Formation of the population of Ulan-Ude (Buryatia, Russia)

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Abstract. This article examines the features of the formation of the population of the city of Ulan-Ude - the capital of the Republic of Buryatia (Russia). It shows how socio-economic and administrative changes have affected the total population, the share of the city in the overall population structure, as well as how the territorial structure has been transformed over the past 60 years. In the post-Soviet period, urbanisation has affected not only the capital city itself, but also suburban areas, while small towns and urban-type settlements have largely lost their prospects for territorial and demographic development. Unlike other regional centres of the Far Eastern Federal District, Ulan-Ude is experiencing population growth due to both migration and natural increase. The study is based on the analysis of official data from the All-USSR and All-Russian population censuses and the results of annual statistical reports by Rosstat and Buryatstat.

1. Introduction

As of 01 January 2020, there are 1,116 cities in the Russian Federation with a population of 102.8 million people [1]. The city of Ulan-Ude ranks 46th with a population of 439.1 thousand people and has a high population growth rate. Ulan-Ude is the capital of Buryatia, and administratively part of the Far Eastern Federal District (FEFD) since 2018, geographically occupying the southern part of Eastern Siberia and better known for its belonging to the Baikal region. Founded in 1666 at the confluence of two large rivers – the Uda and the Selenga, the city is now a major multifunctional centre of Siberia and the Far East.

The peculiarities and patterns of the city’s formation have led to monocentric agglomeration development; thus, almost 45% of the republic’s population live in the capital, and, if the growth near the capital’s districts is taken into account, more than 58% live in the capital and in the Ivolginsky, Zaigrayevsky and Tarbagataisky districts, which border on it, occupy only 4% of the republic’s territory [2]. Apart from the republic’s capital, Buryatia has only 5 cities and 12 urban-type settlements [3], which together do not exceed even 15% of the total urban population. Most of them are located along the “main street” – in the basin of the Selenga River, which occupies the central and southern parts, which used to be the busiest junction in Transbaikalia, which contributed to the higher socio-economic and cultural development of this part of the republic.

The stronghold of this trade crossroad (as it adjoined the caravan routes of Russian-Chinese trade) in the 18th and 19th centuries was Troitskosavsk (Kyanta), which was one of the main centres of economic and cultural life in Transbaikalia.
However, as the economic and political development of the territory changed, the main populated area became Verkhneudinsk, which became the capital of the national republic and was renamed Ulan-Ude in 1934. Thus, according to the first and only General Population Census of the Russian Empire in 1897, only 7 cities were identified in the Trans-Baikal region, the most numerous of which were Chita with a population of 11,511 people, Verkhneudinsk with 8,086, and Troitskosavsk (Kyakhta) – 8,788 people [4]. In its 355-year history, Ulan-Ude has become the largest city in the region with the mission of “a modern multifunctional business and cultural centre with elements of a world city ...” [5].

2. Models and Methods
The study is based on a comparative analysis of trends in population dynamics as a quantitative response to changes in the socio-economic environment. The materials used were long-term series of indicators of population change in the cities of the FEFD and the districts of Buryatia. The calculations were based on historical and current data on the number of urban settlements – All-Russian and All-USSR population censuses. The information base was statistical data of the Federal State Statistics Service (Rosstat) and its regional office in Buryatia (Buryatstat), scientific literature and the database of the electronic journal Demoscope Weekly. The retrospective analysis allows to see the main periods of formation and development of the city, the key factor of which is a favourable geographical location. The main features of Ulan-Ude’s economic and geographical position are expressed in the uniqueness of its founding place, historical development and the individualizing role of modern development in the nodal point of territorial and economic interests of Siberia, the Far East and East Asia.

3. Results and Discussion
According to the data of 1897 year, 8,086 people lived in Verkhneudinsk. At the beginning of the 20th century a sharp increase in the city’s population almost doubled to 14,530 people in 1908, caused by the construction of the Trans-Siberian railway and due to the relocation of significant masses of people from the western provinces of Russia, in general, both to the region and to Verkhneudinsk in particular [6].

