

Charles University in Prague

Faculty of Science

Department of Demography and Geodemography



**ETHNIC DIFFERENTIATION OF FERTILITY IN
KAZAKHSTAN**

Master Thesis

Anas Abuov

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Thesis tutor: RNDr. Tomas Kucera CSc.

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Chapter 1

Introduction

1.1 Objective of the study

Ethnicity is a significant factor influencing demographic change. In the countries with higher than replacement fertility level and at least relatively young population it usually has a higher impact on reproduction than the other components (mortality and migration). As shown by numerous studies, ethnic differentiation is typical of all population processes.

Ethnic composition of Kazakhstan is heterogeneous and mixed, which is a result of complicated ethno-cultural, demographic and political processes. Therefore, there is a focused attention to examine the ethnic component of population reproduction along with other problems of population in our country. This issue requires further in-depth study, which influenced my choice of research subjects. Kazakhstan, as every multiethnic country, is characterized by ethnic differences in fertility. These differences reflect both the uniqueness of culture and marriage-family relations and the unevenness of demographic transition within different ethnic groups due to the peculiarities of historical development. Up to now, ethnic differences in fertility remain one of the important features of demographic development of Kazakhstan.

It is important to note that in the 1990s, especially in the first half of the century, ethno-demographic processes were largely determined by external migration. In contrast, currently, the dynamics of ethno-demographic development is mainly determined by processes taking place inside the country. First of all, this concerns fertility.

Despite the fact that there are various ethnic groups in Kazakhstan, the seven most numerous together make up 95% of the total population (in 2007). But the study mainly focuses on four dominant ethnic groups: Kazakhs (59.2%), Russians (25.6%), Ukrainians (2.9%) and Uzbeks (2.9%). Other ethnic groups (Uyghurs, Germans and Tatars), which are presented separately in the ethno-demographic data, were not studied within the subject of fertility. Due to their relative small number, at the moment they do not change the overall pattern in the country. Also, it must be noted that their demographic behavior and characteristics are largely similar to one of the above-mentioned ethnic groups.

Now it is possible to claim that all ethnicities go through a transition from traditional to modern patterns of fertility behavior. The changes in fertility behavior of ethnicities concern the transition of preferences from families with many children to those with fewer children. Despite such transition, the level and rates of fertility among different ethnicities are heterogeneous. Even a significant territorial difference in fertility in the country is basically nothing but a reflection of its ethnic differences. The reasons of ethnic differences are traditions and customs which are developed historically and continued to influence norms and behavior of a particular ethnic group. The life style, family structure, woman's role and other factors have direct and indirect impact on fertility.

An analysis of work dealing with fertility problems showed that ethnic differences of fertility in Kazakhstan, especially its changes in recent years, have not been the subject of special theoretical research in science of our country, although some aspects of this problem were highlighted in domestic as well as foreign literature.

Thus, topicality and lack of studies on the problem of fertility's ethnic characteristics determined the choice of topic, objectives and major tasks, as well as object and subject of this dissertation research.

The purpose of this study is to identify differences in the level and dynamics of fertility among major ethnic groups of Kazakhstan from 1999 to 2006.

To achieve the goal of study, the following tasks were set

- To make an overview of different theoretical and methodological study approaches of fertility's ethnic features;
- To examine ethnic composition of the population;
- To examine sex-age structure of ethnic groups;
- To analyze the dynamics of fertility in each selected ethnic group;
- For better understanding, to examine fertility in birth orders within ethnic groups;
- To compare the dynamics and birth rates among ethnic groups;
- To analyze the main reasons of differentiation in fertility between ethnic groups.

The research has selected as its *object* the largest ethnic groups – Kazakhs, Russians, Ukrainians and Uzbeks.

The subject of the study is ethnic aspect of fertility in Kazakhstan.

The chronological framework of the study covers the period 1999–2006.

The dissertation is based on a systematic and comparative analysis of statistical data on ethnic groups.

These are the research questions for this study:

- What is the differentiation of fertility among ethnic groups?
- Do ethnic differences in fertility become less and less significant, and does demographic homogeneity of society grow?

- Is the increase in fertility among ethnic groups an effect of socio-economic recovery of the country or an influence of a favorable age structure of the population?
- Is the increase in fertility rates among ethnic groups mainly due to postponed childbearing?

2.2 Outline of work

The work on the theme „Ethnic differentiation of fertility in Kazakhstan” consists of several parts (chapters), including the introduction and conclusion.

In the Introduction (Chapter 1), the current importance of the topic is explained, the level of its scientific investigation is exposed, the purpose and objectives of submitted work are formed, the subject and the object of research are defined and the scientific novelty and practical significance of the dissertation are described.

Chapter 2 provides an explanation of the peculiarities of ethno-demographic statistics obtained from the Statistics Agency of Kazakhstan, used in this research. Some shortcomings of these statistics are identified and commented on within work with this data. Methods and measures of fertility are also described in detail. They were used (with the calculation of statistical data) to analyze and compare differentiation between ethnic groups in the period 1999–2006.

Chapter 3, called „Literature overview,” consists of two sections. The first provides an overview of scientific research by Kazakh scientists that focuses on ethnic characteristics of the demographic process in Kazakhstan, which are also covered by ethnic differences in fertility. The second section analyzes the works of foreign authors who have studied the characteristics and differences of fertility by ethnicity in individual multiethnic states.

Chapter 4, called „Theoretical background,” reflects the essence and content of the concepts of „ethnics” and „ethnic groups” as a social community. It identifies the characteristics of the study and use of categories of ethnicity in the demographic studies. We also consider various theories and hypotheses relating to demographic behavior of ethnic groups and ethnic differentiation in fertility. We focused mainly on comparative study of fertility among the majority and minority ethnic groups. Influence of culture, religion and other factors on ethnic characteristics of fertility is also studied.

Chapter 5, called „Ethno-demographic structure of population in Kazakhstan,” is also divided into sections, as are other chapters of this work. Section 5.1, „Changing size and ethnic structure of Kazakhstani population,” describes the change in quantity and ethnic composition of the population in the periods 1989–1999 and 1999–2007. This section also deals with changes occurring in the ratio of urban and rural residents in ethnic groups and the proportion of each ethnic group in the urban and rural population.

Section 5.2, „Age structure of ethnic groups,” examines the dynamics and differences in age structure between ethnic groups. Ethnic groups with young and relatively old age structure of

population are defined. It also presents differences in childbearing age women ratio between ethnic groups.

An analysis of fertility dynamics and differentiation in fertility between ethnic groups in the period from 1999 to 2006 is considered in Chapter 6, „Fertility and Ethnicity.”

Section 6.1, „Basic trends in fertility developments in Kazakhstan between 1999 and 2006,” shows the development of major trends in fertility in the country during the period under observation. Changes in main indicators of fertility are examined, such as crude birth rate, general fertility rate, total fertility rate and mean age at childbirth. Changes in fertility rates for selected ages of women in childbearing age also are examined. The main trends in fertility of the country are described.

Section 6.2, called „Ethnic differentiation of fertility,” examines the level and dynamics of fertility in the four major ethnic groups, as well as differences between them in the studied period. The choice of these ethnic groups is explained. Comparing the dynamics and trends of fertility, the differences and reasons for the difference in fertility between ethnic groups are identified. Method of standardization and decomposition is used for a comparative analysis of trends in fertility along with general methods of analysis of fertility.

Section 6.3 is intended for a detailed analysis of the observed changes in fertility rates among ethnic groups. It examines the differences in fertility by birth orders between selected ethnic groups. It shows the dynamics of fertility change in each birth orders within ethnic groups.

In conclusion, the thesis research is summed up, theoretical conclusions are presented and some directions of further study of the problem are outlined.

Chapter 2

Data and methods

2.1 Data collection and sources

Data for this study is obtained from the Ethnodemographic Yearbook of Kazakhstan (Ethnodemograficheskii ezhegodnik Kazakhstana) published in 2006 by the Agency of Statistics of the Republic of Kazakhstan and from the statistical database of the Agency of Statistics of the Republic of Kazakhstan. Some data were obtained from the Demographic Yearbook for 2008 and the statistical digest „Kazakhstan for the years of independence 1991–2007” published by the Agency of Statistics of the Republic of Kazakhstan.

The data on population by sex and age for each ethnic group under observation from 1999 to 2006 were taken from the Ethnodemographic Yearbook of Kazakhstan. The data are given for the beginning of each year. This yearbook has a distinctive feature, as in accordance with its name, the figures on population are for the first time published according to ethnic origin of the population.

Using its statistical database, the Statistics Agency of Kazakhstan provided data about total number of live births, the number of live births (by sex and age of mother) and the number of live births (by age of mother and by order) for each ethnic group from 1999 to 2006. Additionally, data on population by sex and age for each ethnic group for the beginning of 2007 are given. The presented data include information on the whole of Kazakhstan.

The first source of these data is constituted by the results of the 1999 census, which included questions on ethnic origin. The second source is calculation of the current balance of natural and migratory movements of population by ethnicity.

Ethnodemographic indicators are determined for the ethnic groups with a more than one-percent share in the total population of the country (Kazakhs, Russians, Ukrainians, Uzbeks, Uighurs, Tatars and Germans), while data for ethnic groups with the population under one per cent are given in an aggregate form as „other ethnic groups.”

Thus, taking into account the available data, the research analysis of ethnic differentiation of fertility in Kazakhstan covers the period from 1999 to 2006. However, not all ethnic groups were selected for the study of fertility. Some are separately presented in the statistics. The largest ethnic groups (Kazakhs, Russians, Ukrainians and Uzbeks) were selected as they to a large extent

determine the nature of fertility in the country during the studied period. However, it should be noted that in the analysis of ethnodemographic structure of the population of Kazakhstan (Chapter 4) all ethnic groups are included, and the data are given for the beginning of each year from 1999 to 2007.

While analyzing data several problems appeared:

1. *There is a number of live births where mother's age is not determined.* The most large number of live births, when a mother's age is not determined was recorded in 1999, when 2,320 live births were fixed or 1,1% of total live births. In later years, unavailable data decreased and in 2006 there were 262 such live births, i.e. 0.1%. As far as ethnic groups are concerned, the largest numbers of live births where mother's age could not be determined appeared among Kazakhs (1694 live births or 1.2% in 1999) and Russians (313 live births or 0.8% in 1999). But in recent years their shares also decreased.
2. *There is a number of live births where ethnic group is not determined.* Their quantity in recent years on the contrary increased. While in 1999 the number of live births where ethnic group were not determined was 207 live births (0.1%), it rose to 750 (0.2%) by 2006.
3. *There is a number of live births where birth order is not determined.* Their number in 1999 was 480, but if we add the number of live births where a mother's age is not determined, we obtain 2,800, which makes 1.3% of all live births. The number of live births, where birth order was not determined along with the number of live births, where a mother's age is not determined was 0.2% in 2006. In ethnic groups as in the first case, the main share of unavailable data appeared among Kazakhs and Russians.

Therefore, we can observe some errors when calculating and analyzing fertility trends and indicators among ethnic groups. Such errors occur in each year and ethnic group. They have minor influence and do not change the general pattern.

2.2 Methods and indicators for fertility analysis

For the analysis of statistical data it is necessary to use demographic methods. There are several ways to measure fertility levels and patterns. Some of the most common methods are used in this analysis. It should be noted that all these measures will be used for fertility in the whole country and for fertility in selected ethnic groups to more clearly define the differentiation of birth and to compare the dynamics between them in the period from 1999 to 2006.

Crude birth rate (CBR)

Crude birth rate is the simplest and most common measure of fertility. It is defined as the number of births in a year per 1000 mid-year population – that is,

$$CBR = \frac{B}{P} * 1000$$

where B is the total number of live births and P is the total population. The term “crude birth rate” when unqualified means the crude birth rate for the total population of an area, but one may also speak of the crude birth rate of particular population group in the area, such as a race, ethnicity, residence, or occupation group. For example, the crude birth rate for the Kazakhs population of Kazakhstan is represented by

$$CBR^{Kazakhs} = \frac{B^{Kazakhs}}{P^{Kazakhs}} * 1000$$

In this more general sense, the principal characteristic of a „crude” birth rate is that all ages and both sexes are represented in the rate. Although CBR is a simple calculation, is not so useful indicator to compare fertility rates among populations if populations have different proportion of women in childbearing age.

Standardization of crude birth rates

As an overall measure, the crude birth rate in particular is subject to important limitations for analytic studies. Like the crude death rate, it is affected by variations in demographic composition of a population, particularly its age and sex composition. The analysis of time trends and of group fertility differences is enhanced by eliminating as completely as possible the effect of differences in the age-sex composition of the compared populations. This is only partially accomplished by calculation of a general fertility rate. Both the crude birth rate and GFR may be adjusted (or standardized) for variations in sex composition. In addition, other types of age-sex adjusted measures of fertility, particularly the total fertility rate, may be calculated. As with death rates, birth or fertility rates may be adjusted by either the direct or indirect methods. We will calculate age-sex adjusted birth rate by the direct method. The formula is as follows:

$$ASABR = \frac{\sum f_x P_x^f}{P} * 1000$$

Where f_x equals the age-specific fertility rates in a particular population, P_x^f the female age distribution in the standard population, and P equals the total of the standard population (all ages, both sexes). As may be seen in formula, the age-specific birth rates are weighted by the proportions that females of a given age constitute in the total population. The use of the overall total population rather than the female population of childbearing age or the total female population is intended to provide an adjusted rate of the approximate magnitude of the crude birth rate.

The result of calculation of the age-sex adjusted birth rate by this method is shown in Table 7, using the population of Kazakhstan as a standard.

Standardization and decomposition of difference between two crude birth rates

It is of interest to measure precisely the degree to which the difference between the crude birth rates of two populations can be attributed to differences in age-specific rates relative to the age-sex

structures of the two populations. The method of decomposition used for this purpose relies on direct standardization and can be used to determine the relative contribution of a number of different factors that comprise a rate change. By using standardization, one may first determine what the difference in the crude birth rates of two populations would be if age-specific fertility rates of the two populations differed, but the population structures were the same. The resulting birth rates would be adjusted for the difference in age-sex structure and the difference between age-sex adjusted rates would provide a measure of the effect due to the age-specific rates, called the rate effect. Next, in order to determine the effect of differences in age-sex structures, called the compositional effect, one would produce adjusted birth rates in which the age-specific rates were considered constant and the proportion of women in each age group was allowed to vary.

In a more refined calculation, when calculating the rate and compositional effects that account for observed differences in crude birth rates between two populations, the standards to be used the age-sex structure and age-specific rates, respectively, should be the average for each of these factors in the two populations. By using the average as a standard, one may eliminate an interaction effect that may occur when one uses other standards. The interaction effect results from the fact that the rate effect depends on the choice of population standard and the compositional effect depends on the choice of rates used in the calculations.

For example, the first step in calculating the rate effect, the second step compositional effect for two populations, called populations 1 and 2 would be to calculate the age-sex adjusted birth rates (age-sex-population-standardized birth rate (ASPSCBR) to determine rate effect and age-sex-rate-standardized birth rate (ASRSCBR) to determine compositional effect) in each population. The equations for the population 1 would be

$$ASPSCBR = \sum \frac{B_{1x}}{P_{1x}^f} * \left(\frac{\frac{P_{2x}^f}{P_2} + \frac{P_{1x}^f}{P_1}}{2} \right) * 1000$$

$$ASRSCBR = \sum \frac{P_{1x}^f}{P_1} * \left(\frac{\frac{B_{2x}}{P_{2x}^f} + \frac{B_{1x}}{P_{1x}^f}}{2} \right) * 1000$$

Where the symbols have the following meaning for population 1:

P_{1x}^f = females by age group

P_1 = total population

B_{1x} = live births to females by age group

with corresponding terms for population 2.

The results of such calculations can be seen in tables 8, 9 and 10.

General fertility rate (GFR)

The general fertility rate (GFR) represents a first step towards obtaining a more refined measure of fertility than the crude birth rate. The general fertility rate is defined as the number of births per 1000 women of childbearing age. It may be represented by

$$GFR = \frac{B}{P_{15-49}^f} * 1000$$

where B is the total number of live births and P_{15-49}^f is number of women of childbearing age.

This is a „general” rate in that it attributes births to all women of childbearing age, irrespective of whether they had a birth. Its potential range is from about 50 to 300 per 1000. Like the CBR, it derives partly from birth statistics and partly from a census count or estimate of the mid-year population. Also, like the crude birth rate, it conceals a great amount of variation by age, since only a small proportion of births occurs among the youngest and oldest women in the age range 15–49. Indeed, the age range is sometimes limited to 15–44, if there are few births among older women.

Age specific fertility rate (ASFR)

A set of age-specific fertility rates for a given date and population group serves as a basis for a detailed comparison, with corresponding rates for other population groups, that is unaffected by differences between the groups in age-sex composition. An age-specific fertility rate is defined as the number of births to women of a given age:

$$f_x = \frac{B_x}{P_x^f}$$

Or to women per 1000 in that age group:

$$f_x = \frac{B_x}{P_x^f} * 1000$$

A set of rates may consist of the rates for 5-year age groups from 15–19 to 44–49 or from 15–19 to 40–44. The age classification recommended by the United Nations has 10 categories, under 15 years, quinquennial groups of 15–49 to 44–49, a terminal group 50 and over, and a group of „unknown” age (United Nations, 1982, p. 4); for example, the age-specific fertility rate between the exact ages 20 and 24 years is equal to

$$f_{20-24} = \frac{B_{20-24}}{P_{20-24}^f} * 1000$$

Age specific fertility rates by order of births

Age-specific fertility rate by order is represented by the formula:

$$f_x^i = \frac{B_x^i}{P_x^f} * 1000$$

where B_x^i represents births of a given order to women of a given age and P_x^f relates to all the women in a particular age, without regard to the number of children they have had.

