



On approval of the Methodology of calculating indicators of the population size and structure

Unofficial translation

Order of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan dated September 21, 2017 No. 134. Registered with the Ministry of Justice of the Republic of Kazakhstan on October 6, 2017 No. 15860.

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In accordance with subparagraph 5) of Article 12 of the Law of the Republic of Kazakhstan of March 19, 2010 "On State Statistics" and subparagraph 258) of paragraph 17 of the Regulation on the Ministry of National Economy of the Republic of Kazakhstan, approved by resolution No. 1011 of the Government of the Republic of Kazakhstan dated September 24, 2014, I hereby ORDER:

1. To approve the enclosed Methodology of calculating indicators of the population size and structure.

2. In accordance with the procedure established by the legislation, the department of social and demographic statistics, together with the legal department of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan shall:

1) provide the state registration of this order with the Ministry of Justice of the Republic of Kazakhstan;

2) within ten calendar days from the date of state registration of this order direct its copy in paper and electronic forms in the Kazakh and Russian languages to the Republican State Enterprise with the Right of Economic Management "Republican Center of Legal Information" for official publication and inclusion in the Reference Control Bank of Regulatory Legal Acts of the Republic of Kazakhstan;

3) within ten calendar days after the state registration of this order, direct a copy of it for official publication in periodicals;

4) place this order on the Internet resource of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan.

3. The department of social and demographic statistics of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan shall communicate this order to the structural units and territorial bodies of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan for guidance and use in the work.

4. Control over the execution of this order shall be entrusted to the supervising deputy chairman of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan (K.K. Orunkhanov).

5. This order shall be enforced upon expiry of ten calendar days after the date of its first official publication.

*Chairman
of the Committee on Statistics
of the Ministry of National Economy
of the Republic of Kazakhstan*

N. Aydapkelov

Approved
by order No. 134
of the Chairman
of the Committee on Statistics
of the Ministry of National
Economy of the
Republic of Kazakhstan
dated September 21, 2017

Methodology of calculating indicators of the population size and structure

Chapter 1. General Provisions

1. The Methodology of calculating indicators of the population size and structure (hereinafter - the Methodology) refers to statistical methodology formed in accordance with international standards and approved in accordance with the Law of the Republic of Kazakhstan dated March 19, 2010 “On State Statistics” (hereinafter - the “Law”).

2. The Methodology determines the main aspects and principles of calculating the indicators of the size and structure of the population based on the use of administrative data and the data obtained from the national censuses.

3. This Methodology is applied by employees of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan (hereinafter - the Committee) and its territorial bodies in the formation of indicators of the size and structure of the population.

4. The purpose of the calculation of indicators of the population size and structure is to obtain complete and reliable data on the size and structure of the population required to conduct an effective social and economic policy, to work out development programs for the country and regions.

5. The following definitions are used in this Methodology:

1) the total population growth (decline) - is an algebraic sum of the natural increase (decrease) and migration increase (decrease) of the population;

2) migration increase (decrease) of the population - the difference between the number of arrivals over a certain period to the territory of the region and the number of departures from it;

3) natural increase (decline) of the population - the difference between the number of live births and the number of deaths over a certain period.

Chapter 2. Calculation of the population size

6. The main data sources of the population size of the country and its regions are the data obtained from the national censuses.

7. The population size of the country and its regions changes in the inter-census period due to natural (data on births and deaths) and migration (data on arrivals and departures at the place of permanent registration) growth (decline).

8. Calculations of the total stable population are made throughout the Republic of Kazakhstan and its regions. The calculations take into account the increase or decrease in the population of individual regions in the result of administrative-territorial reforms.

9. Current estimates of the stable population as at the start of the year are made on the basis of the data obtained at the end of the last national census from the date of the national census to January 1 of the census year, to which are annually added the numbers of births and arrivals for permanent residence in the Republic Kazakhstan or its regions and from which are subtracted the numbers of those who died and left the Republic of Kazakhstan or its regions for permanent residence outside them.

10. The population size as of January 1 of the calculated year is determined on the basis of data as of January 1 of the previous year, with regard to natural and migration growth (decline), as well as changes in the population size in the result of administrative-territorial transformations that took place during the previous year. The calculation is carried out on the formula:

$$P(t+1) = P(t) + B(t) - D(t) + A(t) - V(t) + T(t),$$

where:

$P(t+1)$ - is the population size as of January 1 of the calculated year;

$P(t)$ – the population size as at the start of the previous year;

$B(t)$ – number of live births in the previous year;

$D(t)$ – number of deaths in the previous year;

$A(t)$ – number of arrivals to the territory of the Republic of Kazakhstan and its region in the previous year;

$V(t)$ – number of departures outside the Republic of Kazakhstan and its region in the previous year;

$T(t)$ – change of the population size of the region due to the change of its boundaries. This value is taken into account in the equation with a plus or a minus, depending on the expansion or contraction of the boundaries of the territory.

At significant changes in the boundaries of the regions, the population recalculation is made from the last national census, taking into account redistribution of demographic events (received for statistical development after the reporting period) in accordance with the year of their occurrence.