By the 1930s, there was a further increase in the population of Ulan-Ude, which is associated with the construction of a number of large enterprises in the city: repair plant of locomotives and railroad cars, meat factory, glass factory, etc.

In the course of socio-economic changes taking place in the country in those years, Ulan-Ude became one of the industrial centres with a fairly high rate of urbanization, primarily due to the mechanical growth of population, a characteristic feature of which was an active influx of villagers and migrants from nearby cities [7]. As a result, the population of Ulan-Ude between 1926 and 1939 increased by a record 97 thousand people or 334%.

The second half of XX century demonstrates a more moderate growth rate of the city's population; only the first decades are characterized by an increase of about 50%, and in the end of the century, as a result of the not unknown pages of the Russian-Soviet history, the city’s population increased by only 7 thousand people, that is, only by 2%. The objective reasons for this low figure are the problems of socio-economic development of the territory, typical for the whole post-Soviet space, and the movement of population out of the republic and into rural areas.

The reasons for population growth in the capital of the Republic of Buryatia are somewhat different from what they were before, and although it is no longer the industrial development of the city that attracts labour resources, there are more job opportunities and employment opportunities here, unlike in rural areas. Ulan-Ude has a multi-sectoral structure of economy where the main types of economic activities are represented – traditional for the city machine building, food industry, instrument making, energy, but trade, construction industry, transport and communication, service industry, etc. are developing more and more actively.

Therefore, along with the increasing unemployment, decreasing quality of life and living standards in the rest of the republic, the main trend of Ulan-Ude’s development is the so-called “super-urbanization”, typical of Russian cities in recent decades, or the “runoff” of residents of small and medium-sized cities into larger ones [8].
For example, in 1991 there were 30 urban-type settlements in Buryatia, of which only 12 remained by 2020, and in small towns, except Kyakhta, the population was gradually decreasing and declined by 20 – 30%. Of course, this process is associated with a much higher standard of living in large cities and a sense of “great opportunities”.

Against the background of other administrative centres of the FEFD, Ulan-Ude is one of the most dynamic and fastest growing cities in terms of population growth (Table 1). Moreover, in the post-Soviet period, unlike many other cities in the Russian East, positive dynamics was maintained – for the period since 1989 there was an increase by 87 thousand people or 25%. Only Yakutsk has higher indicators (72%). The reasons for such processes are obvious and are associated with the general migration outflow of population from the eastern territories to the comfortable regions of Russia. Significant population growth in the capitals of autonomous republics is also associated with migration, only with intra-regional – rural-urban and “status” migration, as well as with ethnic features of natural population movement in such entities.

| Years | Cities |
|-------|--------|
| 1897  | 1926   | 1939 | 1959 | 1970 | 1979 | 1989 | 2002 | 2010 | 2020 |
| Ulan-Ude | 8   | 29   | 126  | 174  | 254  | 300  | 352  | 359  | 404  | 439  |
| Anadyr | -    | -    | 3    | 6    | 7    | 12   | 17   | 11   | 13   | 16   |
| Birobidzhan | -   | -    | 29   | 41   | 56   | 68   | 84   | 77   | 75   | 72   |
| Blagoveshchensk | 33 | 61   | 58   | 94   | 128  | 172  | 204  | 219  | 214  | 226  |
| Vladivostok | 29  | 108  | 206  | 291  | 441  | 549  | 631  | 595  | 592  | 606  |
| Magadan | -    | -    | 27   | 62   | 92   | 132  | 152  | 99   | 96   | 92   |
| Petropavlovsk-Kamchatsky | 0,4 | 2    | 35   | 86   | 154  | 217  | 233  | 198  | 180  | 179  |
| Khabarovsk | 15  | 52   | 207  | 323  | 436  | 526  | 598  | 583  | 578  | 616  |
| Chita | 12   | 64   | 121  | 172  | 241  | 302  | 320  | 317  | 324  | 352  |
| Yuzhno-Sakhalinsk | -   | -    | -    | 86   | 106  | 139  | 156  | 175  | 182  | 201  |
| Yakutsk | 7   | 11   | 53   | 74   | 108  | 153  | 188  | 211  | 270  | 324  |

The formation of Ulan-Ude’s population was carried out not only by mechanical movement of population, but also by administrative-territorial transformations. In general, previously the urban population could statistically increase due to the “transfer” of some rural settlements to urban-type settlements and vice versa.