Total fertility rate

Total fertility rate (TFR) is an important tool to reflect fertility. TFR is interpreted as the average number of children a woman will bear in her lifetime if she bears her children with the age-specific rates observed during the year in question. TFR is most commonly used to measure fertility change over a period of time or to compare fertility rates between various geographic areas and population groups (countries, regions or ethnic groups). TFR enables direct measurement of the reproductive results of the female population of childbearing age without taking into account the age structure of the population group not participating in the reproductive process.

$$TFR = \sum_{x=15}^{49} f_x$$

Total fertility rates by birth order

The age-order-specific fertility rates may be summed over the childbearing age range to give total fertility rates by birth order. The calculation may be carried out on either a period basis or a cohort basis. If TFR_j is the total fertility rate for birth order j ,

$$TFR_j = \sum_{x=15}^{49} f_{x,j}$$

Best known among the synthetic cohort measures is the total fertility rate (TFR). This is calculated from a set of age-specific fertility rates for a single year.

Parity progression ratios

A somewhat different perspective on the changes to fertility by birth order is provided by the trend of the parity progression ratio. In general, parity progression ratios represent the probability, on a retrospective basis, of having an $n + 1$ th child among those that have had an n th child. Parity-progression ratios may be defined in several ways depending on the data available and the degree of refinement sought. In their simplest form, parity-progression ratios may be calculated as ratios of the number of births of adjacent orders in the current year. The formula may then be given simply simply as follows:

$$a_0 = TFR_1 \quad (\text{Formula for the probability of the transition from childlessness to a first-order birth})$$

$$a_k = \frac{TFR_k}{TFR_{k+1}} \quad (\text{Formula for the probability of a another orders birth})$$

where TFR_1 is total fertility rate of a first birth order, TFR_k represents total fertility rate of a given order in some year and TFR_{k+1} is total fertility rate of the next higher order in the same year. In a more refined form, parity progression ratios may be computed for birth cohorts.

Proportion of childless women

Proportion of childless women corresponds to the share of women who have not delivered a child in their childbearing life. Thus, the idea can be easily expressed in the formula by subtracting from „total first birth (fertility) rate” which is equal to 1 the real observed total fertility rate (of first order):

$$p_0 = 1 - TFR_1$$

This residual explains the proportion of women who have no child.

Mean age at childbirth

Differences in the age pattern of childbearing may also be measured in terms of the median age at childbirth or mean age at childbirth. Both measures are used but under different circumstances. Calculating these measures on the basis of age-specific fertility rates rather than the number of births eliminates the effect of differences in age-sex composition of the populations under comparison. They may be interpreted then as describing the age pattern of childbearing of a synthetic cohort of women – that is, a hypothetical group of women who are viewed as having in their lifetime the (fertility) experience recorded in a single calendar year. Both the median age and mean age are ordinarily calculated from the data compiled for 5-year age groups. The mean age of a distribution of birth rates is calculated according to the following formula:

$$\bar{x} = \frac{\sum_x x f_x}{\sum_x f_x}$$

Where x represents the midpoint of each age interval (17.5, 22.5, etc.) and f_x represents an age specific fertility rate for a single year (the formula follows the form of a weighted average of ages, the weights being the age specific fertility rates).

Also we can calculate this measure by birth of order

$$\bar{x}_j = \frac{\sum_x x f_{x,j}}{\sum_x f_{x,j}}$$

The considerable similarity of the age distributions of birth rates suggests that the median age would vary only little.

Chapter 3

Literature overview

3.1 Basic texts published in Kazakhstan

In fact all scholars working on demographic development issues of Kazakhstan admit that ethnic structure of the population has a significant effect on the demographic situation in the country. Despite this, the study of demographic processes in Kazakhstan has focused on migratory process of population, especially emigration, while the study of fertility and its ethnic characteristics was ignored for a long time. The specific nature of Kazakhstan's studies in this direction determines that the birth rate is usually considered in the context of population reproduction. Many demographic researches of Kazakhstan have a complex and historical character. Nevertheless, most scientists who dealt with the issue of fertility in Kazakhstan in their works have highlighted its ethnic features. Admitting the impact of ethnic composition on the patterns and trends of demographic processes, the researchers practically similarly interpret the level and extent of its influence.

For example, in the works of Kazakhstani researcher Alekseenko (1999, 2006), ethnic specificity of demographic processes in Kazakhstan is mainly considered in the context of differentiation between Kazakhs and Russians as the largest ethnic groups in Kazakhstan or between „Oriental” and „European” segments of the population. Analyzing the dynamics of fertility in the second half of the twentieth century, he noted that the fertility rate decline among Kazakhs was slightly lower than that of Europeans, but it was clearly evident. In other words, as early as the 1970–1980s, the process of changing the fertility type of Kazakhs is tracked down – from traditional to the modern (Alekseenko 2006).

Regardless of ethnicity, researcher predicts that there won't be any wide occurrence of large families in Kazakhstan, while families with one to two children will be the most „popular” option (Alekseenko 2006). Concerning ethnic specificity, in the first place, the author believes that it is due to trends of population change – for example, emigration contributed to some improvements in fertility change in Kazakhstan. External migration has reduced the number of „Europeans,” whose fertility rates were significantly below the national level and the second demographic wave between Kazakhs at the beginning of this century and immigration of repatriated ethnic Kazakhs (Oralmans) brought about an increase in the share of the Kazakh sector of the population.

Noting that the increase in fertility coincided with the macroeconomic success of the country, Alekseenko (2006) sees it as an effect of favorable changes in age-sex structure of population (especially in the “oriental” part of the population), while maintaining the total fertility rate at a low level. According to the expert, the new strategic priorities of the country, which aimed at the powerful socio-economic acceleration and development of capital- and knowledge-intensive industries as well as urbanization, leave no opportunities for ethnic groups to expand their traditional reproduction.

Nevertheless, the author is of the view that even in such circumstances, the improvement in the demographic situation is objectively getting corrected by the forces of the Kazakh segment of the population, as the largest ethnic group in Kazakhstan. The second demographic wave started in Kazakhstan whose impact has been seen since the beginning of this century.

There are different approaches to the classification of ethnic groups in determining the ethnic characteristics of demographic processes. Experts divide them into Turkic and Slavic; Indigenous and Non-indigenous; European and Oriental. In this respect, considerable interest has been aroused by Aubakirova’s work (2005), where the identification of main demographic characteristics of the population on the basis of cluster analysis is attempted. To study the general and distinctive features of population’s development between 1979 and 1999, she consolidated ethnic groups with similar demographic characteristics. To implement cluster analysis, 10 largest ethnic groups of Kazakhstan was chosen. Ranking of the ethnic groups was carried out according to 6 key criteria:

1. Crude birth rate (‰);
2. Crude death rate (‰);
3. Natural growth (‰);
4. Proportion of elderly persons (60 and over) (%);
5. Proportion of women in activity reproduction age (20–39) (%);
6. Proportion of urbanization (%).

The *first cluster* includes Kazakhs, Uzbeks, Azeris and Uyghurs. This cluster is characterized by high fertility rates, relatively low mortality, high natural growth and a "young" age structure of population. Thus, the first ethno-demographic group consists of ethnicities with positive demographic characteristics.

The *second cluster* includes Russians, Ukrainians, Tatars and Belarusians. These ethnic groups have demographic characteristics as low fertility, high mortality, low rate of natural increase, as well as high level of urbanization. We should note the distorted age structure of these ethnic groups. Thus, the second ethno-demographic group includes the ethnic groups with negative rates of natural increase and abrupt deformation of demographic structure. They can be described as „crisis ethnic groups.”

The *third cluster* includes Germans and Koreans. Unlike the previous two groups with opposite demographic characteristics, this group can be characterized as „transitional.” According

to the author's opinion, the demographic development of these ethnic groups tends to second the ethno-demographic group, and could potentially enter into its composition. (Aubakirova, 2005)

Analyzing the trends of demographic processes, the author comes to the following conclusions:

- Decline in fertility is typical of all clusters in the given monitored period, an especially large decline in fertility was observed in ethnic groups of the second cluster;
- If we compare fertility rate in different ethnic groups, then such a key indicator as fertility rate in second cluster's ethnic groups is twice lower than that of first cluster's ethnic groups.

Thus, according to the author, the received data proof significant ethnic differentiation in the level of fertility in Kazakhstan.

This observation was confirmed by the studies of other authors. For example, investigating the causes of increasing total fertility rate in Kazakhstan in 1999–2003, Kazakhstan researcher Agybaeva (2006) refutes the widely-held belief that the increase in birth rate in recent years was due to positive changes in the economic development of the country. By her opinion, one of the main causes of increased total fertility rates in recent years became the outflow of Russian-speaking population from Kazakhstan. She also notes that this figure is growing faster in towns rather than in the countryside. Furthermore, the author draws attention to the fact that the composition of the population of Kazakhstan was influenced by repatriated Kazakhs whose reproductive behavior focuses on middle-sized and large families.

According to the results of a survey on reproductive attitudes, the author found:

- For representatives of Asian nations (Azeris, Uzbeks, Tajiks and others, except Kazakhs), the ideal number of children per family is 4.97 children;
- Russian nationality respondents believed that the ideal family size is 2.8 children;
- No woman prefers the ideal family size without children. This suggests that in the hierarchy of values, children occupy a certain place, but far from identical, depending on the order of their birth.

Agybaeva (2006) also notes that differences of opinions about the ideal number of children are due not only to ethnic origin. The important factors which influence the formation of reproductive attitudes are as follows: specific economical, social and cultural conditions of urban and rural areas. The behavior of individuals in rural areas is more dependent on social environment. Customs, habits, traditions, which are elements of psychology of the older generations, have a significant influence on shaping attitudes toward childbearing. While in urban areas, families develop toward greater individualization of their members.

3.2 Foreign literature on the topic and related issues

In multiethnic societies, investigating causes and consequences of fertility differences between ethnic groups and predicting general fertility trends of ethnic groups is a demand for government

and demographic organizations to manage population growth. The role of ethnicity in fertility differential study field has been widely discussed in both developing and developed countries, for example: Chang (2003) – minority groups fertility patterns in China; Abbasi-Shavazzi and Sadeghi (2007) – fertility behavior of ethnic groups in Iran; Peng (2002) – fertility differentials across various subgroups including ethnicity in Malaysia; Adkins (2007) – effect of economic crisis on ethnic differential fertility in Russia; Statistics New Zealand (2004) – ethnic variations of fertility by socioeconomic and geographic factors in New Zealand; Forste and Tienda (1996) – racial and ethnic fertility differentials in the United States of America, etc. Although there is a huge amount of studies related to ethnic differential fertility, only those which are most relevant to our theme will be reviewed in the following text.

The most relevant research to our study is constituted by the works which examined the influence of economic crisis during the 1990s on fertility patterns of major ethnic groups in post-Soviet Kazakhstan by Agadjanian (1999) and Agadjanian et al. (2008). They proposed a division of the ethnic groups of Kazakhstan as Europeans or Russians (Russians are major population of those with European origin); and ethnic Kazakhs into two groups of Russified and non-Russified according to the language selection for interview respondents of each survey. They stated that the socioeconomic and political crisis after the collapse of the Soviet Union may be affected by demographic behavior of these ethnic groups differently. During the time of crisis, European women were marrying significantly earlier than ethnic Kazakhs. Also, the crisis influenced the timing of first childbearing within marriage among Europeans through significant postponement. These two incompatible responses of European-origin women to the ethno-cultural and socioeconomic non-favorable period are explained by their socio-cultural and demographic specific features, for example: the continuing attitude towards early marriage even after the Soviet Union's split, the primary goal of European ethnic young couples was excluding childbearing, out-migration of young Europeans who are more able to migrate than those who are married and have children and likely to stay, could result in marital preferences of stayed youths or, on the another side, young Europeans can see emigration as a way of avoiding their uncertain social status and through early marriage they make a migration unit and by delaying first birth, they may leave their options open. Also it is observed that the level of contraceptive use and abortion was related with the level of Russification or simply, it was the highest among Europeans and the lowest among non-Russified (Agadjanian and Qian, 1997). Therefore, the demographic and sociocultural specific signs of given ethnic groups are important backgrounds for understanding this unusual fertility trend.

Similarly, Dubuc (2009), in her analysis on the fertility trend by ethnic and religious groups of UK observed that ethnic groups' cultural background and religion are important to explain fertility differences. Although some fertility convergence appeared across ethnic groups in the UK since 1987, there are still significant fertility differences by ethnicity. Since the Second World War, the immigration process from different countries to the UK started to rise due to post-war reconstruction and sufficient offer of jobs. Despite of the noticeable decline in TFR of Pakistani and

Bangladeshi women, which may express some convergence of their fertility behavior with ethnic majority groups, these two groups' TFR remains higher than that of the other ethnic groups. The lower fertility rate of some other ethnic minority groups (Indian, White Other and Chinese) than that of ethnic majority group-White British was explained by their high socioeconomic and educational status. In general, immigrant women had higher fertility than UK-born women. For understanding fertility differences in multicultural society, there is a need to inspect the religious and cultural background of ethnic groups.

In the context of society which has totally different cultured and religious ethnic groups with different origins religious, sociocultural and demographic specific backgrounds are the main factors influencing fertility differences between ethnic groups, but in the countries with similar religious and cultural norms, fertility patterns of ethnic or more appropriately „specific language speaking” groups differ mainly by the level of women's education. In his work on Pakistan's ethnic differential fertility, Muhammad (1996) pointed that ethnic fertility differential is related to the ethnic or more appropriately „language speaking” groups' different levels of education, fertility-related norms and behavior, such as: age at first marriage and values of and demand for children, residence, and practice of family planning methods. High fertility rate of some ethnic groups was closely associated with their low education, lower age at first marriage, absence of ideal fertility preference, and lack of contraceptive knowledge and use. Also, rural residence of some ethnic groups could have effect on fertility with the relation of their low education level. Therefore, he suggested that women's education is the most powerful factor to conduct successful family planning projects in Pakistan, with a long-term persisting high rate of population growth and where it is not possible to raise the age of first marriage, and change the family size norms due to the population's strong belief in Islamic law, customs and tradition. Overall, the fertility of population may differ by ethnicity depending on different factors, such as: degree of assimilation into the major ethnicity, socio-cultural, religious and demographic specific background, and educational level. The degree of assimilation process of ethnic minorities into the majority group may determine fertility pattern of ethnic minor groups in some countries. But in some societies, which raise an unusual theoretical frame, the explaining keys should be searched in the socio-cultural and demographic specific background. In multicultural context, knowledge of cultural and religious bases could be important to shape fertility patterns of ethnic groups. Finally, education shows the most powerful negative effect on fertility rate and only through education strong pronatalist religious beliefs and norms may weaken.

Chapter 4

Theoretical background

Fertility patterns differ between countries and over time. Even in the same country fertility pattern can differ inside the population due to various factors, which may cover a wide range of variables: from socio-cultural (age at the first union, family planning method/use, etc.) through socioeconomic (income, education, etc.) till geographical, political and other miscellaneous factors (climate, food conditions, etc.). There are two main classifications of variables according to the way of their influence on fertility: direct and indirect. Indirect variables can influence fertility only through direct variables (Bongaarts, 1978). However, indirect variables are more important since they define the external framework of direct variables (Josipovic, 2003). Among the differential fertility studies by indirect variables, the relationship between socioeconomic variables, especially education, income, religion, urban-rural residence and ethnicity, and fertility, behavior of population is most discussed and investigated in various countries.

Of all the factors, the study of fertility differences by ethnicity deserves certain attention, especially in multiethnic societies, since ethnicity usually provides individual's cultural and religious background including fertility-related behavior, norms and values and ethnic groups differ between each other not only by their basic characteristics, but also by their distinctive socioeconomic and demographic conditions, which is considered the main cause of fertility differences.

4.1 Ethnicity concept in demographic studies

The terms "ethnicity" and "ethnic group" are derived from the Greek word „ethnos” which normally means „nation.” Over time, because of various types of encounters, which industrialized states have had with immigrants and people from colonized countries, ethnic groups became in opposite to the nation and the term „ethnic group” started to refer to the people with distinctive cultural identities as of foreign state (Wikipedia). Definitions of ethnicity and its categories widely vary across countries since the criteria by which ethnic groups are identified contain terms, such as „race”, „origin” or „tribe,” which can have many different connotations (United Nations Statistics Division, 1998). Therefore, there is no internationally accepted definition and criteria for ethnicity.

Bulmer (1996) defined ethnicity as follows: „*An ethnic group is a collectivity within a larger population having real or putative common ancestry, memories of a shared past, and a cultural focus upon one or more symbolic elements which define the group's identity, such as kinship, religion, language, shared territory, nationality or physical appearance. Members of an ethnic group are conscious of belonging to the group.*” From the conference called "Challenges of Measuring an Ethnic World: Science, politics, and reality," organized by Statistics Canada and the United States Census Bureau, ethnicity is suggested that it is a fundamental factor in human life, because ethnicity is a phenomenon inherent in human experience (Statistics Canada, 1992). Similarly, according to Berthoud (2000), ethnicity is a „multifaceted phenomenon,” which is based on physical appearance, subjective identification, cultural and religious affiliation, and social exclusion and consequently, ethnic group is a community with its heritage providing common important characteristics between its members and these characteristics make them to be distinct from others. Also these distinctions serve as a boundary separating communities.