11. To determine the numerical expression of the population growth or decline over a certain period, indicators of natural, migratory, and general increase (decrease) of the population are calculated.

12. The natural growth (decline) of the population is calculated on the following formula:

$$S_e = B - D,$$

where:

S_e – is natural increase (decrease) of the population size in the calculated period;

B – number of births in the calculated period;

D – number of deaths in the calculated period.

Migration growth (decline) of the population is calculated on the following formula:

$$S_m = P - V$$

where:

S_m

– is migration growth (decline) of the population in the calculated period;

P

– number of arrivals in the calculated period;

V

- number of departures in the calculated period.

The general growth (decline) of the population is calculated on the following formula:

$$S_t = S_e + S_m,$$

where:

S_t – is general growth (decline) of the population in the calculated period;

S_e – natural growth (decline) of the population in the calculated period;

S_m – migration growth (decline) of the population in the calculated period.

13. When carrying out demographic, social, economic calculations, the average annual population size is used, calculated as the arithmetic average of the population as at the beginning and end of the year:

$$\bar{P} = \frac{(S_n + S_k)}{2},$$

where:

\bar{P}

– is average annual population size;

S_n

– population size as at the year start;

S_k

– population size as at the year end.

14. The population growth (decline) rate determines the rate of increase in the population number over the time period. It is calculated as the quotient of dividing the population number at the end of the calculation period by the population size at the beginning of the calculation period:

$$r = \frac{P_1}{P_0} \times 100,$$

Where:

r - is the population growth (decline) rate;

P_1

– population number at the end of the calculation period;

P_0

– population size at the beginning of the calculation period.

Chapter 3. Calculation of the population structure indicators

15. For classification of the population by gender and age, the following indicators are calculated: the share of men (women) in the total population, the share of the population of a certain age to the total population number, dependency ratios.

16. The share of men (women) in the total population is calculated as the ratio of the number of men (women) to the total population. This indicator is calculated on the following formula:

$$D_{m(f)} = \frac{P_{m(f)}}{P_t} \times 100,$$

where:

$D_{m(f)}$

– is the share of men (women) in the total population;

$P_{m(f)}$

– number of men (women);

P_t

– total population number.

Calculations of this kind are made on different ages and age groups.

17. The calculation of the age structure of the population is based on the “age-shifting” method (transition of people of a certain age "x" to a subsequent age "x + 1", the number of people decreases due to mortality and changes due to migration). The calculation is equally carried out on men and women of one-year-old age groups from 0 to 99 years and on a group of 100 years and older. The calculation is carried out at the beginning of the year and each age corresponds to the year of birth.

18. The share of the population of a certain age to the total population is calculated as the ratio of the number of persons of “x” age to the total population. This indicator is calculated on the following formula:

$$D_x = \frac{P_x}{P_t} \times 100,$$

where:

D_x

– is the population share of "x" age to the total population;

P_x

– the population number of "x" age:

P_t

– total population number.

19. The dependency ratio determines the number of children and persons of retirement age per 1000 population between the ages of 16 and 63 (men), from 16 to 58 years old (women). The dependency ratio for 2017 is calculated on the following formulas:

$$k_d = \frac{S_{0-15}}{S_{16-62(57)}} \times 1000,$$

where:

k_d
– is dependency ratio by children;

S_{0-15}
– total number of the population in the age from 0 to 16 years old;

$S_{16-62(57)}$
– total number of the population in the age from 16 to 63 years old (men), from 16 to 58 years old (women).

$$k_s = \frac{S_{63(58)+}}{S_{16-62(57)}} \times 1000,$$

where:

k_s
– is dependency ratio by persons of retirement age;

$S_{63(58)+}$
– total number of the population in the age from 63 (men) and from 58 (women) and over;

$S_{16-62(57)}$
– total number of the population in the age from 16 to 63 (men), from 16 to 58 (women).

$$k_t = \frac{S_{0-15} + S_{63(58)+}}{S_{16-62(57)}} \times 1000,$$

where:

k_t

– is total dependency ratio.

In subsequent years, when calculating the dependency ratios, the retirement age of women is taken into account in accordance with the Law of the Republic of Kazakhstan of June 21, 2013 “On Pension Security in the Republic of Kazakhstan”.

20. To characterize the level of the population aging, the population aging index and the Billeter index are calculated.

21. The population aging index characterizes the number of elderly people per 100 children. It is calculated as the ratio of the population aged over 65 to the number of the population aged from 0 to 15 years.

22. The Billeter index characterizes the “burden” of the share of people of non-reproductive age (0-14 years, 50 years and over) per 100 people of reproductive age (15-49 years). It is calculated as the difference quotient in the number of persons aged 0-14 years and 50 years and over to the population aged 15-49 years. The value of the index depends on the age structure of the population. The index has positive values when the share of children in the population is higher than that of the people over 50, and negative values when the share of people over 50 is higher than that of children.

23. To characterize the population rate of a region, the population density indicator is used. The population density is calculated as the quotient of the population divided by the area of the corresponding region in square kilometers.