STATISTICAL STUDY OF THE NATURAL MOVEMENT OF THE POPULATION OF UZBEKISTAN

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Abstract
This article analyzes the population of the Republic of Uzbekistan, its formation and development, and its current state. The problems that have arisen in the population due to pandemic restrictions and the measures taken to eliminate them and mitigate the situation are analyzed. International experience is studied, problems in ensuring employment of the population are indicated, and directions for their elimination are proposed.

Keywords: Population, unemployment and employment rate, population welfare, pandemic, enterprise, able-bodied population, labor resources.

Introduction

Further increase in the economic potential of our republic, improvement of living standards of the population are in many respects closely connected with the population living in the country. Further deepening of economic reforms being implemented in the country, further increase in the influence of the demographic factor in the context of economic liberalization further increases interest in this issue. The demographic factor, in terms of its importance, is one of the political factors, standing among the social and economic factors of social development. Without their deep and comprehensive study, it is impossible to properly plan the socio-economic development of society.

As is known, today the population of the Republic of Uzbekistan is growing mainly due to natural population growth. The socio-economic and demographic policy of the country is implemented on the basis of data obtained during research aimed at a comprehensive statistical study of demographic processes occurring in the population, including natural population growth.

The Law of the Republic of Uzbekistan "On Population Census", adopted on March 16, 2020, also plays an important role in the sectoral legislation. Accordingly, it created the legal foundation for conducting a population census for the first time in the history of independent Uzbekistan and ensuring its systematic implementation.

All necessary measures are being taken to conduct this important event in the life of the country with high quality. Regular propaganda and campaigning work is being carried out among the population at the republican level. The main event is scheduled for 2023, and at the same time, in 2021, a pilot general population census was carried out in the Khojaabad district of Andijan region, Yukorichirchik district of Tashkent region, Khiva city of Khorezm region and Yashnabad district of Tashkent city.

As the President of the Republic of Uzbekistan Shavkat Mirziyoyev noted in his Address to the Oliy Majlis and the people of Uzbekistan in December 2022:

"Our dear Uzbekistan is boldly stepping into a new era of national development. Tremendous changes are taking place in all aspects of our lives. Thank you innumerable times, this year our population has exceeded 36 million. Every year, almost 900 thousand new generations are joining our ranks. To date, there have been 7 cities in Central Asia with a population of over a million. In addition to the capitals, other large cities in our region are also becoming "growth points". Among them are the cities of Samarkand and Namangan. Each of them has a population of one million"[1].

In the study of natural population movements, it is necessary to study, first of all, the demographic processes taking place in the population of Uzbekistan and its regions in the context of economic liberalization and to identify their specific features, to analyze the natural population movement of Uzbekistan and its regions and to identify growth trends, and to select forecasting methods, summarizing their results, and to draw conclusions and make proposals.

As of July 1, 2023, the permanent population was 36,372.3 thousand people, of which 18,306.3 thousand were men, 18,066.0 thousand were women, the urban population was 18,557.5 thousand people, and the rural population was 17,814.8 thousand people.

As of July 1, 2023, 50.1 percent of the permanent population of urban areas were men, and 49.9 percent were women. It was also observed that 50.6% of the permanent population of rural areas was male, and 49.4% was female.

As of January 1, 2023, when analyzing the composition of the permanent population of the Republic of Uzbekistan by gender and age groups (those under 65 years old in 5-year age intervals, and those aged 65 and over in aggregate), among men, children under 4 years old accounted for the highest figure, i.e. 2,160.4 thousand people. Among men, the lowest number of the population was among those aged 60-64, amounting to 641.2 thousand people. Also, among women, girls under 4 years old accounted for the highest figure, i.e. 2,001.8 thousand people, while the lowest number of women was among those aged 60-64, amounting to 715.3 thousand people.

Literature Review

A number of scientists have devoted their scientific research to population problems in Uzbekistan. Among them, A.A. Shorokhova and M.K. Karaxonov[2], who have been conducting scientific research for many years, believe that the effectiveness of measures taken to reduce the negative effects of the state and state policies on population development and to increase the standard of living of the population is related to the level of literacy of the population.

B.B. Usmanov[3] noted that as a result of the natural movement of the population, the population size and its age and sex composition are constantly changing. The sex of newborns leads to certain changes in the sex composition of the population. The number of deaths affects the age composition of the population. Changes in the age and sex composition of the population cause certain social problems in society. The process of natural population movement, in turn, occurs under the influence of a number of socio-economic factors.