The concepts „ethnic identity” and „ethnic category” are often used together with the term „ethnic group” in demographic studies. According to Kunstadler (1979), who proposed the distinctions of these three terms, while ethnic group is a group of human beings with some common characteristics of consciousness and interests on some shared understanding and values, ethnic identification is a process of belonging individual to a group or category and this ethnic category means classes of people or groups, who are divided according to their real or presumed characteristics. Ethnic identity is indicated by the recognition from others based on a group's distinctiveness by the indicators of common cultural, linguistic, religious, behavioral or biological traits in contrast to other groups (Eriksen, 2001).

In various demographic studies, the concept „language-speaking group” is used as in terms of another group boundary as ethnicity. There are three types of languages which are used in censuses, namely: mother tongue, usual language and other language-knowledge of individual (United Nations Statistical Division, 1998). Of them, mother tongue (language usually spoken in the individual's home in his early childhood) is conceived as a determinant of ethnic identity of individuals. However, usual language (currently or most often spoken or the best known language by the individual in his present home) refers as an indicator of assimilation into that ethnic identity, which means ethnic identity may change in the life course or through generations. In India and Turkey, population is categorized in terms of mother tongue.

Another term, „race,” has been used with the same role as ethnicity in some multicultural contexts. Indeed, the concept of ethnicity is more associated with cultural, religious and behavioral characteristics, but race is defined by heritable physical characteristics of individuals, for example: skin color, cranial and facial features, etc. Conceptions of race and grouping by race vary by culture and over time, and are often controversial for scientific, especially social and political reasons (Bulmer, 1996). At present, among social scientists, race is understood in the same manner of

ethnicity as a social construct (Seidner, 1982). Division into racial groups is used in the United States of America.

Studies on ethnicity have special importance in population sciences for various reasons. Intentions to study the relative size, growth over time, and socioeconomic characteristics of ethnic groups refer to that ethnicity is one of sub-groups of a population, like sex, age, marital status, etc. Also, according to Saenz and Morales (2005), in many cases ethnic groups show different demographic behaviors due to their distinctive social, economic, cultural and political life experiences. Therefore, comparative studies on particular ethnic groups may lead to the better understanding of their demographic variations.

4.2 Explanations of ethnic differential fertility

Investigations of causes of distinctive demographic behaviors among ethnic groups provide better understanding of both current and future fertility patterns of ethnic groups. Most of the studies on demographic differences by ethnicity were done as comparative studies between majority and minority groups. There are three main hypotheses which try to explain the mechanisms through which ethnicity affects demographic behavior.

The first hypothesis is constituted by „cultural approach.” It suggests that demographic differences among ethnic groups may be related with their distinctive cultural and historical experience and will vary by degree of acculturation into the majority group. On the other hand, the second approach, called „structural,” tries to explain demographic differences of ethnic groups by the degree of structural assimilation into the political and economic circumstances of major groups (Frisbie and Bean, 1978). The above-mentioned two approaches both concentrate on the degree of the assimilation process into larger society and suggest that a demographic difference between ethnic groups is a temporary phenomenon (Goldscheider and Uhlenberg, 1969), which means that this phenomenon would disappear or be minimal when an ethnic group is totally assimilated socially, culturally, and economically or when these characteristics are statistically controlled. However, many empirical studies show that even after ethnic groups reach similar cultural and socioeconomic conditions like larger society or these factors are controlled for statistically, distinctive fertility development was still observed. To explain these remaining differences in fertility, Goldscheider and Uhlenberg (1969) suggested the third major hypothesis which emphasizes the independent role of Minority group status.

According to Minority group status hypothesis, ethnic groups were considered as „minorities” or „minority groups” in major society. As being a minority group member, an individual may find himself in a disadvantaged „minority group status,” which does not totally mean to be different in terms of social status (educational attainment, occupational distribution, and income level), place of residence, or social mobility, etc. Goldscheider and Uhlenberg (1969) suggested the concept „degree of and desire for acculturation” as a key determinant of minority group status. They

explained the constant high fertility of some ethnic minorities in the United States of America, for example: Catholics, Black Muslims, Hasidim and Hutterites, which are characterized by their pro-natalist religious teachings and traditional family structure that it is related to their low desire of acculturation although social and economic conditions would predict a lower fertility level. In contrast to it, they also explained the causes of lower fertility level of minority groups: Jews and Japanese Americans. Their higher socioeconomic standards (high education level and job occupancy) may partially explain that when their socioeconomic characteristics were controlled for, the lower fertility was still persistent. In this case, Minority group status was also applicable to explain that another attribute of minority group status was the real or perceived feeling of insecurity of being 'marginal' in social positions in comparison with the majority and other minority groups. The term 'marginality' refers to cultural conflict and differential assimilation of minority groups into the larger society and it usually occurs when an individual integrates into the major society in high level, but still finds himself being 'discriminated'. Minority group status hypothesis was partially or fully supported by numerous studies (Yavuz, 2008; Bean and Tienda, 1990; Poston et al, 2006).

In the ethnic fertility study field, except analyses focusing on independent explanatory power of minority group status and comparing fertility levels between majority and minority groups, there are many works which used cross-analysis of fertility by ethnicity and other socioeconomic variables, such as education, religion, income and place of residence, to determine the important factor of fertility differences of ethnic groups (Muhammad, 1996; Statistics New Zealand, 2004).

According to Bien and Tienda (1990) and Poston et al. (2006), there could be four types of hypotheses explaining the fertility differences between majority and minority groups, namely 'subculture hypothesis', 'social characteristics hypotheses', 'minority group status hypothesis' and 'economic hypothesis'. Minority group status is already reviewed above, thus the other three hypotheses will be reviewed in following.

1) Subculture hypothesis: The hypothesis suggests that cultural norms and values highly determine the fertility level of a minority group. Cultural norms and values are largely defined by religious beliefs of a certain group. There are three elements through which religion may have an impact on fertility (McQuillan, 2004): (a) religious values and norms; (b) religious institutions; and (c) religious identity. (a) Religion has to have its own behavioral rules or norms that regulate childbearing behavior and are connected directly with the proximate determinants of fertility, for example, use of contraceptives, abortion, sexuality, desire to have large family size, and further, following the ancestors' word. Furthermore, social organization-appropriate roles for men and women may have impact on fertility behavior. (b) Religious institutions include communication of these values and norms, support for conformity and discipline for non-conformity and it can occur at three levels: larger society, community and individual's environment. (c) Social identity of individuals or followers is characterized by their firm religious faith. Identification with religious

faith may determine appropriate fertility behavior, especially when religion and nationalism are intertwined.

Many studies examining the effect of religion on fertility suggest that persisting high fertility of an ethnic minority group in society with lower fertility is related to its religious norms of bigger family size, pronatalist teachings, no use of contraceptives and abortion and traditional family structure (Goldscheider, 1971; McQuillan, 2004). When individuals merge with the culture of major society or their religious beliefs weaken due to secularization, differences in fertility levels between groups will decrease. 2) Social characteristic hypothesis: In this hypothesis, causes of differential fertility by ethnicity should be examined in their socioeconomic and residential characteristics. Under these characteristics, we can name various factors which influence fertility behavior significantly, for example: level of education of women and urban-rural residence. This hypothesis argues that due to greater assimilation in socioeconomic terms, fertility levels of groups will be closer.

Education is characterized by its strong negative impact on fertility behavior in many studies (Maleva and Sinyavskaya, 2006; Borisov, 1976; Caldwell, 1982; Muhammad, 1996). They concluded that women's higher level of education affects fertility through such ways as delaying age at first marriage and timing of the first child, decreasing the desire for next order-children due to the long duration of exposure in schooling, powerful changing effect on individual's attitudes, values and beliefs of family size and structures towards small family size preferences, and providing high knowledge and use of family planning methods. Regarding the analysis of fertility differences between major language groups in Pakistan by Muhammad (1996), women of ethnic minority groups with higher fertility rates were characterized by their relatively low level of education. However, in Agadjanian's research (2008), education has no significant effect on age at first marriage and timing of the first child, only fertility rates from the second and upper childbearing differed according to education.

The other important factor of urban residency or urbanization is proposed to mean the transition to the smaller family size and raising density in urban areas, which has led to a decrease in total fertility of the area (Uralis, 1966; Borisov, 1976). According to an analysis of World Fertility Survey in various countries (United Nations, 1987), even after socio-economic, cultural and demographic characteristics are taken into account, significant differences between rural and urban fertility often persist. Investigation of the mechanisms through which residence influences fertility is a difficult work since there are two distinctive sets of factors associated with residence which can influence fertility at the individual level (United Nations, 1987). The first set characterizes place of residence and is often referred to as place or location factors. The set includes characteristics as availability of educational opportunities, health facilities, job opportunities in the modern sector, communication facilities and contraceptive information and supplies as well as costs of fertility regulation and of child bearing and rearing. All of these factors are presumed to have some influence on fertility. For example, in urban areas, higher costs of

rearing children and their reduced labor value can result in preferences for smaller families, while better access to and information on contraceptives make it easier to have them, which results in lower fertility. The other set of factors characterizes the individual herself. These factors are as follows: education, occupation, work status and income, as well as individual-level measures of norms and various socio-psychological factors. For example, more factories and similar facilities in towns and cities generate more job opportunities in the modern sector for women.

3) Economic hypothesis: The hypothesis is based on new household economics models of fertility behavior. Accordingly, it is argued that when potentials for obtaining income of women of minority and majority groups are similar, their differences in fertility will be minimal. There are several frameworks on the link between income and fertility, while the most widely used is „Relative income approach” by Easterlin (1987). Relative income theory suggests that a couple’s increasing relative income correlates with increasing fertility level due to the raising favorable conditions to marry and have children. Relative income refers to the ratio of recent male’s potential earning to past male’s parents potential earning. He counts that past male’s parents potential earning implies male’s childhood environment, which can describe the couple’s present material aspirations.

Chapter 5

Ethno-demographic structures of population

One of the main features of Kazakhstan is multiethnic character of its population, which was formed under the influence of many historical factors: a steady migration triggered by the Stolypin reform in the early 20th century, collectivization of the 1920s, ethno-genocide of the 1930s, deportations and military evacuation of the population in the 1940s and, finally, the development of virgin lands campaign, launched in the 1950s and 1960s.

The modern ethnic composition of the population consists of over 120 nationalities. The most numerous ethnic groups are Kazakhs (59.2%), Russians (25.6%), Ukrainians (2.9%) and Uzbeks (2.9%) (01.01.2007).

5.1 Changing size and ethnic structure of Kazakhstani population

The dynamics of demographic processes in the last decade of the 20th century and at the beginning of the 21st century were different. The 1990s were marked by a demographic crisis, which entailed a reduction of the total national population. First of all, it occurred due to the strong migration outflows of representatives of European nationalities, mostly Russians. Consequently, in the early stages of the sovereign state, emigration was the main problem of examination and discussion of local demographers.

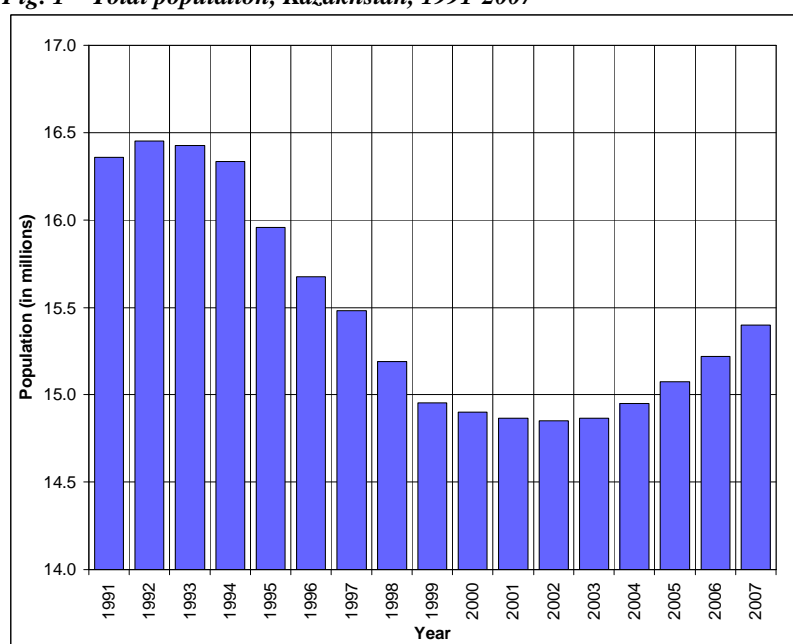
The beginning of the 21st century was marked by a stabilization of the demographic situation in the country, decrease of the emigration process and increase in population. Among the factors that influence the demographic situation in Kazakhstan, internal or endogenous factors have become dominant. As a result, Kazakh demographers have a tradition to distinguish two conventional periods of the demographic history of sovereign Kazakhstan:

- Intercensal decade, 1989–1999;
- Since 1999 until present.

Figure 1 shows the dynamics of the population of Kazakhstan from 1991 to 2007. If we consider the situation before 1999, we can see that until 1993 the population of Kazakhstan slowly, but regularly increased by the year, with mostly favorable rates of natural increase. Since 1993, the population declined each year and the most intensive rate of decline was observed in 1994–95. And

as noted above, the main reason was the migration outflow from Kazakhstan. At the beginning of the period (1999–2007), we can observe a slump in population decline. Since 2003, the population of Kazakhstan has ceased to decline, there has been a population growth, which peaked in recent years. This is due to the positive balance of migration and a rising birth rate in recent years. In general, since 1993 the population of Kazakhstan was falling annually until 2003 and decreased by 1,585 thousand or 10.7%.

Fig. 1 – Total population, Kazakhstan, 1991-2007



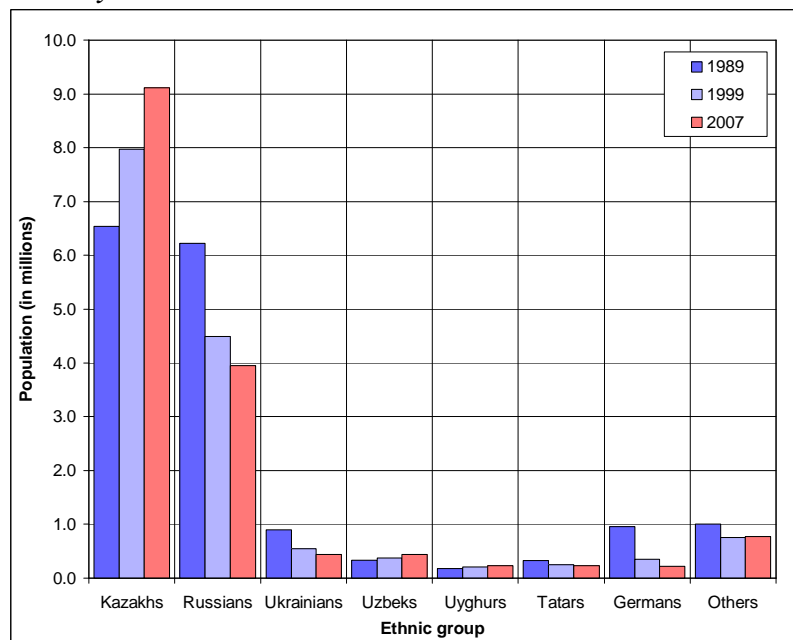
Sources: *Kazakhstan for the years of independence 1991-2007 Statistical Digest*, *Demographic Yearbook of Kazakhstan -2008*.

Tab. 1 – Changing population size of major ethnic groups, Kazakhstan, 1999-2007

Ethnic group	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Development index (1999=100)								
Total	100.0	99.6	99.4	99.3	99.4	100.0	100.8	101.8	103.0
Kazakhs	100.0	101.1	102.5	103.9	105.4	107.3	109.4	111.8	114.3
Russians	100.0	97.9	95.6	93.6	91.8	90.7	89.6	88.6	87.9
Ukrainians	100.0	96.5	93.3	90.2	87.4	85.4	83.6	81.8	80.3
Uzbeks	100.0	101.9	104.3	106.5	108.4	110.8	113.5	115.9	118.9
Uyghurs	100.0	101.0	102.4	103.3	104.8	106.2	108.1	109.5	111.0
Tatars	100.0	98.4	96.8	95.6	94.4	93.6	92.8	92.4	92.0
Germans	100.0	91.6	84.0	76.4	70.5	66.9	64.0	62.6	62.4
Others	100.0	99.2	98.8	98.7	98.9	99.5	100.3	101.1	102.1

Sources: Author's calculations based on data of *Demographic Yearbook of Kazakhstan, 2008*, and of *Ethno-demographic yearbook of Kazakhstan, 2006*

Fig. 2 – Population size of major ethnic groups, Kazakhstan, selected years



Sources: *Demographic Yearbook of Kazakhstan, 2008*,
Ethno-demographic yearbook of Kazakhstan, Almaty, 2006.

Trends in demographic development not only reduced population size, but also greatly influenced ethnic structure of Kazakhstan. The following figure gives the dynamics of Kazakhstan's population by ethnic groups (Fig. 2). Although the study covers the period from 1999 till 2007, we are following population size developments since 1989, the year of the last Soviet census, to show significant changes in Kazakhstan's ethnic structure.

Dynamics of multiethnic structure of Kazakhstan population is notable for its specificity and heterogeneity. If we appeal to the real figures, statistics, it becomes clear that the degree of actual ethnic diversity has been exaggerated. The share of only seven ethnic groups exceeds 1% of the total population of Kazakhstan. These are Kazakhs, Russians, Ukrainians, Uzbeks, Tatars, Uyghurs and Germans. Among them, Kazakhs and Russians together make up 84.9%. The rest of minor ethnic groups, each of which has a share of one-tenth, one-hundredth or one-thousandth of one percent, comprises 5 percents of the total population.

