + \Delta t$$

Here,

P_0 indicates baseline,

P_1 - year in which the calculation was completed,

Δ - population growth dynamics,

t – time.

According to the conducted short-term analytical forecast, the total urban population will increase by 14% to 154,500 people. At the same time, the majority of the population will live in the city of Nakhchivan in the near future (diagram 3).

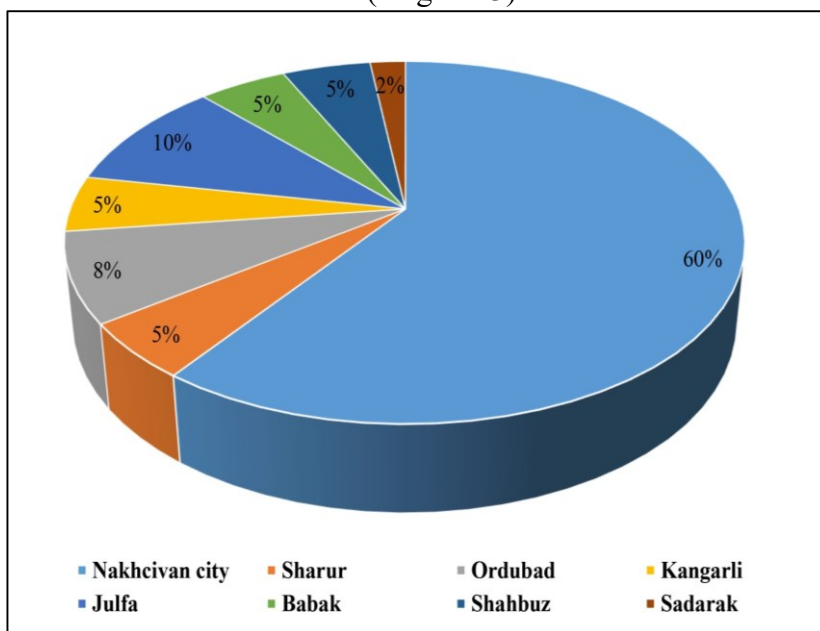


Diagram 3. Share of urban population by administrative regions (forecasts until 2030)

⁴ Allahverdiyev, R., Nasibov, X. Aspects of the methodological approach to population forecasting [Electronic resource] / 9 s.

Studying the development trends of cities requires examining their socio-economic development based on the experiences of foreign countries from the point of view of solving urban problems. As an effective mechanism, development goals and opportunities to achieve them were analysed during the SWOT analysis of cities. The “State Program on Socio-Economic Development of the Nakhchivan Autonomous Republic in 2023-2027” was adopted as the strategy of the analysis. The internal and external factors of the cities of Nakhchivan, Shahbuz, and Julfa were selected considering the center of the economic region, as well as the mountainous and lowland position. The diagnostic evaluation of city development revealed ample opportunities for improving cities' strengths. However, the risk factor should be properly assessed.

Chapter III of the thesis is dedicated to **“Economic-geographical aspects of the regulation of efficient territorial organisation and perspective development of urban settlement”**. This chapter has comprehensively studied the dynamics of urban settlement, the problems of territorial organisation of settlement, ways of efficient use of labour resources, and the implemented reforms. In our country, the optimal reproduction of the population, reduction of death, increase of average life expectancy, development of families, etc., are formed in the state programs to regulate the growth of demographic processes, action plans, legislative and legal acts, and resolutions. The efficient use of labour resources is one of the significant socio-demographic and economic problems. A strategy in the field of employment was adopted in the economic region in 2007-2010. In addition, the state programs covering the years 2014-2016, 2016-2020, and 2021-2023 were adopted. In this regard, the “Action plan for the implementation of the Employment Strategy for 2020-2025” approved by the order of the President of the Republic of Azerbaijan dated February 13, 2020, was prepared. These programs provide an opportunity to create new jobs, ensure self-employment, train personnel, and prepare forecasts of the impact of demographic processes on the labour market.

Currently, State Programs, “Azerbaijan 2030: Development

strategy for the future”, “Strategic Roadmap for the perspective of the national economy of the Republic of Azerbaijan”, and other concepts and projects are of particular importance for solving current problems as the regulation of urban settlement, territorial organisation of productive forces, regulation of migration processes, demographic development, elimination of the employment problem, effective use of labor resources, etc, in the economic region. Geoplanning of the settlement and ecological policy, through the location of the production and service areas, should be directed to the optimal distribution of the settlement in the area and, as a result, the effective use of the area. In this connection, the efficient use of the potential of the economic region will create conditions for regulating the territorial organisation of productive forces and the correct use of labour resources. Therefore, it is essential to pay more attention to planned farming.