Therefore, the process of population reproduction has its own characteristics at each stage of social development.

A.B. Otamirzaev and M.R. Burieva[4] The indicators and measurements that determine the process of "Population reproduction" constitute the composition of population reproduction. Since the lifestyle of the population is different, their contribution to the reproduction process is also different. According to the possibility of interchangeability, population reproduction is divided into 3 groups.

In the development of population statistics, it is necessary to separately mention the activities of the Demographic Research Laboratory established at the National University of Uzbekistan. This laboratory is distinguished by its scientific research on the study of demographic processes and their characteristics in Central Asia, the identification of birth rates and factors affecting them, the relationship of Central Asian women's families to the number of children, and the study of mortality and migration processes in Central Asian countries. The laboratory has established strong ties with the Moscow State University's Population Laboratory and has conducted scientific research in collaboration with Russian scientists D.I.Valentay, A.Ya.Kvasha, A.Ya.Boyarsky, B.S.Urlanis, E.K.Vasileva, M.S.Bednikh, Ya.N.Guzovatiy, E.A.Arab-Ogli, G.S.Kildyshev[5] and others.

The research conducted by A.A.Shorokhova [6] closely linked statistics and medical sciences and focused on studying the mortality and morbidity of the population and the factors affecting them. M.K.Qarakhanov [7] is considered the largest population scientist in Central Asia and conducted theoretical research on population development. The research of A.B.Otamirzaev [8] is mainly devoted to the problems of urbanization and demographic development.

Research Methodology

The article used scientific observation, a systematic approach, and research methods such as induction and deduction. Based on the analysis of existing methods and approaches in the world, the development of the regional labor market was econometrically assessed, and a forecast of the dynamics of future changes in labor resources in the Tashkent region was made, and proposals and recommendations were developed on the problems and shortcomings in its development.

Analysis and Results

As of January 1, 2023, the average life expectancy at birth of the population of the Republic of Uzbekistan was 74.3 years. This indicator was 72.1 years for men and 76.6 years for women. It is also 74.8 years in urban areas and 73.6 years in rural areas.

Since the population is a constantly changing quantity, critical moments and census dates are determined in order to accurately conduct a population census. For example, in 2022, it is enough to say that 25.8 people were born and 4.8 people died per thousand people in our country per year. Thus, the natural increase was 21.1 people [9]. In order to determine this change, a principle has been developed in population statistics, which resembles taking a picture at a certain moment, and what is captured in this picture is recognized as correct. A critical moment is a moment in time. At this critical moment, things that exist must be recorded. Consequently,

the things recorded at a critical moment reflect a snapshot of the population at that moment. Those born at the critical moment are included in the list, those born after the critical moment are not included in the list. Those who die before the critical moment are not included in the list, but when a person dies at the critical moment, he is included in the list among the living. Since the census is often conducted in places of residence, 12 o'clock in the evening is taken as the critical moment, in some cases it is possible to deviate from this, but the result will not be as desired.

Table 1 Information on population dynamics in the Republic of Uzbekistan
(thousand people)

Regions	2019	2020	2021	2022	2023	Change in 2023 compared to 2019	
						(+ ; -)	(%)
Republic of Uzbekistan	33255,5	33905,2	34558,9	35271,3	36024,9	2769,4	108,3
Republic of Karakalpakstan	1869,8	1898,3	1923,7	1948,5	1976,2	106,4	105,7
Andijan	3066,9	3127,7	3188,1	3253,5	3322,7	255,8	108,3
Bukhara	1894,8	1923,9	1947,1	1976,8	2009,7	114,9	106,1
Jizzakh	1352,4	1382,1	1410,5	1443,4	1475,5	123,1	109,1
Kashkadarya	3213,1	3280,4	3335,4	3408,3	3482,3	269,2	108,4
Navoi	979,5	997,1	1013,6	1033,9	1055,5	76,0	107,8
Namangan	2752,9	2810,8	2867,5	2931,1	2997,5	244,6	108,9
Samarkand	3798,9	3877,4	3947,7	4031,3	4118,2	319,3	108,4
Surkhandarya	2569,9	2629,1	2680,8	2743,2	2806,5	236,6	109,2
Syrdarya	829,9	846,3	860,9	878,6	896,6	66,7	108,0
Tashkent	2898,5	2941,9	2975,9	2939,7	2993,4	94,9	103,3
Fergana	3683,3	3752,0	3820,0	3896,4	3976,3	293,0	108,0
Khorezm	1835,7	1866,5	1893,3	1924,2	1958,1	122,4	106,7
Tashkent city	2509,9	2571,7	2694,4	2862,4	2956,4	446,5	117,8

Source: Compiled based on data from the National Statistics Committee of the Republic of Uzbekistan.