In 1926, the census counted 28.9 thousand people, of which only 4.6% of Ulan-Ude’s population was urban [5]. In the following censuses in 1939 and 1959 all inhabitants were counted as urban. But from 1970 to 1975 about 3,000 people of rural population were counted due to the reassignment to Ulan-Ude of suburban villages (Sokol, Soldatsky), which later were reclassified as worker settlements.

At the turn of the millennium, the rural population of the capital grew from 300 people in 1988 to 15 thousand in 2009, because of the expansion of the city area due to the inclusion of satellite settlements from the suburban areas of the republic, which were then included in the city [11]. The joining of such a number of settlements to the city, led not only to the expansion of the city area, but also to an increase in the number of residents – with an average republican figure of 2.8, the population density of Ulan-Ude reached 1,165 people per km² [12].

The share of the capital in the republic’s population increased from 26% in 1959 to 45% in 2020. The active expansion and growth of Ulan-Ude has led to the development of its territorial structure.
The city was first divided into three administrative districts in 1938, initially into Gorodskoy (Sovetsky), Prigorodny (Oktyabrsky), and Zheleznodorozhny. The period from 1934 to 1952 was characterized by “the greatest development of residential areas and the maximum rate of settlement... the Selenga River was the hardest point to overcome” [13].

The development of the city started from the central areas of Sovetsky District, but by the time of 1959 census, the most populated area was Zheleznodorozhny District, the industrial part of Ulan-Ude, where such large enterprises as aircraft plant, locomotive repair plant, instrument-making plant, etc. are still concentrated today. Further sprawl of the residential area led to a more intensive settlement in the Oktyabrsky district, which now has a much higher population than the other districts of the city (Table 2).

Table 2. Dynamics of the number of inner-city districts in Ulan-Ude [10, 14].

| Years | 1959  | 1970  | 1979  | 1989  | 2002  | 2010  | 2020  |
|-------|-------|-------|-------|-------|-------|-------|-------|
| Buryatia | 673.3 | 812.2 | 899.4 | 1,038.2 | 981.2 | 972.0 | 985.9 |
| Ulan-Ude | 175.1 | 253.5 | 300.3 | 352.5 | 359.3 | 404.4 | 439.1 |
| \textit{including inner-city areas:} |       |       |       |       |       |       |       |
| Zheleznodorozhny | 77.8  | 117.7 | 125.6 | 137.6 | 136.4 | 143.4 | 142.4 |
| Oktyabrsky | 43.7  | 79.0  | 118.0 | 161.8 | 171.5 | 179.1 | 204.4 |
| Sovetsky | 53.5  | 56.7  | 56.7  | 53.0  | 51.3  | 81.8  | 92.3  |

Since the mid-1990s, large Russian cities have been actively expanding not only through the development of inner suburbs (urban outskirts) first, but also of outer suburbs that are not part of these cities. For example, between 1989 and 2010, the population of the outer suburbs of Ulan-Ude alone grew from 17 to 37 thousand people (i.e. by 218%), and it continues to grow every year. Moreover, the population of Ulan-Ude itself increased by only 15% during this time [15]. The trend of population growth in the suburban area continues due to the rising cost of urban housing, land and the lack of available land within the urban district, generating more and more interest from potential resettlers because of the geographical proximity to the capital. Today, the active growth (sprawl) of settlements and villages in the suburban zone of the republic’s capital (in Ivolginsky, Zaigrayevsky and Tarbagataisky districts of Buryatia) is actually one of the main areas of demographic and territorial growth in Ulan-Ude.