The number of new jobs created in the economic region in 2013-2021 was 38.3% less than the number of jobs opened in 2003-2012. 48.3% of the newly opened workplaces were created in Nakhchivan in 2003-2012 and 33.7% in 2013-2021.

Based on the classification of industry workers in the Autonomous Republic by type of ownership, the growth rate of non-state sector workers in 2010-2022 was 143.2%. Based on the materials of the 2019 population census, it was analysed that 74.5% of the wage workers and 25.5% of the self-employed are employed in the cities of the economic region. 57.1% of wage workers worked in administration, enterprises, and organisations, while 42.8% worked for individuals. The share of public sector workers in administrations, enterprises, and organisations was 8.3 times higher than that of non-state sector workers.

RESULTS AND RECOMMENDATIONS

The following conclusions and proposals were put forward based on the natural-geographical, economic-geographical study of settlement formation, demographic development, and perspective regulation problems in the Nakhchivan economic region.

1. The settlement amplitude of the urban population in the Nakhchivan Autonomous Republic is 1635 meters. The main part of the population settled at an altitude of up to 1000 m. The main settlement area in the Nakhchivan economic region is the city of Nakhchivan due to the terrain and man-made conditions. The urbanisation process is slow. During 1999-2021, urban settlements with a population of 10-20 thousand and the share of their population increased at mechanical speed, while others decreased.

2. Poor use of local natural potential in the economic region creates an employment problem, stimulating the course of demographic processes. Urbanisation level has increased from 26.8% in 2000 to 35.4% in 2021 as villages have received the status of urban settlements in 2020. The trends in the age structure of the able-bodied population in 2009-2019 create a perspective for the socio-economic development of the region with special importance in the demographic dividend. The birth rate has decreased since 2010 and is lower than the national indicators. In 2020, the absolute indicators of birth decreased and were ahead only of the Kalbajar-Lachin economic district. In the distribution of natural growth by gender, gender inequality is observed in the economic region. The difference in natural growth indicators between rural and urban areas has decreased. A large share of the active population is observed in the sex-age pyramid of 2019. During 2010-2020, 9.7% of the total growth was due to migration. During 2010-2020, the growth rate of marriages was 60.2%, while the growth rate of divorces was 153.7%.

3. The large number of the working-age population in the economic region and the lack of jobs have led to the intensity of migration. The migration balance of the population in Ordubad, Shahbuz, and settlements is negative. The calculation of the

migration attractiveness of the cities revealed that the city of Nakhchivan and its periphery were the centre of the main flow of migrants. According to the short-term population forecast, it can be said that the number of people in Nakhchivan will remain high.

4. The share of the population employed in the industry has decreased due to the inconsistency in the area and territorial structure of the farm in the economic region, the lack of processing industry enterprises, the inefficient use of labor resources and mechanization to a certain extent. In 2009-2019, the share of the working-age population in the economic region decreased. In 2019, the share of the urban population working in the construction, transport, communication, warehousing, and service sectors was higher than the national indicator and lower in other areas.

RECOMMENDATIONS

➤ To achieve regional strategic development, a long-term conceptual document of cities' development strategy should be prepared, which includes the goals, tasks, and directions of their socio-economic development.

➤ To prevent the transformation of small cities and towns into depressed areas in the future, an economic, promotional, and organisational state policy should be conducted to regulate demographic processes. The qualitative indicators of the population should also be considered, the negative indicators of the age-sex structure should be eliminated, and the number of able-bodied populations, considered a mobile labour force, should be constantly monitored. The direction and intensity of migration should be controlled by solving the employment problem of the administrative district centres with a negative migration balance and improving the social and housing provision of the population.

➤ Considering the economic, social, and ecological danger of concentration of production, settlement in Nakhchivan city should be relatively restricted and complex measures should be taken to improve the quality of life in the context of optimal socio-

economic development of small towns. For the efficient placement of productive forces, the field and territorial structure of the industry should be regulated based on local regulatory measures. Comprehensive measures should be taken to eliminate unfavourable environmental factors.

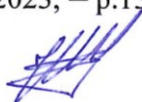
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