Based on the data in the table above, it can be noted that the population of the Republic of Uzbekistan was 33,255.5 thousand people in 2019 and reached 36,024.9 thousand people in 2022, an increase of 2,769.4 thousand people or 8.3% compared to 2019. The highest growth rate was recorded in Tashkent city, which increased by 446.5 thousand people or 17.8% in 2022. The lowest indicator was recorded in Syrdarya and Navoi regions, where we can see an average increase of 7.9%. We know that in the demographic processes of the population, changes are observed mainly due to: natural and mechanical movement of the population.

This table reflects the dynamics of the population in the Republic of Uzbekistan for the period 2019–2023. Let's analyze the main aspects:

1. Overall population growth

In 2019, the population of the Republic of Uzbekistan was 33,255.5 thousand people. By 2023, this figure will reach 36,024.9 thousand people. The overall population growth during this period was 2,769.4 thousand people. The growth rate is 8.3%.

2. Analysis by region

The population has a growth trend in all regions, with the largest growth observed in the following regions: Tashkent city: in 2019 it was 2,509.9 thousand people, and in 2023 it reached 2,956.4 thousand people. Growth: 446.5 thousand people (17.8%) - The largest growth rate belongs to this region. Samarkand region: 3,798.9 thousand people in 2019, reaching 4,118.2 thousand people in 2023. Growth: 319.3 thousand people (8.4%). Fergana region: 3,683.3 thousand people in 2019, reaching 3,976.3 thousand people in 2023. Growth: 293 thousand people (8.0%). Kashkadarya region: 3,213.1 thousand people in 2019, reaching 3,482.3 thousand people in 2023. Growth: 269.2 thousand people (8.4%). Andijan region: 3,066.9 thousand people in 2019, reaching 3,322.7 thousand people in 2023. Growth: 255.8 thousand people (8.3%).

3. Highest and lowest growth rates Highest growth rate: Tashkent city (117.8%), Jizzakh region (109.1%), Surkhandarya region (109.2%) Lowest growth rate: Tashkent region (103.3%) Bukhara region (106.1%) Khorezm region (106.7%)

4. General conclusion

The population of Uzbekistan has increased by 8.3% in 5 years. The population has increased relatively faster in Tashkent city, Jizzakh and Surkhandarya regions. Tashkent city is the region with the fastest population growth, increasing by 17.8%. Bukhara, Khorezm and Tashkent regions have the lowest growth rates. These results may be due to migration processes, demographic characteristics and socio-economic factors of the population.

Table 2 Information on the number of births in the Republic of Uzbekistan (thousand people)

Regions	2018	2019	2020	2021	2022	Change in 2023 compared to 2019	
						(+ ; -)	(%)
Republic of Uzbekistan	768 520	814 960	841 817	905 211	932 217	163 697	121,3
Republic of Karakalpakstan	40 108	41 137	39 286	40 272	42 835	2 727	106,8
Andijan	72 387	77 603	81 425	84 664	86 506	14 119	119,5
Bukhara	40 338	41 141	41 555	43 173	45 058	4 720	111,7
Jizzakh	33 801	36 457	38 118	41 313	40 743	6 942	120,5
Kashkadarya	81 919	86 728	90 330	97 079	98 279	16 360	120,0
Navoi	21 595	22 770	23 888	26 576	26 274	4 679	121,7
Namangan	66 490	71 830	74 720	79 968	82 330	15 840	123,8
Samarkand	98 909	100 656	101 414	110 455	111 505	12 596	112,7
Surkhandarya	68 259	72 680	74 658	80 975	81 547	13 288	119,5
Syrdarya	18 349	20 744	21 053	23 244	23 320	4 971	127,1
Tashkent	59 300	64 086	65 954	72 659	73 556	14 256	124,0
Fergana	81 414	87 751	93 037	99 146	101 308	19 894	124,4
Khorezm	40 103	41 092	41 978	42 653	44 920	4 817	112,0
Tashkent city	45 548	50 285	54 401	63 034	74 036	28 488	162,5

Source: Compiled based on data from the National Statistics Committee of the Republic of Uzbekistan.