Growth during the period of 1989–1999 both in relative and absolute terms was observed among the Kazakh population. Due to a natural growth and influx of Kazakh migrants (Oralmans) to their historic homeland, the number of Kazakhs increased from 6,535 thousands in 1989 to 7,972 thousands in 1999 and they accounted for 53.3% of the total population of Kazakhstan. The dynamics of three other major ethnic groups inhabiting the country had the opposite character. The number of Russians in 1989–99 decreased from 6,228 thousand to 4,490 thousand people or from 37.8% to 30.0%, that of Ukrainians from 896 thousand to 549 thousand people or from 5.4% to 3.7%, Germans from 958 thousand to 356 thousand people or from 5.8% to 2.4% of the total

population. Along with Kazakhs in this period (1989–1999), a small increase was observed among Uzbeks (from 332 thousands in 1989 to 370 thousands people in 1999) and Uyghurs (from 185 thousands in 1989 to 210 thousands people in 1999) (Fig. 2). From 1999 to 2007, one could observe the same trend as in the previous case: the population of Kazakhs, Uzbeks and Uyghurs increased, while that of Russians, Ukrainians, Tatars and Germans declined (Fig. 2 and Tab. 1). Moreover, in comparison with the previous time interval (1989–1999), the recession of so-called „European” ethnic groups was reduced 3 to 4 times. The national total population grew by 442 thousand inhabitants.

One of the main features of ethnic structure of Kazakhstan’s population is that all its numerous ethnic groups are settled unevenly and have their distinctive areas of compact residence. The highest number of Kazakhs lives in the South Kazakhstan, Almaty, East Kazakhstan and Zhambyl oblasts, while Russians – in East Kazakhstan, Karaganda oblasts and Almaty city, Ukrainians – in Kostanay, Karaganda, Pavlodar and Akmola oblasts; Tatars – in the Karaganda oblast, and in Almaty. Germans live mainly in the territory of Karaganda, Kostanay, Akmola, North Kazakhstan and Pavlodar oblasts. Koreans mostly inhabit Almaty city and Almaty, Karaganda and Zhambyl oblasts.

Areas of compact residence are typical of Uzbeks and Uyghurs in Kazakhstan. Most Uzbeks are concentrated in the South Kazakhstan oblast (the second largest ethnic group after Kazakhs in the oblast). In some districts, they constitute an absolute majority. Less significant proportion of Uzbeks in Zhambyl oblast, where Uzbeks are most represented in the city of Taraz and Merke district. Uyghur diaspora is concentrated in Almaty oblast and the city of Almaty.

Tab. 2 – Ethnic groups by type of settlements, Kazakhstan, 1999 and 2007

Ethnic group	1999			2007		
	Urban	Rural	Total	Urban	Rural	Total
	Relative distribution (%)					
Total	56.3	43.7	100.0	57.4	42.6	100.0
Kazakhs	45.4	54.6	100.0	50.0	50.0	100.0
Russians	76.9	23.1	100.0	76.8	23.2	100.0
Ukrainians	62.0	38.0	100.0	61.2	38.8	100.0
Uzbeks	35.8	64.2	100.0	36.3	63.7	100.0
Uyghurs	40.8	59.2	100.0	43.9	56.1	100.0
Tatars	77.8	22.2	100.0	78.6	21.4	100.0
Germans	51.3	48.7	100.0	53.5	46.5	100.0
Others	53.8	46.2	100.0	53.5	46.5	100.0

Source: Author's calculations based on data of Statistics Agency of RK

If we consider reductions of the population in regional terms, according to Kazakh demographer Alekseenko the greatest fall was observed in the areas with predominant Russian (in general European) population. In 1999, the population fell by 17.3% in comparison with 1989. In

other areas (excluding the Astana and Almaty city), the population decreased by 1.1%. Consequently, the population decreased almost exclusively in Russian-speaking regions (Alekseenko 2001). In turn, the intensive Kazakh population growth in southern and western regions was almost twice as high than in the northern, eastern and central regions. According to Alekseenko (2001), nowadays there is a relative ethnic polarization of the population: Kazakhs are concentrated in west and south, the Russian – in the north-east of Kazakhstan.

Tab. 3 – Ethnic structure of urban and rural populations, 1999 and 2007

Ethnic group	Urban		Rural	
	1999	2007	1999	2007
Kazakhs	43.0	51.6	66.6	69.4
Russians	41.0	34.3	15.8	13.9
Ukrainians	4.0	3.1	3.2	2.6
Uzbeks	1.6	1.8	3.6	4.3
Uyghurs	1.0	1.2	1.9	2.0
Tatars	2.3	2.0	0.8	0.7
Germans	2.2	1.3	2.7	1.6
Others	4.9	4.7	5.4	5.5
Total	100.0	100.0	100.0	100.0

Source: Author's calculations based on data of Statistics Agency of RK

In Kazakhstan, the basis of urban population was constituted by Russians for decades, while rural areas were and still are dominated by Kazakhs. However, during the crisis of the 1990s, rural population consisting primarily of the Kazakh ethnic group flocked to cities, whose residents had previously been mainly Russians, but at the time Kazakh population could not compensate for the emigration of Russian citizens. In 1999–2007, in comparison with the period 1989–1999, there were changes in the proportion of urban and rural populations (Tab. 2).

The urban population began to grow and by the beginning of 2007 it reached 57.4 % of the total population, which was 1.1% more than in 1999. First of all, increase in urban population proportion and a decrease of rural in the 1999–2006 are also due to the ethnic factor. The main contribution to this process was delivered by Kazakhs: in 1999–2006, the share of urban Kazakhs rose by 4.6%. The urban population's proportions of Russians, Ukrainians and Tatars are significantly higher than in rural areas. In 1999–2007, their proportion did not change significantly. In spite of this, ethnic structure of the urban population changed (Tab. 3). The proportion of Kazakhs in the urban population increased to 51.6 % and in comparison with 1999 it grew by 8.6 % and Russians' share dropped to 34.3 %. The decline in the proportion of ethnic structures in urban population also touched upon Ukrainians, Tatars and Germans. As noted by Kazakhstan demographer Alekseenko (2001), we are dealing not only with change in urban population's ethnic structure. Since the Russian residents of Kazakhstan are mostly native in urban culture and urban

living standards, while Kazakhs are mostly represented by traditional culture, such a rapid change in their representation in the urban population indicates a possible change in the civilization paradigm.

In rural areas, there is the same situation as in urban areas, but the rate of change in ethnic structure is slightly slower. In general, changes in rates of ethnic groups in urban and rural areas reflect the tendency of state demographic development.

5.2 Age structure of ethnic groups

Distribution of population by sex and age refers to one of the most significant demographic characteristics, which is an important part of population fertility and childbearing age groups determination study. According to Yu.A.Korchak-Chepurkovsky, (1970) it is impossible to penetrate deeply into the essence of demographic processes “without a deep study of the population’s age composition evolution.”

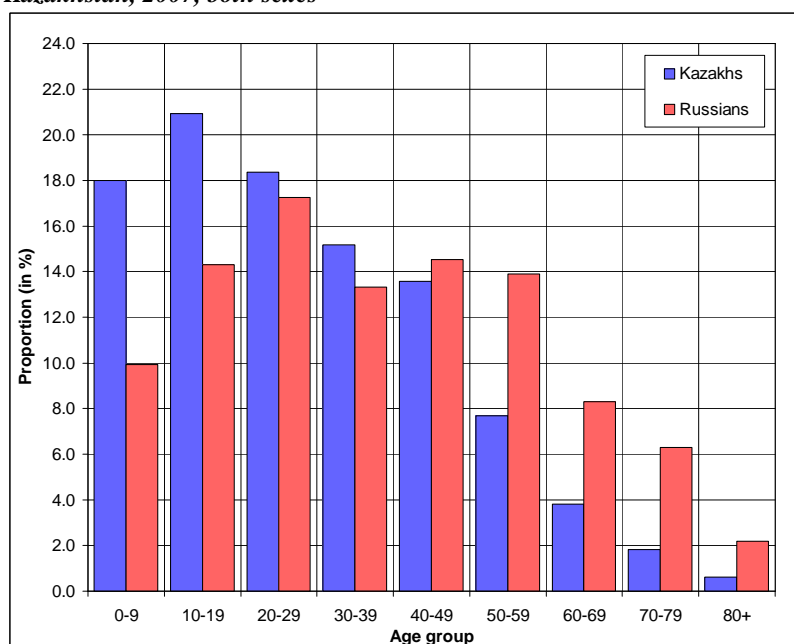
Tab. 4 – Age structures of ethnic groups, Kazakhstan, 1999 and 2007, both sexes

Ethnic group	1999					
	0-14	15-29	30-44	45-59	60+	Total
Total	28.7	25.3	22.3	13.0	10.7	100.0
Kazakhs	34.2	27.4	22.5	9.9	6.0	100.0
Russians	21.0	22.8	22.0	17.3	16.9	100.0
Ukrainians	14.6	17.8	22.3	20.8	24.5	100.0
Uzbeks	37.9	26.5	20.5	8.9	6.2	100.0
Uyghurs	32.3	26.2	23.3	10.7	7.5	100.0
Tatars	20.5	21.1	24.6	16.3	17.5	100.0
Germans	25.4	27.8	21.8	13.3	11.7	100.0
Others	25.8	22.8	23.4	14.8	13.2	100.0
Ethnic group	2007					
	0-14	15-29	30-44	45-59	60+	Total
Total	24.0	27.9	21.4	16.7	10.0	100.0
Kazakhs	27.9	29.4	22.4	14.0	6.3	100.0
Russians	15.6	25.8	19.7	22.1	16.8	100.0
Ukrainians	14.1	18.9	20.3	22.6	24.1	100.0
Uzbeks	33.8	27.8	20.7	11.9	5.8	100.0
Uyghurs	21.7	29.0	17.9	21.2	10.2	100.0
Tatars	16.0	24.3	21.0	21.4	17.3	100.0
Germans	26.4	27.7	23.3	14.8	7.8	100.0
Others	22.8	25.7	21.3	18.2	12.0	100.0

Source: Author's calculations based on data of Statistics Agency of RK

Kazakhstan has a fairly young age structure. Nevertheless, the process of population ageing accelerates and it has a distinctive ethnic character. It is uneven in different ethnic groups (Tab. 4). Kazakhs, Uzbeks and Uyghurs have younger age structure, the age pyramid – progressive type. A significant proportion of young age groups (0–29) is reason of the hope for further rejuvenation of these ethnic groups. In the age structure of European ethnic groups, older age groups stand out.

Fig. 3 – Distribution of population by age, Kazakhs and Russians, Kazakhstan, 2007, both sexes

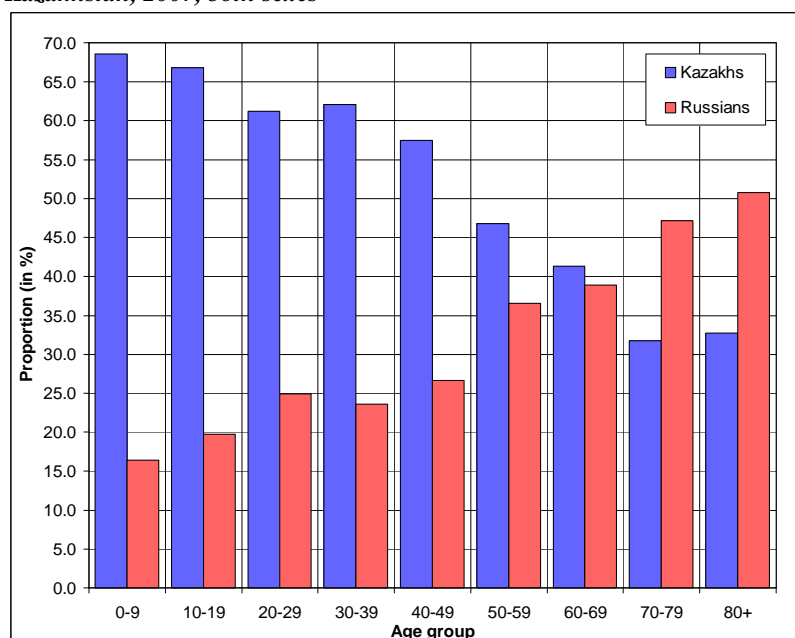


Source: Author's calculations based on data of Statistics Agency of RK

Their age structure is heavily influenced by the migration process that affected the main reproductive part of the population. Their age structure is of a clearly regressive type. In 2007, the proportion of age group of 0–14 years was one of the smallest in the population structure of Russians, Ukrainians and Tatars.

The disproportion in the age groups between European and Asian ethnic groups is well illustrated by the two largest ethnic groups in Kazakhstan – Kazakhs and Russians. As shown in the comparison of their age composition, Kazakh and Russian population are at different stages of demographic development (Fig. 3). As already mentioned, the age structure of Russians is characterized by a significant number of older generations, while the situation among Kazakhs is quite opposite.

Concerning the future ethnic composition of Kazakhstan population, one only has to look at the proportion of the two main ethnic groups in different age groups of the population (Fig. 4). As one can see from the graph, the trends of formation of the Kazakh and Russian populations are in fact inverse: the share of Kazakhs decreases with each older age group, while the representation of Russians increases.

Fig. 4 – Proportion of Kazakhs and Russians in population by age, Kazakhstan, 2007, both sexes

Source: Author's calculations based on data of Statistics Agency of RK

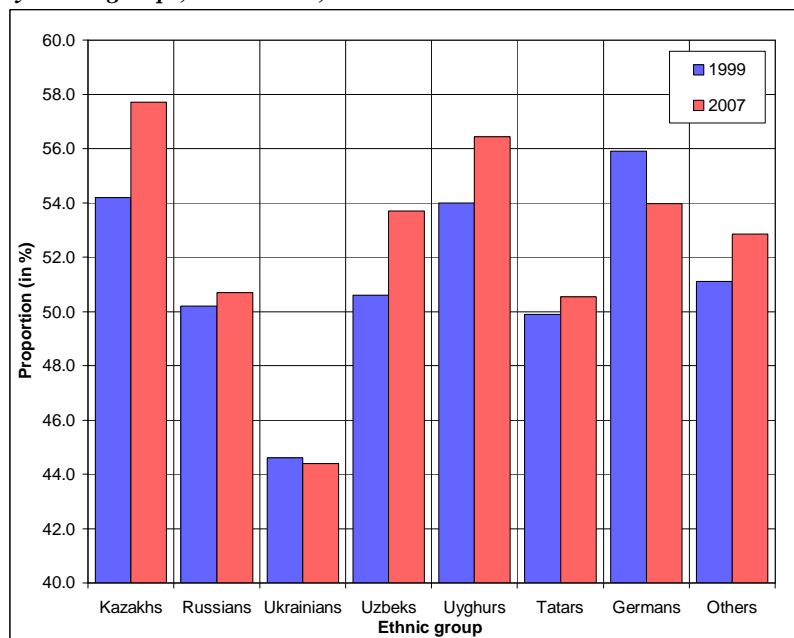
The mean age increased in all major ethnic groups during the eight-year period (Tab. 5). If we compare this figure within two major ethnic groups, in 2007, it was 28.5 for Kazakhs and 37.8 for Russians, which is 9.3 years more than for Kazakhs. Apart from Russians, the highest rate is observed among Ukrainians and Tatars. Ukrainians' figure also exceeds the rate of all major ethnic groups (41.6 in 2007). The lowest mean age, as Kazakhs, have Uzbeks (26.4 in 2007) and Uyghurs (29.8 in 2007). The mean age of women in all ethnic groups is higher than that of men. This is explained by the fact that in the older age groups the number of women is higher than that of men.

Tab. 5 – Mean age of population by ethnicity, Kazakhstan, 1999 and 2007

Ethnic group	Total		Males		Females	
	1999	2007	1999	2007	1999	2007
Total	30.3	31.7	28.7	30.0	31.8	33.2
Kazakhs	26.3	28.5	25.5	27.6	27.1	29.4
Russians	35.9	37.8	33.3	34.8	38.1	40.3
Ukrainians	41.6	41.6	39.1	38.9	43.7	44.0
Uzbeks	25.1	26.4	24.7	26.0	25.5	26.8
Uyghurs	27.7	29.8	27.3	29.2	28.0	30.4
Tatars	36.3	37.9	33.2	34.6	38.9	40.6
Germans	31.3	33.0	29.6	31.4	32.8	34.7
Others	32.6	33.2	31.4	31.9	33.8	34.4

Source: Author's calculations based on data of Statistics Agency of RK

Fig. 5 – Proportion of women aged 15-49 in women population by ethnic groups, Kazakhstan, 1999 and 2007



Source: Author's calculations based on data of Statistics Agency of RK

The number of births and values of crude birth rate are largely dependent on the proportion of women in childbearing age in the whole population. The higher proportion of women's childbearing age can be a cause of higher birth rate. In Kazakhstan, this proportion varies by ethnic groups (Fig. 5). During the period from 1999 to 2007, the proportion of women at childbearing age in the whole female population slightly increased in all ethnic groups with the exception of Ukrainians and Germans. Except for ethnic Ukrainians, women at childbearing age constitute more than 50% of the total female population of every ethnic group. However, we must take into account that for European ethnic groups (Russians, Ukrainians), the average age of women was higher than that of eastern ethnic groups (Kazakhs, Uzbeks, Uyghurs) and the proportion of women at childbearing age is lowered by the higher number of older women among the former and vice versa among the latter.