Not only migration growth but also natural growth plays a major role in the formation of Ulan-Ude’s population. The latter was subordinated to the dominant trend of the formation of the modern type of reproduction on the national scale - a phenomenon that has been long lasting and uneven in terms of the rate of movement and the level of reproduction of the population. The dynamics of the natural population changes in the capital of Buryatia in 1961 (as well as in the period of positive growth until 1993) was below the republican level – 16.0 ‰ and 22.5 ‰, respectively. After that, the natural decrease was higher, but since 2012 the natural increase of Ulan-Ude’s population becomes higher than the average republican level.

The main influence on the dynamics of this process is the birth rate – over the past 60 years, its overall rate has fallen from 22.5 ‰ in 1961 to 12.0 ‰ in 2019, i.e. almost twice as much (Table 3). For the country as a whole, the fertility rate decreased from 29.7 to 12.7 ‰ over the same period, and from 33.3 to 13.6 ‰ in rural areas. It should be noted that throughout the post-war period, the total fertility rate in rural areas slightly exceeded that of the urban population, but in recent years, due to the increase in mortality among the rural population, the natural increase rates began to exceed those of the urban population, including in Ulan-Ude.
Table 3. Dynamics of the natural population changes in Ulan-Ude [3].

| Years | Total, people births | dead | natural increase (+), decrease (-) births | dead | natural increase (+), decrease (-) |
|-------|----------------------|------|--------------------------------------------|------|-----------------------------------|
| 1961  | 4,322                | 1,242| 3,080                                      | 22,5 | 6,5                               | 16,0                          |
| 1970  | 4,395                | 1,855| 2,540                                      | 17,2 | 7,2                               | 10,0                          |
| 1980  | 5,504                | 2,995| 2,509                                      | 18,0 | 9,8                               | 8,2                           |
| 1989  | 6,419                | 3,098| 3,321                                      | 18,1 | 8,7                               | 9,4                           |
| 1999  | 3,686                | 4,689| -1,003                                     | 10,1 | 12,8                             | -2,7                          |
| 2006  | 4,771                | 4,839| -68                                        | 13,5 | 13,7                             | -0,2                          |
| 2015  | 7,721                | 4,219| 3,502                                      | 18,0 | 9,8                               | 8,2                           |
| 2019  | 5,242                | 4,073| 1,169                                      | 12,0 | 9,3                               | 2,7                           |

The decline in the birth rate in Ulan-Ude has been uneven. The statistical data show that the change in the total fertility rate was interrupted by frequent drops and rises caused by the transformation of the socio-economic system in the country. During the post-Soviet period, the total fertility rate in Ulan-Ude had the highest value, 18.0‰ in 2015. The lowest coefficient was observed in 1999 at 10.1‰, followed by a steady increase in the birth rate in the following years, and then a decrease again to 12‰ in 2019.

While the trend in the birth rate remains unchanged, the natural increase of the population is substantially affected by mortality, which is much lower in Ulan-Ude (9.3‰) than in Buryatia (11.0‰), in urban areas (10.1‰) and in rural areas (12.4‰). The low overall mortality rate of the capital's population is due to a younger age structure, characteristic of migration-positive territories.

Over the past 10 years, since 2009, the inner-city districts of Ulan-Ude have started to differ significantly in terms of natural population changes. The Sovetsky district stands out, with a fairly high natural increase compared to others - 6.7‰ in 2019, the Oktyabrsky district is half as high at 3.2‰, and the Zheleznodorozhny district has recorded a natural decrease in population (-0.7‰). Moreover, the decline in Zheleznodorozhny District is due to birth rates, where they are an order of magnitude lower than in Sovetsky, while in Oktyabrsky District, even though birth rates are better than in Zheleznodorozhny, but mortality rates are significantly lower.

4. Conclusion

Thus, the formation of the population of Ulan-Ude took place in several stages, the most significant of which are related to the projects of state-national scale. During the post-Soviet period, in contrast to other regional centres of the FEFD, there has been an increase in population due to both migration and natural increase. With the population of the Republic of Buryatia declining, the factor that has the greatest impact on the population dynamics of Ulan-Ude is internal migration. Although there are considerable differences in birth and death rates, the territorial differentiation in the rate of natural population growth is largely based on the differences in the age structure of the population, with working-age migrants accounting for the bulk of the population, and hence the relatively high natural increase in the capital.

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