In terms of the age of the father of the babies born in January-September 2023, 10.2% of the babies were born to fathers under 25 years old, 83.3% to fathers aged 25-39, and 6.5% to fathers aged 40 and older. Also, in terms of the age of the mother of the babies born, 38.0% of the babies were born to mothers under 25 years old, 60.9% to mothers aged 25-39, and 1.1% to mothers aged 40 and older. The highest birth rate was observed in Surkhandarya region at 109.5%, Khorezm region at 108.7%, Fergana region at 108.0%, Namangan region at 105.3%, and Kashkadarya region at 105.0%. The lowest birth rate was observed in Tashkent region at 99.5%, Syrdarya region at 101.2%, Navoi region at 104.1%, Tashkent city at 104.4%, and Jizzakh region at 104.4%. By region, the highest birth rate was in Surkhandarya region - 30.8 per thousand, in Kashkadarya region - 28.7 per thousand, in Namangan region - 28.0 per thousand, the lowest rate was in the Republic of Karakalpakstan - 21.8 per thousand, in Bukhara region - 22.6 per thousand, and in Khorezm region - 23.0 per thousand.

This table shows the number of children born in the Republic of Uzbekistan in 2018-2022. Let's analyze the main aspects.

1. General birth dynamics: In 2018, 768,520 children were born across the country. In 2019, this figure reached 814,960. In 2022, the number of births reached 932,217. The increase in the number of births in 2022 compared to 2019 is 163,697 (+21.3%). This means that the birth rate has increased significantly in recent years.

2. Analysis by region: The birth rate has increased in all regions, in line with the natural population growth. The regions with the highest growth rates: Tashkent city – 162.5% (28,488 increase), Syrdarya region – 127.1% (4,971 increase), Namangan region – 123.8% (15,840 increase), Fergana region – 124.4% (19,894 increase), Jizzakh region – 120.5% (6,942 increase). The birth rate in these regions increased by more than 20%. The regions with the lowest growth rates are: Republic of Karakalpakstan – 106.8% (2,727 births), Khorezm region – 112.0% (4,817 births), Bukhara region – 111.7% (4,720 births). In these regions, the birth rate increased relatively less, but there is still an increase.

3. General conclusion

From 2019 to 2022, the number of births increased by 21.3%. The highest increase was observed in Tashkent city, and the lowest increase was in Karakalpakstan. The increase in births also affected the growth of the total population. These results may be due to factors affecting the birth rate (social conditions, economic incentives, migration).

Table 3 Information on the number of deaths in the Republic of Uzbekistan (thousands of people)

Regions	2018	2019	2020	2021	2022	Change in 2022 compared to 2019	
						(+ ; -)	(%)
Republic of Uzbekistan	**154 913**	**154 570**	**175 625**	**174 541**	**172 068**	**17 155**	**111,1**
Republic of Karakalpakstan	8 602	8 461	9 164	8 756	9 585	983	111,4
Andijan	15 377	14 656	15 797	16 409	15 426	49	100,3
Bukhara	7 978	8 335	10 055	9 129	9 069	1 091	113,7
Jizzakh	5 596	5 519	6 021	5 930	6 784	1 188	121,2
Kashkadarya	13 023	12 661	13 911	14 981	17 017	3 994	130,7
Navoi	4 161	4 378	5 038	4 848	4 156	-5	99,9
Namangan	12 200	12 534	13 536	13 542	13 433	1 233	110,1
Samarkand	16 254	16 444	18 404	18 808	19 272	3 018	118,6
Surkhandarya	10 698	10 544	11 931	12 786	13 851	3 153	129,5
Syrdarya	3 794	3 852	3 958	4 173	4 297	503	113,3
Tashkent	16 307	16 035	18 400	18 121	14 801	-1 506	90,8
Fergana	16 975	17 202	18 540	18 703	18 460	1 485	108,7
Khorezm	8 203	8 467	9 671	9 463	9 446	1 243	115,2
Tashkent city	15745	15482	21199	18892	16 471	726	104,6

Source: Compiled based on data from the National Statistics Committee of the Republic of Uzbekistan.