Thus, the analysis of ethno-demographic structure of the population has shown that ethnic composition of the population is rapidly changing in Kazakhstan. The eastern component – Kazakhs, Uzbeks, Uyghurs and others – is growing in the ethnic structure, while the proportion of Europeans – Russians, Ukrainians, Germans and others – is falling. The European group has also a more active process of aging. One can say that while in the 1990s, migration process played the crucial role in the development of these trends, in these days it is largely determined by fertility.

Chapter 6

Fertility and ethnicity

6.1 Basic trends in fertility developments in Kazakhstan between 1999 and 2006

The socio-economic crisis in the 1990s brought about a worsening of demographic indicators of the population of Kazakhstan. Fertility rates also deteriorated and after 1991 there was a continuous decline in fertility. During the period of 1991–1999, the number of live births decreased from 353,174 to 217,578, that is by 135,596, and the number of live births per 1,000 population fell from 21.5 to 14.6 (www.stat.kz). In 1999, the number was the lowest in the history of modern Kazakhstan. The Agency of Statistics of the Republic of Kazakhstan states: "Welfare level reduction of the large segment of the population has become one of the main causes of fertility decline in Kazakhstan in the 1990s. Particularly, in 1999 in Kazakhstan were born 18.8% fewer children than in 1995. Birth levels in 1999 were the lowest ever since Second World War: 14 babies per one thousand people (www.stat.kz). After 1999, the situation starts to straighten out and the number of births began to rise, and there were minor fluctuations at the beginning of the studied period. The highest growth occurred in 2003 and 2004 (Tab. 6). So in 2003 the number of live births increased by 20,755 or by 9.1% compared with 2002, and in 2004 the number increased by 25,082 or by 10.1%. In 2005, the growth rate and fertility rate had declined slightly compared with the growth in 2005, which was only 2.2%. And in 2006 the growth rate again rose and 8.2% more children were born compared with the previous year. In general, in 2006, the number of live births was 301,756, which constituted an increase of 84,178 or 38.7% compared with 1999. As a result, fertility approached the level of the early 1990s.

If we consider live births by order, we can observe some increase in fertility in all orders from 1999 to 2006. Compared with 1999 in 2006, the population of first order rose by 34.1%, the second order by 37.3%, the third order by 51.3%, fourth and higher orders by 43.3% (Tab. 6). As a result, their share by 2006 underwent small changes compared with 1999. Thus we can see that the growth dynamics of fertility in higher orders of birth were more than in the first and second orders that is reflected in their share in the fertility. The proportion of the first and second birth orders decreased

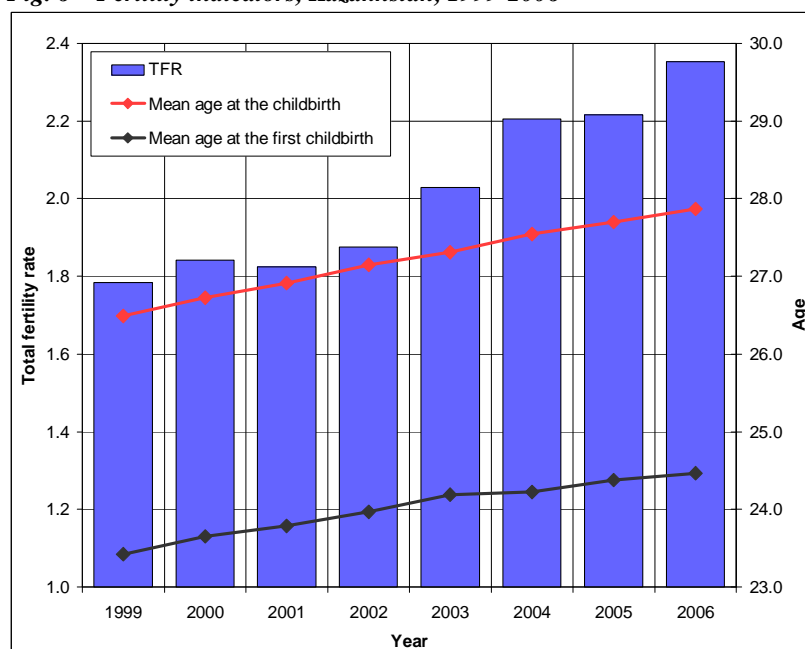
slightly, while the share of the third, fourth and higher orders rose. For example, the share of the third birth order in 2006 was by 1.5% higher than in 1999.

Tab. 6 – Natality and fertility, Kazakhstan, 1999-2006

	1999	2000	2001	2002	2003	2004	2005	2006
Live births	217,578	222,054	221,487	227,171	247,946	273,028	278,977	301,756
Live births by birth order								
1	44.1	43.9	44.3	43.4	43.9	43.0	43.4	42.6
2	29.3	29.3	28.8	29.4	29.1	29.2	29.2	29.0
3	14.8	15.1	14.9	15.3	15.5	16.1	16.0	16.2
4+	11.8	11.7	12.0	11.8	11.5	11.7	11.4	12.1
CBR (in ‰)	14.6	14.9	14.9	15.3	16.6	18.2	18.4	19.7
GFR (in ‰)	53.5	54.3	53.8	54.7	58.9	64.1	64.7	69.2
TFR	1.8	1.8	1.8	1.9	2	2.2	2.2	2.4
Mean age at childbirth	26.5	26.7	26.9	27.1	27.3	27.5	27.7	27.9
Mean age at first childbirth	23.4	23.6	23.8	24	24.2	24.2	24.4	24.5

Source: Author's calculations based on data of Statistics Agency of RK

Fig. 6 – Fertility indicators, Kazakhstan, 1999-2006



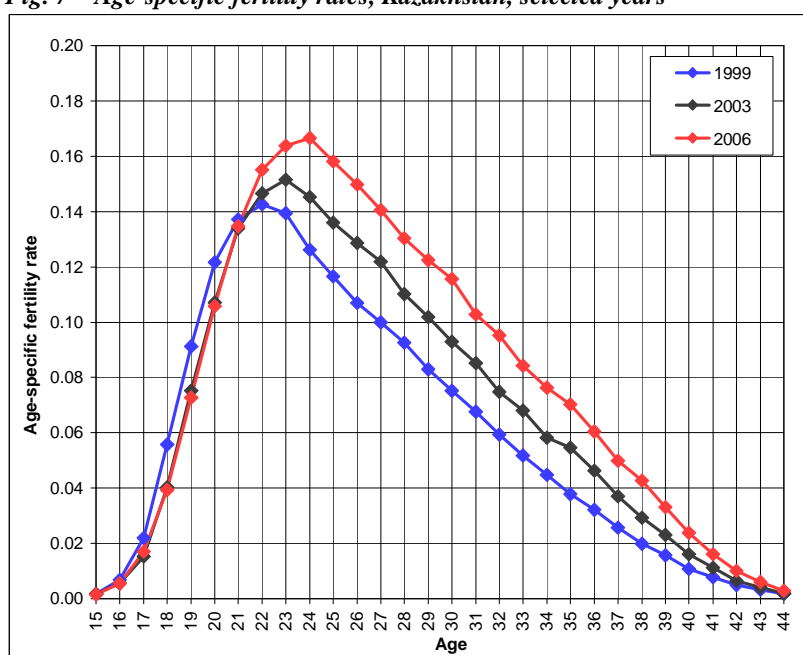
Source: Author's calculations based on data of Statistics Agency of RK

As a reflection of the growth of absolute number of live births, crude and general fertility rates increased as well. During the period 1999–2006, the crude birth rate rose from 14.6 to 19.7 or by more than 35.2% (Tab. 6). In this sphere, the growth of crude birth rate was due to an increase in the proportion of women at childbearing age in all populations. The general fertility rate for Kazakhstan, which is the number of live births to Kazakhstan residents per 1,000 women of childbearing age, was 69.2 in 2006. In 1999, it was 53.5. Like crude birth rates, general fertility rates have been the highest over the past years.

Kazakhstan's total fertility rates in that period increased from 1.8 to 2.4. However, until 2004, this indicator was below the replacement level of 2.1 children per one couple. Only from 2004 on, total fertility rates have been above the replacement level (Tab. 6 and Fig. 6).

In Kazakhstan, the mean age of mothers at childbirth has increased by 1.4 years since 1999, having risen from 26.5 to 27.9 years by 2006. The mean age of mothers at first childbirth has also risen, from 23.4 years in 1999 to 24.5 years by 2006 (Tab. 6 and Fig. 6).

Fig. 7 – Age-specific fertility rates, Kazakhstan, selected years

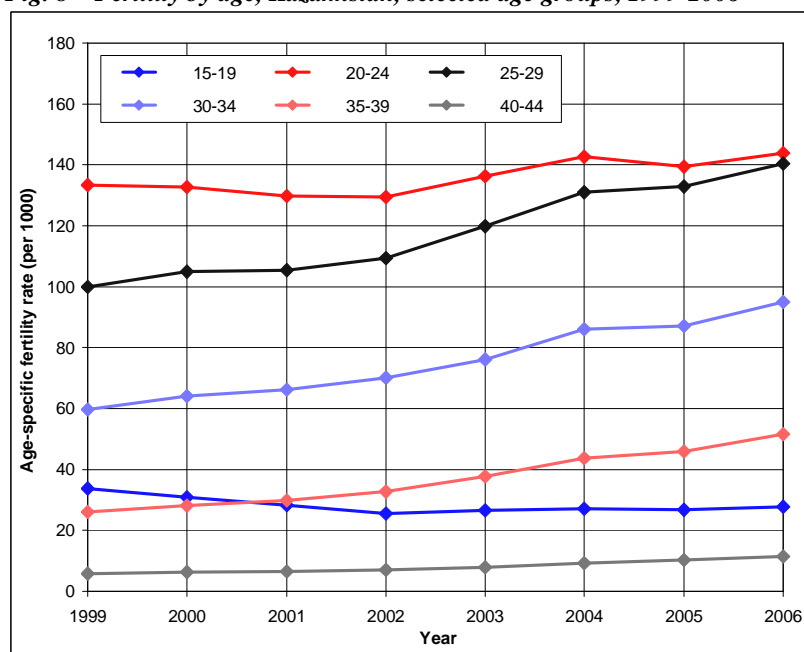


Source: Author's calculations based on data of Statistics Agency of RK

Analysis of fertility by a single year of age in Kazakhstan gives an additional insight into changes in fertility over the past years. Figure 7 shows the age-specific fertility rates for women since 1999. As we can see, women's fertility rates increased between 1999 and 2006. The fertility for this period not only rose, but there were also changes by age. Compared with 1999, fertility decreased in young age groups in 2003 and 2006. The proportion of women between the ages of 15 and 22 at birth in 2006 fell by 8.2% compared with 1999, but in older age groups it markedly increased. While in 1999 the highest indicators occurred among women aged 22 (143 births per 1,000 women aged 22 years), they were at the age of 23 (164 per 1,000) in 2003, and at the age of

24 (166 per 1,000) in 2006. There was an obvious shift toward higher fertility at women's older age, which influenced the growth of the above-mentioned mean age of childbearing.

Fig. 8 – Fertility by age, Kazakhstan, selected age groups, 1999-2006



Source: Author's calculations based on data of Statistics Agency of RK

Figure 8 clearly shows to what age groups the increase in fertility can be attributed. Between the years 1999 and 2006, fertility rates for women of all age groups increased, except the age group 15–19. The highest growth occurred in older age groups. The highest fertility rates appeared in the age group 20–24. In 1999, the indicator amounted to 133 live births per 1,000 women in the age group 20–24, while in 2006 it was 144 per 1,000, which represented an increase of 7.9%. However, the proportion of children born in this age group was falling every year (37.1% in 1999 and 30.6% in 2006). By analyzing this trend, we can say that today the proportion of live births is higher in the age group 25–29, whose fertility rate increased by 40.4%. Therefore, there is an obvious intensity of births in higher age groups.

In general, we can observe the following trends in fertility in Kazakhstan from 1999 to 2006:

- An annual increase of fertility. Increase of fertility appeared in all the birth orders. In 2006, 38.9% more children were born than in 1999;
- A significantly increased TFR that was slightly above the replacement level;
- The country saw an increase in CBR and GFR;
- Decreased fertility of the women at youngest childbearing, and each year there was a shift of fertility towards women of middle and older childbearing age. The result was an increase in mean age at childbirth.

These listed trends and changes in fertility concerned all ethnic groups in Kazakhstan. However, their dynamics in each ethnic group developed differently as you can see a noticeable difference between them. There is a huge difference between ethnic groups according to the level of fertility. Taking into consideration the fertility in Kazakhstan as well as other demographic changes with a pronounced ethnic differentiation, it would be appropriate to consider the difference in fertility between the major ethnic groups as they mainly determine the nature of fertility in Kazakhstan. A consideration of trends and levels of fertility in each major ethnic group and their comparison allows us to understand what contributions were made by each ethnic group, which are mainly responsible for the rise in fertility and what determined the difference between them.

6.2 Fertility differentiation by ethnicity

In order to carry out a major analysis of fertility by ethnicity, we selected four major ethnic groups, according to the latest statistical data. They are Kazakhs, Russians, Ukrainians and Uzbeks. They were not chosen by chance. As we know, these ethnic groups together make up 90.5% of the population and mostly they determine (primarily Kazakhs and Russians, to a lesser extent Ukrainians and Uzbeks) the demographic patterns of Kazakhstan. Due to their small number, the remaining three ethnic groups (Uigurs, Tatars, Germans), which are considered separately in the Demographic Yearbooks, do not change the overall picture. In addition, it must be noted that behavior and demographic characteristics of some of these three ethnic groups are respectively similar to one of the four major ethnic groups. For example, fertility rates of Uyghurs are close to those of Kazakhs, the indicators of Tatars are between those of Ukrainians and Russians. More than 100 ethnic groups in the Demographic Yearbook are recorded as „the other ethnic groups.” Their total share is 5% of the population of Kazakhstan. Despite the fact that they constitute a significant part, individually their number is less than one percentage of the population. In this group, there are the following ethnic groups – Azeris, Turks, Kurds –, characterized by their high fertility, but also Belarusians and Poles, whose fertility is low. If their fertility were considered together, we would not be interested in the results, since we will not know their identity and we will be unable to differentiate.

In general, the chosen four major ethnic groups represent the fertility rates of all ethnic groups in Kazakhstan. Kazakhs and Uzbeks were evidence of the birth rate of the so-called „Eastern” segment of the population, and fertility characteristics of Russians and Ukrainians of the „European” part of the population. The similarity of ethnic, cultural and religious roots, as well as demographic characteristics of different subgroups among Europeans is bigger than their differences. Therefore, through an analysis and comparison of trends of fertility in these major ethnic groups, we can determine to some extent the characteristics of fertility in other minority ethnic groups.

Let us examine the fertility dynamics in four major ethnic groups between 1999 and 2006. As it is shown in Table 7 in the mentioned period, the total number of live births increased among Kazakhs, Russians and Uzbeks. The number of live births in 2006 rose compared with 1999: that of Kazakhs to 69,352, of Russians to 5,902 and of Uzbeks to 2,739. Ukrainians have fluctuations in the number of births during this period and in 2006 they had 255 more new born children than in 1999. However, if compared with 2003, the number of children slightly increased. We can observe that an annual growth of live births' number in all other ethnic groups also began in 2002 and 2003.

Tab. 7 – Natality in Kazakhstan, selected ethnic groups, 1999-2006

	1999	2000	2001	2002	2003	2004	2005	2006
Total								
Live births	217,578	222,054	221,487	227,171	247,946	273,028	278,977	301,756
Crude birth rates (in ‰)	14.6	14.9	14.9	15.3	16.6	18.2	18.4	19.7
ASABR (direct)	14.6	14.9	14.9	15.3	16.6	18.2	18.4	19.7
Kazakhs								
Live births	142,363	147,697	148,503	152,450	167,146	186,254	192,447	211,715
Crude birth rates (in ‰)	17.8	18.2	18.1	18.3	19.7	21.6	21.8	23.5
ASABR (direct)	16.5	17.0	17.0	17.2	18.7	20.5	20.9	22.6
Russians								
Live births	39,215	38,651	37,892	38,850	41,843	44,043	43,874	45,117
Crude birth rates (in ‰)	8.8	8.9	8.9	9.3	10.2	10.9	11.0	11.4
ASABR (direct)	9.7	9.7	9.6	10.0	10.9	11.5	11.6	11.9
Ukrainians								
Live births	5,156	4,895	4,709	4,594	4,838	4,910	4,756	4,901
Crude birth rates (in ‰)	9.6	9.4	9.4	9.4	10.2	10.6	10.5	11.0
ASABR (direct)	13.0	13.0	13.1	13.2	14.3	14.9	14.7	15.4
Uzbeks								
Live births	9,534	9,006	9,218	9,282	10,238	11,475	11,539	12,273
Crude birth rates (in ‰)	25.5	23.6	23.7	23.4	25.2	27.7	27.2	28.2
ASABR (direct)	25.1	23.5	23.7	23.5	25.5	28.1	27.8	29.1

Notes: ASABR=Age-sex adjusted birth rate. The calculation of the age-sex adjusted birth rate using total population of Kazakhstan (both sexes) and number of women population in reproductive ages of Kazakhstan by age in each observed year.

Source: Author's calculations based on data of Statistics Agency of RK.

The increase in live births' number had a positive effect on the growth of crude birth rate (Tab. 7). As a result, Kazakhs' crude birth rate for the studied period increased from 17.8 to 23.5 live births per 1,000 population. This means that the growth rate was higher than in other ethnic groups. One of the lowest crude birth rates, together with Ukrainians, was recorded among Russians. In 2006, their rate was 11.4 live births per 1,000 population, which is twice less than that of Kazakhs.

Ukrainians' crude birth rate in 2006 was only 11.0 live births per 1,000 population. However, compared with 1999, we can observe a slight increase. This shows that during this period Ukrainians' fertility rose slightly and a decrease of the live births' number is a result of declining population and particularly of women of childbearing age. The best indicator of crude birth rate has traditionally remained among Uzbeks (28.2 live births per 1000 population in 2006). But the dynamics of growth was small.

While the age and sex structure of the population in each year in all ethnic groups was the same as in the total population, the crude birth rates of these ethnic groups would have looked a bit different. With the same population age and sex structure as the country's population of Kazakhs in 2006 the crude birth rate would be just 22.6 live births per 1,000 population. With the current number of population in 2006 fertility intensity would be 203,445 live births, which is 8,270 fewer than the number of live births recorded in reality in 2006. More differences are observed at the beginning of the studied period. In similar cases of Russians and Ukrainians, crude birth rates would be significantly higher than in reality, especially among Ukrainians. Thus in 2006 Ukrainians' crude birth rate would be 15.4 live births per 1,000 population, while the number of births would be 6,856, which is 39.9% more than in the real population. In this context, a relatively smaller difference appeared among Uzbeks. Taking the same age and sex structure as in the population of Uzbeks in 2006, the crude birth rate would be 29.1 live births per 1,000 population, which would increase the number of children only to 371. You may also notice that in 1999 and 2000 age-sex adjusted birth rate was slightly lower than the actual crude birth rate, and in 2001 it was almost identical.

As we have seen, in all ethnic groups crude birth rates in 2006 grew compared with 1999. The change in crude birth rate according to the years can be explained by differences in age-specific fertility rates relative to the age-sex structures of the two years. Through standardization, we found that if age-specific fertility rate would have been different, and the structure of the population the same for 1999 and 2006, the crude birth rate in those years for ethnic groups would be somewhat different (ASPSCBR). Also defined what would be a crude birth rate in these years if the population structure was different, and age-specific fertility rate remains the same (ASRSCBR). As a result, we can observe that in all ethnic groups' the growth of crude birth rate between 1999 and 2006 was mainly influenced by changes in age-specific fertility rates (Tab. 8). Thus the effect of rate on the growth of crude birth rate among Kazakhs constituted 95.2%, 59.3% among Russians, 94.8% among Ukrainians and 86.7% among Uzbeks. Then, as the influence of age structure of women of childbearing age in the population, the so-called compositional effect amounted to 4.8% among Kazakhs, 40.7% among Russians, 5.2% among Ukrainians and 13.3% among Uzbeks. This shows that within each ethnic group, the change in crude birth rates was mainly due to a real increase in fertility and the change in the proportion of women of childbearing age in the population had little effect. Only among Russians, there was a major impact of population structure compared with other ethnic groups.

Tab. 8 – Standardization and decomposition of crude birth rates change between 1999 and 2006 years, Kazakhstan, selected ethnic groups

Ethnic group/Indicator	Value (in ‰)		Crude birth rate difference factors	Difference explained	
	2006	1999		Abs. (in ‰)	Rel. (%)
Kazakhs					
ASPSCBR	23.4	17.9	Rate effect:	5.5	95.2
ASRSCBR	20.8	20.5	Compositional effect:	0.3	4.8
Crude birth rate	23.5	17.8	Total effect:	5.7	100.0
Russians					
ASPSCBR	10.8	9.3	Rate effect:	1.5	59.3
ASRSCBR	10.6	9.6	Compositional effect:	1.0	40.7
Crude birth rate	11.4	8.8	Total effect:	2.6	100.0
Ukrainians					
ASPSCBR	11.1	9.7	Rate effect:	1.4	94.8
ASRSCBR	10.4	10.3	Compositional effect:	0.1	5.2
Crude birth rate	11.0	9.6	Total effect:	1.5	100.0
Uzbeks					
ASPSCBR	28.1	25.7	Rate effect:	2.3	86.7
ASRSCBR	27.1	26.7	Compositional effect:	0.4	13.3
Crude birth rate	28.2	25.5	Total effect:	2.7	100.0

Notes: ASPSCBR = Age-sex-population-standardized crude birth rates

ASRSCBR = Age-specific-rate-standardized crude birth rates

Source: Author's calculations based on data of Statistics Agency of RK

Tab. 9 – Standardization and decomposition of crude birth rates difference between Russians and Kazakhs, Kazakhstan, 1999 and 2006

Year/Indicator	Value (in ‰)		Crude birth rate difference factors	Difference explained	
	Kazakhs	Russians		Abs.(in ‰)	Rel. (%)
1999					
ASPSCBR	16.4	9.6	Rate effect:	6.8	76.4
ASRSCBR	14.1	12.0	Compositional effect:	2.1	23.6
Crude birth rate	17.8	8.8	Total effect:	8.9	100.0
2006					
ASPSCBR	22.6	11.9	Rate effect:	10.7	88.0
ASRSCBR	18.0	16.5	Compositional effect:	1.4	12.0
Crude birth rate	23.5	11.4	Total effect:	12.1	100.0

Notes: ASPSCBR = Age-sex-population-standardized crude birth rates

ASRSCBR = Age-specific-rate-standardized crude birth rates

Source: Author's calculations based on data of Statistics Agency of RK

With the calculations used to determine the factors changing the crude birth rate between 1999 and 2006, we can determine the difference in crude birth rates between the two large (Tab. 9) and two small (Tab. 10) ethnic groups. As we can see in Table 8, if Kazakhs' and Russians' population

structure would be the same, adjusted crude birth rate from 1999, Kazakhs would have 16.4 live births per 1,000 population, while Russians 9.6 live births per 1,000 population, i.e. the difference in crude birth rates among them due to the effect of rate was equal to 6.8 or 76.4%. The influence of population structure on the difference in crude birth rates was only 2.1 or 23.6%.

In 2006, with an increase in crude birth rates in both ethnic groups, there was a slight rise in overall difference between them, which amounted to 12.1. The impact of age-specific fertility rates on the difference between crude birth rates among Kazakhs and Russians increased as compared with 1999. The rate effect amounted to 10.7 or 88.0%, which is slightly more than in 1999. Accordingly, the effect of age-sex structure of population (compositional effect) on the difference in crude birth rates decreased between the two ethnic groups, which amounted to only 1.4 or 12.0%. If we imagine that in 2006 age-specific fertility rates of both ethnic groups would be the same and age distribution of women of reproductive ages would be different, as it really is, then Kazakhs' crude birth rate would be 18.0 live births per 1,000 population, while Russians' would be 16.5 live births per 1,000 population. In this case, for example, the number of live births among Russians would be 65,553, which is 20,436 more than the actual number.

Thus, we can say that the influence of population structure of the two ethnic groups on difference in crude birth rates between Kazakhs and Russians remains minimal, compared with the effect of age-specific fertility rates.

Tab. 10 – Standardization and decomposition of crude birth rates between Ukrainians and Uzbeks, Kazakhstan, 1999 and 2006

Year/Indicator	Value (in ‰)		Crude birth rate difference factors	Difference explained	
	Uzbeks	Ukrainians		Abs.(in ‰)	Rel. (%)
1999					
ASPSCBR	22.2	11.5	Rate effect:	10.8	67.3
ASRSCBR	19.4	14.2	Compositional effect:	5.2	32.7
Crude birth rate	25.5	9.6	Total effect:	16.0	100.0
2006					
ASPSCBR	24.7	13.1	Rate effect:	11.6	67.4
ASRSCBR	21.7	16.1	Compositional effect:	5.6	32.6
Crude birth rate	28.2	11.0	Total effect:	17.2	100.0

Notes: ASPSCBR = Age-sex-population-standardized crude birth rates

ASRSCBR = Age-specific-rate-standardized crude birth rates

Source: Author's calculations based on data of Statistics Agency of RK

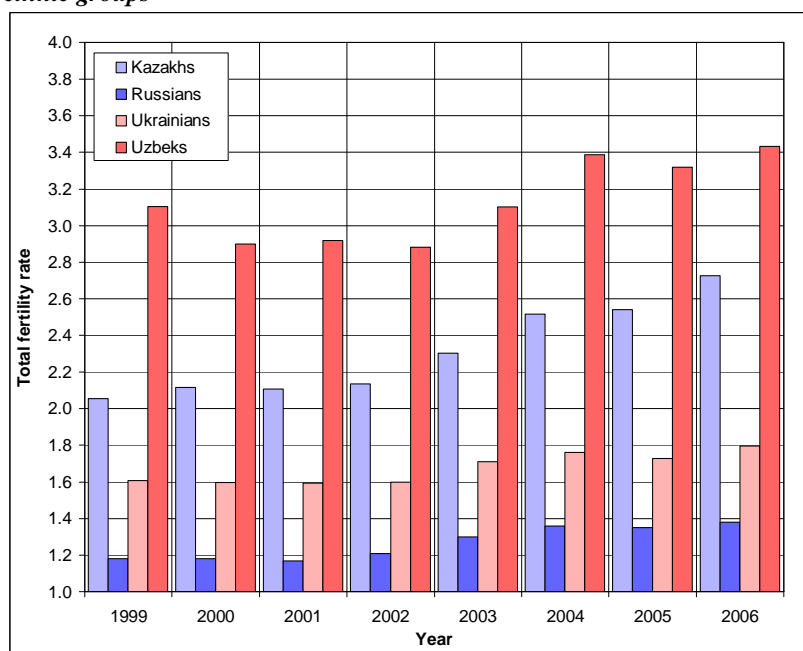
When it comes to the difference in crude birth rates between Uzbeks and Ukrainians, we can see the same situation as between Kazakhs and Russians, just numbers and proportion of reasons for differences are somewhat different (Tab. 10). We can observe that the influence of population structure on difference in crude birth rates is a little stronger than between Kazakhs and Russians. It is not surprising if we bear in mind that Ukrainians have the lowest number of women of childbearing age in female population compared with other ethnic groups (see Fig. 5 in Chapter 5).

Thus in 1999, the compositional effect was 5.2 or 32.7%. But the influence of difference in age-specific fertility rates was larger as it amounted to 10.8 or 67.3%.

In 2006, we could not see any noticeable changes in differences in crude birth rates between Uzbeks and Ukrainians. The factors influencing differences in crude birth rates in relative terms remained as in 1999, but the numbers slightly changed. The rate effect was 11.6 and compositional effect 5.6.

In general, by comparing Kazakhs with Russians and Uzbeks with Ukrainians we can see big differences of crude birth rates, which were formed mainly on the level of age-specific fertility rates in these ethnic groups. This proves a high birth rate among Kazakhs and Uzbeks as compared with Russians and Ukrainians.

Fig. 9 – Fertility by ethnic groups, Kazakhstan, 1999-2006, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

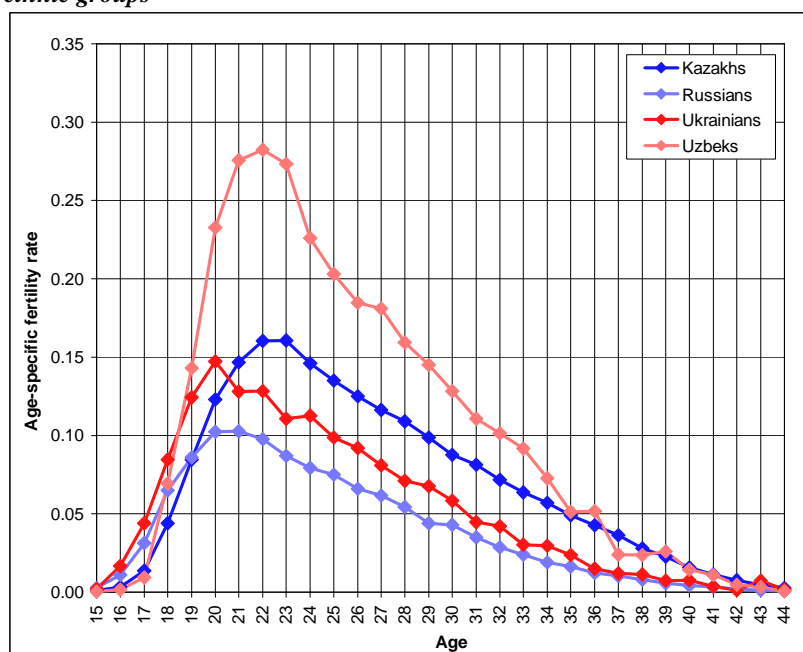
It should be noted that at present there is a real growth on fertility in all four ethnic groups, independent from the positive influence of age structure. In Figure 9, we can see a bigger differentiation between total fertility rates. In the period under observation, the highest total fertility rate was observed for Uzbeks (3.4 in 2006). The second place was assumed by Kazakhs, but the growth of their total fertility rate was more intensive than in any other ethnic group. In 1999, the rate was 2.1, but by 2006, it rose to 2.7. The worst indicators are for Russians (1.4 in 2006) and Ukrainians (1.8 in 2006). Their total fertility rate was well below the replacement level and almost twice lower than that of Kazakhs.

Therefore, as mentioned earlier, fertility increase is observed in all 4 ethnic groups during this period, but it showed different growth dynamics. The rise of the number of live births in

Kazakhstan, including four ethnic groups under consideration, is officially explained by economic stability, increased living standards and confidence in future. However, researchers working in this area argue that economic success coinciding with the growth of fertility may be misleading. Positive dynamics of fertility is primarily due to changes in age and sex structure of these ethnic groups. In these years, they joined the age of marriage and childbearing women, born in the 1980s, also saw a rise in the numbers of births, caused by the presence of a favorable age structure. Also, at this moment, a large quantity of people is at young age, which results in a significantly increased fertility (Alekseenko 2006). On the other hand, as already mentioned, there was a growth of TFR in all ethnic groups, which was independent from the positive influence of age structure. Therefore, we can assume that the improvement in socio-economic situation coincided with favorable changes in the age-sex structure of ethnic groups.

The improved welfare of the population strongly influenced ethnic groups depending on their reproductive attitudes and behavior; and changes in the demographic structure of ethnic groups were not same. Accordingly, the dynamics of growth and indicators of fertility among ethnic groups displayed significant differences.

Fig. 10 – Distribution of fertility by age, Kazakhstan, 1999, selected ethnic groups



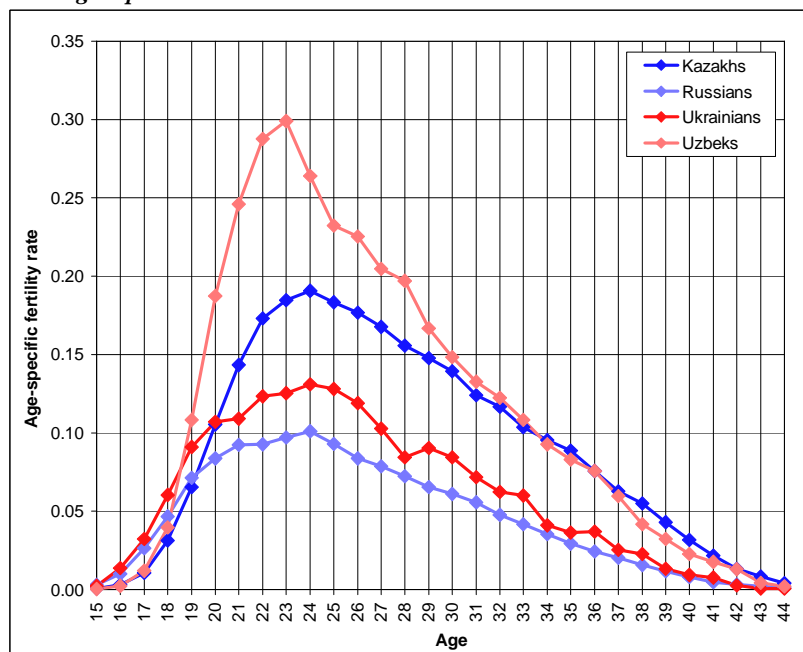
Source: Author's calculations based on data of Statistics Agency of RK

A better understanding of fertility differences between ethnic groups in the country within these ethnic groups will be provided by data on fertility by age of mother.

Figures 10 and 11 show how many different age-specific fertility rates were in ethnic groups in 1999 and 2006. In 1999, the highest fertility rates occurred among Uzbeks. Age-specific fertility rates of Uzbek women aged 19 to 36 are higher than those of other ethnic groups. Particularly high

fertility rates of Uzbeks are observed between the ages of 20 and 24. Age-specific fertility rates of Kazakhs are distinguished by high rates in middle and older age groups from others. In the youngest age groups of Kazakhs, there were inferior indicators, but for all other three ethnic groups, especially for Ukrainians, the indicators were the highest among younger age groups. Russians recorded the worst age-specific fertility rates. Among Russians and Ukrainians high fertility rates are concentrated in younger age groups. Compared with 1999, fertility rates increased among all ethnic groups by 2006. This applied for almost all age groups, except for the most junior and senior. A high growth rate was recorded among Kazakhs, a marked increase in individual age groups can be seen among Uzbeks. The graphs show significant fluctuation among Ukrainians and Uzbeks. This is due to the fact that their number is relatively small. Therefore, sharp drops could be observed for some age groups.