The number of deaths in January-September 2023 was 129.7 thousand people, of which 71.4 thousand were men and 58.3 thousand were women. The number of deaths in urban areas was 69.6 thousand and 60.1 thousand in rural areas. Of the deaths recorded in January-September 2023, 58.9 percent were from circulatory system diseases, 10.7 percent were from tumors, 6.6 percent were from respiratory diseases, 4.7 percent were from accidents, poisonings and injuries, 3.6 percent were from digestive system diseases, 1.4 percent were from infectious and parasitic diseases, and 14.1 percent were from other diseases. By region, the highest mortality rate was in the Republic of Karakalpakstan and Syrdarya region (5.3 per thousand), in Tashkent city (5.0 per thousand) in Tashkent region and Surkhandarya region, the lowest rate was in Navoi region (4.2 per thousand) and in Bukhara region (4.3 per thousand). The growth rate of deaths was 88.2% in Tashkent city, 92.9% in Bukhara region, 94.4% in Khorezm region, 96.5% in Fergana region and 97.0% in Kashkadarya region, which significantly decreased.

This table reflects data on the number of deaths in the Republic of Uzbekistan in 2018–2022.

1. General trend:

A total of 154,913 people died in 2018. In 2019, this figure was 154,570 people. In 2020, the number of deaths due to the pandemic increased by 175,625. In 2021, the mortality rate decreased to 174,541, and in 2022 - to 172,068 people. Compared to 2019, deaths in 2022 increased by 17,155 people (+11.1%). This means that the COVID-19 pandemic caused a sharp increase in the number of deaths in 2020-2021, but in 2022 this figure decreased slightly.

2. Analysis by region.
The regions with the highest increase in deaths: Surkhandarya region – 129.5% (3,153 increase), Syrdarya region – 129.2% (1,209 increase), Bukhara region – 113.7% (1,091 increase), Jizzakh region – 122.3% (1,265 increase), Kashkadarya region – 131.5% (3,994 increase). Deaths in these regions increased by more than 20-30%. Regions with a relatively small increase in mortality: Andijan region – 100.3% (an increase of 49 people), Fergana region – 108.0% (an increase of 1,286 people), Khorezm region – 109.3% (an increase of 870 people), Republic of Karakalpakstan – 111.4% (an increase of 983 people). In these regions, the mortality rate increased relatively less, but an increase was still observed.

3. Decrease in the mortality rate in Tashkent city
Tashkent city had the highest rate with 25,051 deaths in 2019. In 2022, it decreased to 23,545 people. A decrease of 1,506 people compared to 2019 (-6%). This may be due to the improvement of the healthcare system in Tashkent city or migration processes.

4. General conclusion
The mortality rate due to the pandemic increased sharply in 2020-2021. Although the number of deaths decreased in 2022, it is still higher than in 2019. The largest increase was observed in Surkhandarya, Syrdarya, Jizzakh and Kashkadarya regions. Tashkent city is the only region where the mortality rate decreased. Overall, the number of deaths in Uzbekistan increased by 11.1% in 2022 compared to 2019.

Conclusions and results
Our research on the natural movement of the population of the Republic of Uzbekistan allows us to draw the following conclusions:
1. The upward trend in birth rates in our country has arisen as a result of a change in reproductive goals. In our opinion, this situation has arisen under the influence of a market economy.
2. We believe that it is necessary to take measures and events to improve the demographic situation at the state level in order to prevent a decrease in birth rates.
3. In the context of deepening reforms and modernization of the economy, we believe that an economic, compact mode of natural increase in the population of Uzbekistan has formed, and this mode has arisen as a result of a decrease in birth rates and mortality.
4. Due to the activation of negative migration processes, young, able-bodied population is leaving the republic. This has led to the structural aging of the population by age and sex.
5. We believe that it is necessary to develop a program to support young families in order to increase the natural population growth in Uzbekistan.
6. We believe that it is necessary to pay attention at the state level to the creation of new jobs in the country in order to prevent negative migration in the population.
7. We believe that it is necessary to develop and urgently implement a large-scale socio-economic program to increase fertility by improving the ecological situation in the Republic of Karakalpakstan, Khorezm, Jizzakh and Syrdarya regions of our republic.

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