Fig. 11 – Distribution of fertility by age, Kazakhstan, 2006, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

In Table 11 and in Figure 12, we can see the contribution of age groups to the total fertility rate from 1999 to 2006. There is a noteworthy fact that until 2002 there was a falling fertility rate in the younger age groups up to the age of 24 in all ethnic groups. This was mainly due to the lower fertility rate in the youngest age group 15–19. Since 2002, fertility in younger age groups is gradually increasing. If we compare it with 1999, by 2006 the fertility rate in the age group up to 24 only slightly increased among Kazakhs, while the other three ethnic groups did not reach again their fertility level from 1999. As a result, the proportion of this age group in total fertility rate has declined substantially. Compared with 1999, by 2006 the proportion of the age group under 24 in the total fertility rate of Kazakhs fell down by 9.6%, of Russians by 10.6%, of Ukrainians by

11.0%, and of Uzbeks by 6.4%. Nevertheless, high fertility rate remains among all ethnics in this group (Tab. 11).

The increase in fertility rate in the age groups 25–29 and 30–34 was more intensive for Kazakhs than for the other ethnic groups. By 2006, the fertility rate of the 25–29 age group of Kazakhs increased by 0.25 compared with 1999, and of the age group 30–34 by 0.22. Accordingly, their proportion in the total fertility rates increased. Significantly, the fertility rate of the age group 35 and older of Kazakhs increased: in 1999, the fertility rate of this age group was 0.23 and by 2006 it reached 0.41. As a result, its share in the total fertility rate increased to 3.9% and the indicator for Kazakhs showed the highest fertility rate of this age group between all ethnic groups. As far as the rest of the age groups are concerned, the leadership has traditionally remained with Uzbeks, whose fertility rates were 1.45 for the age group under 24 years, 1.03 for the age group 25–29 and 0.60 for the age group 30–34 in 2006.

Tab. 11 – Fertility by age groups, Kazakhstan, 1999-2006, selected ethnic groups

Age group	1999	2000	2001	2002	2003	2004	2005	2006
Kazakhs	Sum of ASFRs (per one female)							
-24	0.883	0.874	0.843	0.817	0.853	0.891	0.875	0.908
25-29	0.584	0.614	0.616	0.634	0.699	0.766	0.777	0.831
30-34	0.362	0.389	0.399	0.419	0.453	0.517	0.526	0.579
35+	0.225	0.238	0.247	0.265	0.296	0.343	0.361	0.408
TFR	2.054	2.116	2.105	2.135	2.302	2.517	2.539	2.726
Kazakhs	Sum of ASFRs (1999=100)							
-24	100.0	99.0	95.5	92.5	96.6	100.9	99.1	102.8
25-29	100.0	105.2	105.5	108.5	119.8	131.2	133.0	142.3
30-34	100.0	107.6	110.4	116.0	125.3	142.9	145.5	160.1
35+	100.0	105.6	109.4	117.6	131.5	152.1	160.3	180.9
TFR	100.0	103.0	102.5	103.9	112.1	122.5	123.6	132.7
Russians	Sum of ASFRs (per one female)							
-24	0.665	0.637	0.612	0.605	0.641	0.646	0.617	0.624
25-29	0.301	0.315	0.320	0.340	0.361	0.381	0.390	0.393
30-34	0.150	0.158	0.164	0.184	0.204	0.224	0.231	0.241
35+	0.065	0.070	0.073	0.079	0.093	0.109	0.111	0.121
TFR	1.181	1.180	1.170	1.208	1.298	1.361	1.349	1.380
Russians	Sum of ASFRs (1999=100)							
-24	100.0	95.7	92.0	91.0	96.3	97.0	92.7	93.8
25-29	100.0	104.9	106.4	113.2	120.0	126.8	129.8	130.7
30-34	100.0	105.4	109.9	122.7	136.2	149.9	154.5	161.3
35+	100.0	107.2	112.3	120.8	142.1	167.6	170.7	185.9
TFR	100.0	99.9	99.0	102.3	109.9	115.2	114.3	116.8

Source: Author's calculations based on data of Statistics Agency of RK

Tab. 11 (continued) – Fertility by age groups, Kazakhstan, 1999-2006, selected ethnic groups

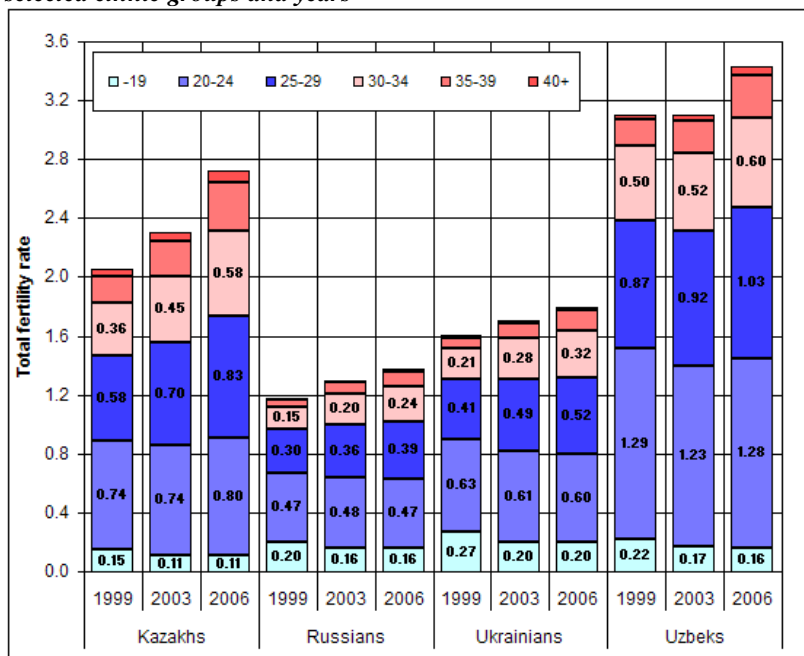
Age group	1999	2000	2001	2002	2003	2004	2005	2006
Ukrainians	Sum of ASFRs (per one female)							
-24	0.899	0.874	0.846	0.811	0.815	0.840	0.793	0.796
25-29	0.410	0.419	0.433	0.458	0.493	0.499	0.502	0.524
30-34	0.205	0.210	0.225	0.228	0.275	0.287	0.289	0.319
35+	0.092	0.093	0.088	0.101	0.126	0.136	0.142	0.157
TFR	1.607	1.595	1.592	1.598	1.710	1.762	1.727	1.796
Ukrainians	Sum of ASFRs (1999=100)							
-24	100.0	97.2	94.1	90.2	90.7	93.4	88.2	88.5
25-29	100.0	102.1	105.6	111.6	120.2	121.7	122.4	127.8
30-34	100.0	102.5	109.5	111.1	134.1	140.0	141.1	155.5
35+	100.0	100.3	95.4	109.8	136.9	147.2	153.9	169.9
TFR	100.0	99.3	99.1	99.4	106.4	109.7	107.4	111.7
Uzbeks	Sum of ASFRs (per one female)							
-24	1.514	1.365	1.336	1.301	1.393	1.501	1.437	1.447
25-29	0.873	0.842	0.822	0.838	0.921	0.999	0.964	1.026
30-34	0.505	0.452	0.514	0.494	0.525	0.584	0.572	0.604
35+	0.214	0.240	0.247	0.248	0.264	0.302	0.346	0.355
TFR	3.105	2.900	2.919	2.881	3.102	3.386	3.318	3.432
Uzbeks	Sum of ASFRs (1999=100)							
-24	100.0	90.2	88.3	85.9	92.0	99.1	94.9	95.6
25-29	100.0	96.5	94.2	96.0	105.6	114.5	110.5	117.6
30-34	100.0	89.6	101.8	98.0	103.9	115.7	113.3	119.7
35+	100.0	112.5	115.5	116.1	123.5	141.3	161.9	166.3
TFR	100.0	93.4	94.0	92.8	99.9	109.0	106.9	110.5

Source: Author's calculations based on data of Statistics Agency of RK

However, in the case of the growth of age-specific fertility rate for all age groups, it was uneven among Uzbeks and it was accompanied by a decline in some individual years. As a result, despite high levels of fertility rates, growth dynamics of age-specific fertility rates for Uzbeks was slow (except for age-specific fertility rate under 24 years), even slower than among Russians and Ukrainians. Although there is a significant growth in the middle and older age groups, age-specific fertility rates of Russians and Ukrainians in these age groups are much smaller than those of Kazakhs and Uzbeks.

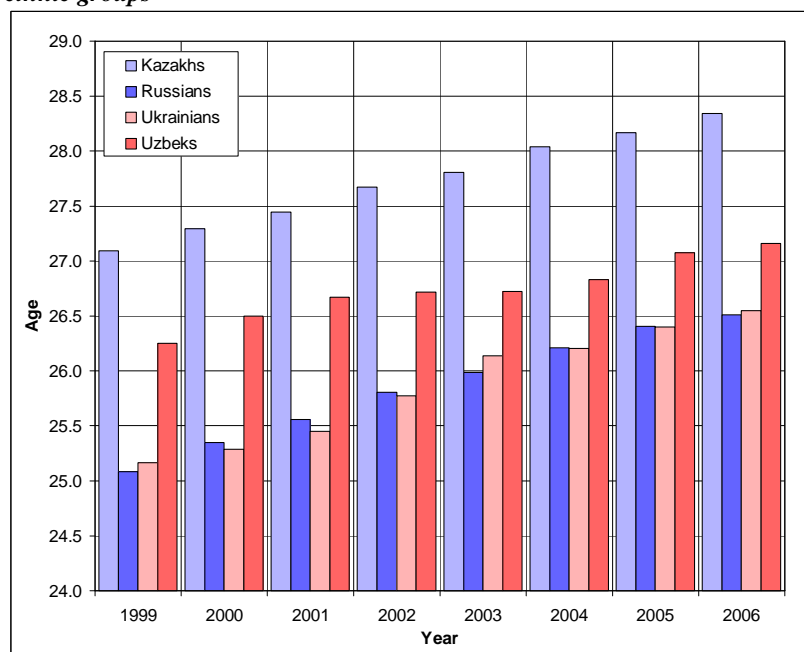
In general, all ethnic groups have the following tendency: older age groups show more intensive increase in fertility rates. As a result, the total fertility rate was generally increasing due to the increasing fertility rate of women older than 25 years, which shows us the shift of fertility toward the mature age groups among all four ethnic groups.

Fig. 12 – Total fertility and its age structure by ethnic groups, Kazakhstan, selected ethnic groups and years



Source: Author's calculations based on data of Statistics Agency of RK

Fig. 13 – Mean age at childbirth, Kazakhstan, 1999-2006, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

All these changes in women's age groups influenced the mean age at childbirth. Between 1999 and 2006, the mean age at childbirth increased substantially in all ethnic groups (Fig. 13). The

higher mean age at childbirth has stayed for Kazakh women. In 2006, the mean age was 28.3 and it rose by 4.6% since 1999. For Uzbeks, who have the second highest rate, it grew by 3.4%. The mean age at childbirth among Russians and Ukrainians is almost identical and lower than that of Kazakhs and Uzbeks. However, their mean age growth was intensive during the period under observation. During this time, the mean age at childbirth of Russians grew by 5.7%, while that of Ukrainians by 5.5%. This trend shows that in the nearest future, the level of mean age at childbirth can approach very closely the levels of Kazakhs and Uzbeks.

As we can see, the growth of fertility that occurred among the ethnic groups in the last period went hand in hand with a substantial transformation of the age profiles of fertility. As a result, the contribution of the younger age groups to fertility has decreased; there was a shift toward childbearing in more mature age and to a higher average age at childbearing, which is well seen in all ethnic groups. These changes are in line with general trends in many other countries.

A reduction of fertility of younger women at childbearing age is due to the fact that young people today are marrying later than in the past. They also start later the process of childbearing. This is a normal phenomenon, because the decrease in fertility in younger age group shows that nowadays women spend more time on their education and building their position in society, having assumed a more responsible and serious approach to motherhood. However, the fertility rate of this age group among Russian and Ukrainian women remains higher than that of Kazakh and Uzbek women. This difference is mainly due to cultural factors.

There is a dynamic growth of age-specific fertility rates among all four ethnic groups in middle and older age groups and this shift towards fertility in older age occurs among the women who already have one or two children and still want to give birth, but were often reluctant to implement their reproductive intentions on account of some reasons (financial, educational, career etc...). During the period from 1999 to 2006, favorable conditions (sustained economic growth, increased family income, the possibility of solving the housing problem through mortgage lending, health improvements, etc.) for the implementation of reproductive attitudes of these women were created, which led to an increase in fertility of these age groups. However, as we know, there was an increase in fertility not only for the second, third and higher birth orders, but also in the first birth order, which grew substantially in Kazakhstan. This trend cannot be explained only by delayed births. This factor also cannot be excluded especially for Russians and Ukrainians with their focus on small family size. To make clearer this situation, statistical data of birth by order must be analyzed.

6.3 ETHNIC DIFFERENTIATION OF FERTILITY BY BIRTH ORDER

The distribution of live births by order is one of the main components for in-depth study of fertility and a critical assessment of its characteristics, such as increasing the probability of the family. For better understanding of the observed changes in fertility, we need to know in which order of birth

current changes in fertility are occurring. In our case, it allows a comprehensive analysis and it reveals ethnic differences in fertility in the country. It is important to note that the influence of any factors on fertility varies considerably depending on the birth order of a child. Ethnic feature has little effect on the appearance of the first child. Differentiation of ethnic groups is particularly evident when studying the second, third and higher birth orders.

Tab. 12 – Live births by birth order, Kazakhstan, 1999-2006, selected ethnic groups

Birth order	1999	2000	2001	2002	2003	2004	2005	2006
Kazakhs								
1	56,241	58,519	59,714	59,941	66,904	73,108	76,638	83,157
2	41,837	43,170	42,150	44,176	48,126	53,093	54,905	59,676
3	24,152	25,292	25,133	26,575	29,296	33,895	34,840	38,379
4+	20,133	20,716	21,506	21,758	22,820	26,158	26,064	30,503
Russians								
1	23,725	23,173	22,688	22,793	24,625	25,679	25,423	25,924
2	11,180	11,308	11,255	12,094	12,786	13,800	13,847	14,437
3	2,717	2,715	2,663	2,717	3,062	3,289	3,282	3,441
4+	1,593	1,455	1,286	1,246	1,370	1,275	1,322	1,315
Ukrainians								
1	2,644	2,542	2,405	2,367	2,454	2,529	2,444	2,600
2	1,712	1,601	1,623	1,530	1,624	1,665	1,625	1,597
3	485	482	447	461	506	485	469	470
4+	315	270	234	236	254	231	218	234
Uzbeks								
1	2,994	2,781	2,938	2,959	3,467	3,829	3,975	4,036
2	2,700	2,513	2,474	2,419	2,663	3,008	2,980	3,341
3	2,148	2,063	2,094	2,107	2,157	2,569	2,423	2,611
4+	1,692	1,649	1,712	1,797	1,951	2,069	2,161	2,285

Source: Author's calculations based on data of Statistics Agency of RK

During the period from 1999 to 2006, significant changes in the number of live births in each birth order were recorded among all ethnic groups (Tab. 12). Certainly, it is not advisable to compare and determine the differences of fertility among ethnic groups when considering the total number of live births by birth order. However, it may be useful to compare its dynamics and intensity of changes. We see that the trend in the number of live births by birth order among ethnic groups is clearly differentiated. Kazakhs' and Uzbeks' favorable growth touched all priorities of fertility, for the total number of live births was increasing in all orders of births every year. The growth was particularly high among Kazakhs. Compared with 1999, by 2006 the number of live births in the first and second orders increased by almost 50%, and in the third and higher birth order the growth was above 50 %, which shows that the growth of fertility in higher birth orders was

more intensive than that of lower birth orders. Uzbeks were growing less intensively, but retained their high level of fertility in all birth orders. We can also see that while Uzbeks had a slight decrease in the number of live births in 2001, this trend among Kazakhs and Russians was observed a year later, in 2002.

Tab. 13 – Proportion of live births by birth order, Kazakhstan, 1999-2006, selected ethnic groups

Birth order	1999	2000	2001	2002	2003	2004	2005	2006
Kazakhs								
1	39.5	39.6	40.2	39.3	40.0	39.3	39.8	39.3
2	29.4	29.2	28.4	29.0	28.8	28.5	28.5	28.2
3	17.0	17.1	16.9	17.4	17.5	18.2	18.1	18.1
4+	14.1	14.0	14.5	14.3	13.7	14.0	13.5	14.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Russians								
1	60.5	60.0	59.9	58.7	58.9	58.3	57.9	57.5
2	28.5	29.3	29.7	31.1	30.6	31.3	31.6	32.0
3	6.9	7.0	7.0	7.0	7.3	7.5	7.5	7.6
4+	4.1	3.8	3.4	3.2	3.3	2.9	3.0	2.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Ukrainians								
1	51.3	51.9	51.1	51.5	50.7	51.5	51.4	53.1
2	33.2	32.7	34.5	33.3	33.6	33.9	34.2	32.6
3	9.4	9.8	9.5	10.0	10.5	9.9	9.9	9.6
4+	6.1	5.5	5.0	5.1	5.3	4.7	4.6	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Uzbeks								
1	31.4	30.9	31.9	31.9	33.9	33.4	34.4	32.9
2	28.3	27.9	26.8	26.1	26.0	26.2	25.8	27.2
3	22.5	22.9	22.7	22.7	21.1	22.4	21.0	21.3
4+	17.7	18.3	18.6	19.4	19.1	18.0	18.7	18.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculations based on data of Statistics Agency of RK

Among Russians, there was also an increase in the total number of births and not only in the first births, but also among children of the second and third birth orders. In these birth orders, the growth dynamic is higher than that of Uzbeks. This is not surprising, if we pay attention to the fact that the potential women of childbearing age of Russian population have more often second or third children compared with Uzbeks. For Russians, the number of children born in the fourth and subsequent order is characterized by small fluctuations during the period and it decreased by 16% between 1999 and 2006.

There are no changes in fertility rates of all birth orders among Ukrainians from 1999 to 2006. The number of live births remained at almost the same level with small fluctuations in individual years. As above mentioned, the reason is a decrease in the number of Ukrainians, mainly due to migration, including women of childbearing age. However, if we look at the levels of fertility, including by birth order, a small increase can be seen.

If we compare the proportion of children in each birth order in all ethnic groups there were small changes (Tab. 13). Among Russians, we can observe an increase, though very small, in recent years, a contribution of the second and third births to the total fertility rate, reducing the contribution of the delayed first-born children (although during this period their numbers increased as well). However, at the same time, the proportion of the fourth and subsequent birth orders decreased. Despite a significant growth in previous years, the proportion of first-borns also decreased among Kazakhs and Uzbeks in 2005 and 2006. The proportion of third, fourth and higher order births increased among Kazakhs, and of the second and third among Uzbeks. Among Ukrainians, only the share of first-order births has grown.

A huge proportion of births among Russians and Ukrainians is constituted by live births of the first and second orders. In 2006, the proportion of children from the first birth made up 57.5% of the total number of live births among Russians, that of the second birth order 32.0% and of the third order 7.6%. Among Ukrainians, the share of first-born children was 53.1%, second-born 32.6%, and third-born 9.6%. The contribution of multiparous women had long been negligible: the share of fourth and higher birth orders was less than 3% of all births in the Russian population, and 4.8% in the Ukrainian population. In general, the quantity of births of such high order does not play any major role in shaping the overall level of fertility in these ethnic groups. The proportion of children of Kazakhs and Uzbeks in individual birth orders is distributed more evenly. For example, the percentage of fourth and higher orders of children was 14.4% and 18.6% for Kazakhs and Uzbeks in 2006, respectively, representing a tangible proportion of all births and being much higher than Russian and Ukrainian births of these orders.

Marked changes in the number of live births by order changed their contribution to the total fertility rate. The growth of total fertility rate between 1999 and 2006 was an affair of all birth orders in ethnic groups (except the fourth and higher birth orders among Russians and Ukrainians. We can observe frequent fluctuations in the dynamics of these birth orders between 1999 and 2006). Kazakhs' total fertility rate by first and second orders significantly increased by 2006, compared with 1999. The growth in the first birth order was 25.8%, while that of the second birth order 28.2%. Fertility rate has increased not only in the first and second birth orders, but in the third, fourth and subsequent orders, too. In these birth orders growth was more dynamic compared with the first and second birth orders, which increased their share in the total fertility rate. As a result, the structure of fertility by birth order has improved and total fertility rate among Kazakhs increased by 32.7%. The main increase in total fertility rate in all birth orders among Kazakhs occurred in 2003, 2004 and 2006 (Tab. 14).

If Kazakhs in particular from 2002 until 2006 saw an annual growth in total fertility rate in all birth orders, Uzbeks had a stable growth performance only in the fourth and subsequent birth orders, in which the fertility rate increased by 22.6% as compared with 1999 (Tab 14). Fertility rates in the rest of orders fell down prior to 2003. As a result, total fertility rate for Uzbeks in 2003 reached the 1999 level (Fig. 14, Tab. 14).

After 2003, Uzbeks' total fertility rates in individual birth orders saw a continued fluctuation in its dynamics, particularly in 2005 when the total fertility rate in the second and third birth orders slightly decreased compared with 2004. As a result, compared with 1999 in 2006, the total fertility rate in all three birth orders was relatively small (Fig. 14, Tab. 14). Despite this, Uzbeks' total fertility rate in all birth orders is the highest compared with other ethnic groups.

Tab. 14 – Total fertility rate by birth order, Kazakhstan, 1999-2006, selected ethnic groups

Birth order	1999	2000	2001	2002	2003	2004	2005	2006
Kazakhs	TFR by birth of order							
1	0.791	0.816	0.821	0.810	0.884	0.937	0.949	0.995
2	0.602	0.617	0.598	0.620	0.666	0.722	0.730	0.772
3	0.355	0.370	0.366	0.384	0.419	0.480	0.486	0.527
4+	0.306	0.312	0.320	0.321	0.334	0.379	0.373	0.432
TFR	2.055	2.116	2.106	2.135	2.302	2.517	2.539	2.726
Kazakhs	TFR by birth of order (1999=100)							
1	100.0	103.1	103.8	102.4	111.7	118.4	120.0	125.8
2	100.0	102.5	99.3	103.0	110.6	119.9	121.2	128.2
3	100.0	104.3	103.0	108.0	118.0	135.0	136.9	148.3
4+	100.0	101.9	104.7	105.0	109.1	123.9	122.1	141.1
TFR	100.0	103.0	102.5	103.9	112.1	122.5	123.6	132.7
Russians	TFR by birth of order							
1	0.691	0.683	0.675	0.681	0.732	0.756	0.746	0.757
2	0.352	0.361	0.363	0.392	0.415	0.446	0.445	0.460
3	0.087	0.089	0.089	0.092	0.104	0.113	0.112	0.117
4+	0.051	0.047	0.043	0.043	0.047	0.045	0.047	0.046
TFR	1.181	1.180	1.170	1.208	1.298	1.361	1.350	1.380
Russians	TFR by birth of order (1999=100)							
1	100.0	98.8	97.6	98.4	105.8	109.4	107.8	109.4
2	100.0	102.4	102.9	111.4	117.8	126.7	126.4	130.6
3	100.0	102.8	102.8	106.0	120.1	129.4	128.4	134.1
4+	100.0	92.8	85.6	84.8	93.9	89.4	92.7	91.6
TFR	100.0	99.9	99.0	102.3	109.9	115.2	114.2	116.8

Source: Author's calculations based on data of Statistics Agency of RK

Tab. 14 (continued) – Total fertility rate by birth order, Kazakhstan, 1999-2006, selected ethnic groups

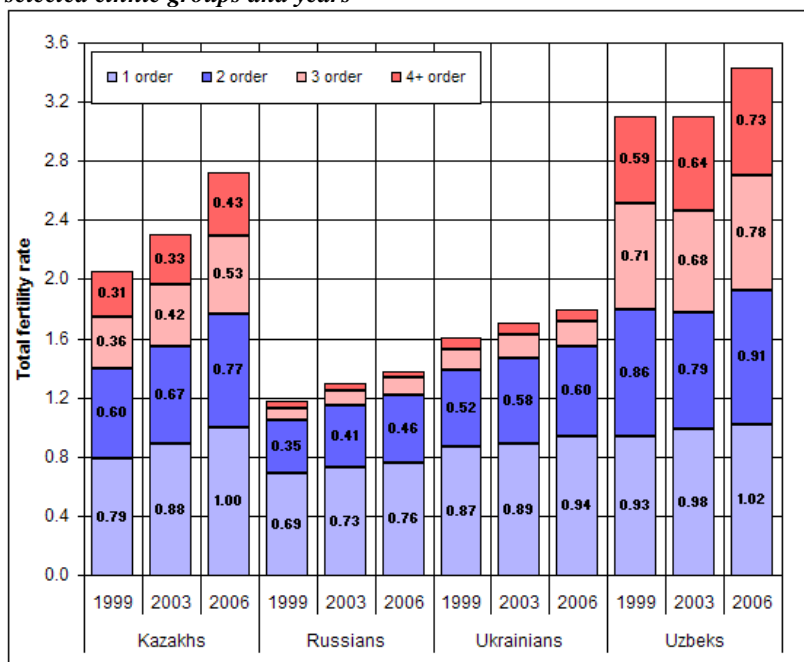
Birth order	1999	2000	2001	2002	2003	2004	2005	2006
Ukrainians	TFR by birth of order							
1	0.867	0.868	0.844	0.850	0.886	0.914	0.883	0.942
2	0.520	0.511	0.539	0.527	0.575	0.604	0.602	0.599
3	0.137	0.143	0.140	0.149	0.169	0.169	0.168	0.172
4+	0.083	0.075	0.069	0.073	0.080	0.075	0.074	0.082
TFR	1.606	1.597	1.591	1.598	1.710	1.762	1.726	1.796
Ukrainians	TFR by birth of order (1999=100)							
1	100.0	100.1	97.4	98.0	102.2	105.5	101.9	108.6
2	100.0	98.2	103.8	101.3	110.7	116.2	115.8	115.3
3	100.0	104.7	102.2	108.8	123.5	123.6	122.8	126.2
4+	100.0	90.2	82.2	88.1	95.9	90.0	88.4	98.7
TFR	100.0	99.4	99.1	99.5	106.4	109.7	107.5	111.8
Uzbeks	TFR by birth of order							
1	0.933	0.854	0.883	0.860	0.984	1.039	1.043	1.017
2	0.863	0.793	0.771	0.739	0.793	0.870	0.835	0.905
3	0.715	0.681	0.682	0.676	0.681	0.801	0.742	0.782
4+	0.594	0.572	0.583	0.605	0.644	0.676	0.698	0.728
TFR	3.105	2.900	2.919	2.881	3.102	3.386	3.318	3.432
Uzbeks	TFR by birth of order (1999=100)							
1	100.0	91.5	94.6	92.1	105.4	111.3	111.7	109.0
2	100.0	91.9	89.3	85.7	91.9	100.8	96.8	104.9
3	100.0	95.3	95.4	94.6	95.3	112.1	103.8	109.4
4+	100.0	96.4	98.2	101.9	108.4	113.8	117.6	122.6
TFR	100.0	93.4	94.0	92.8	99.9	109.0	106.9	110.5

Source: Author's calculations based on data of Statistics Agency of RK

Russians and Ukrainians observed the same trend, despite the fact that Ukrainians' level of total fertility rate was slightly higher. In these ethnic groups, total fertility rate is mainly provided by the first and second birth orders (Fig. 14). For example, in 2006 the overall proportion of first and second birth orders in the total fertility rate was 88.4% for Russians and 86.4% for Ukrainians. A more realistic growth of fertility rate in the first, second and third birth orders for Russians and Ukrainians started as it did for Kazakhs in 2002 (Tab. 14). However, like among Uzbeks, total fertility rate in these birth orders was characterized by a slight decline in individual years. In general, the total fertility rate in these birth orders improved by 2006 compared with 1999, with a more intensive growth in the second and third birth orders. Nevertheless, the share of the third order as well as fourth and higher orders in the total fertility rate in both ethnic groups remains low compared with other ethnic groups. In the third, fourth and subsequent orders, Kazakhs and Uzbeks

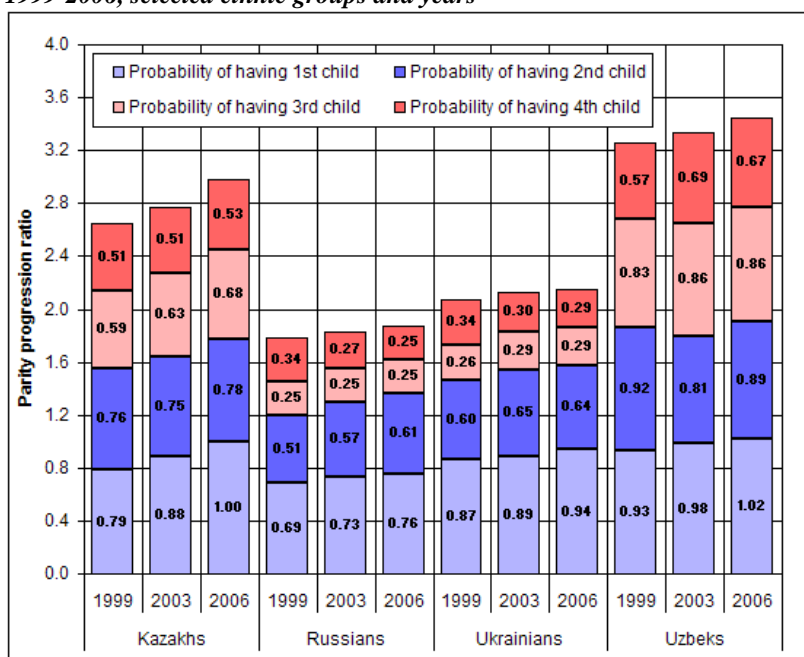
are characterized by relatively large figures and their rates are several times higher than those of Russians and Ukrainians.

Fig. 14 – Total fertility and its structure by birth of order, Kazakhstan, selected ethnic groups and years



Source: Author's calculations based on data of Statistics Agency of RK

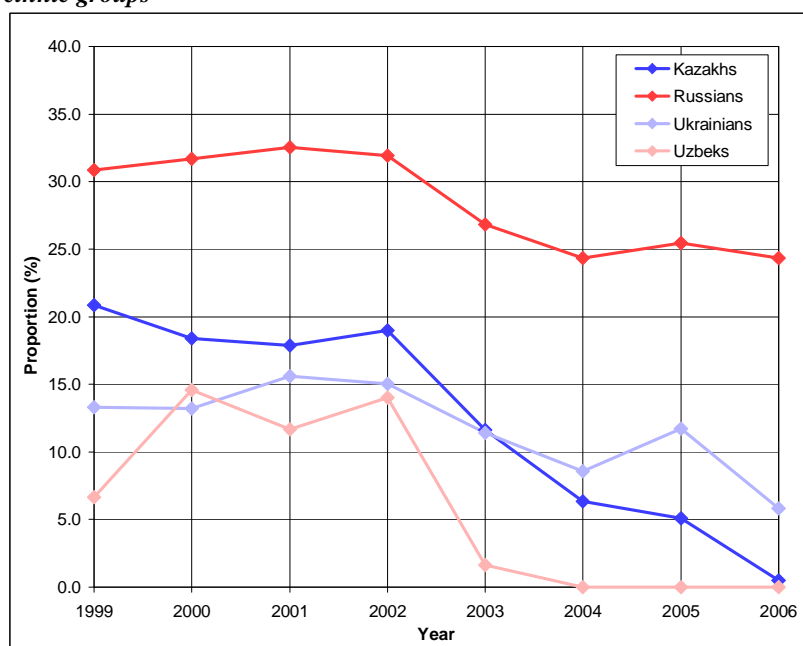
Fig. 15 – Parity progression ratios in a fictive (table) population, Kazakhstan, 1999-2006, selected ethnic groups and years



Source: Author's calculations based on data of Statistics Agency of RK

A somewhat different perspective on the changes in fertility by birth order is provided by the trend of the parity progression ratio (i.e. probability of birth of another child). This indicator may best document the change in the reproductive model of the population in the selected ethnic groups. As we have seen, the probability of next birth changed for children of all birth orders in all ethnic groups between 1999 and 2006. The change was accompanied not only by growth, but also falls in some years (Fig. 15, Tab. 15). Compared with 1999, the probability of transition from childlessness to a first-order birth increased in all ethnic groups by 2006. Among Kazakhs, it increased by 25.8% and the probability of the first birth was 99.5%. In the other selected ethnic groups it increased by some 10%. It increased from 68.5% to 75.4% for Russians, from 86.2% to 94.2% for Ukrainians, and from 93.2% to almost 100% for Uzbeks (in a real generation, the probability of the first birth can not be above 100%, but an analysis of a fictitious generation can meet such large numbers, when we face high total fertility rates by the first order. Therefore here we need to consider that in 2006 Uzbeks' probability of the first birth was almost 100% and the proportion of childless women was close to zero).

Fig. 16 – Proportion of childless women, Kazakhstan, 1999-2006, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

As a result of the growing probability of first child birth, the proportion of childless women decreased (Fig. 16). We can see that in all ethnic groups, a sharp decline began in 2003. In 2006, the highest proportion of childless women remained among Russians (about 25%), despite a small reduction. Among Ukrainians, the intensity of the reduction was insignificant compared with Kazakhs. As a result, in recent years their proportion of childless women was relatively higher

(5.8% versus 0.5% of Kazakhs in 2006). As far as Uzbeks are concerned, their proportion of childless women was almost equal to zero since 2004.

If the probability of first-order birth intensively grew among Kazakhs, the probability of second-order births to one-parity women saw a more rapid growth among Russians and Ukrainians (Tab. 15). Thus, compared with 1999 in 2006, the probability of second order birth among Russians increased by 19.3%, while Ukrainians' highest level occurred in 2005. In general, the probability of a second order birth among Kazakhs and Uzbeks was to a large extent subject to fluctuations (more than among Russians and Ukrainians) and there were declines after growths during the investigated period. As a result, in 2006 compared with 1999, the probability of a second child among Kazakhs was slightly higher, while that of Uzbeks decreased (Fig. 15). However, both ethnic groups maintained relatively high values in this order of birth.

Tab. 15 – Changes of parity progression ratios in a fictive (table) population between 1999 and 2006, Kazakhstan, selected ethnic groups

Probability	1999	2000	2001	2002	2003	2004	2005	2006
Kazakhs	Parity progression ratio (1999=100)							
Probability of having 1st child	100.0	103.1	103.8	102.4	111.7	118.4	120.0	125.8
Probability of having 2nd child	100.0	99.4	95.7	100.6	99.0	101.3	101.1	102.0
Probability of having 3rd child	100.0	101.8	103.7	104.9	106.7	112.6	113.0	115.7
Probability of having 4th child	100.0	102.8	111.5	105.9	99.6	97.8	97.0	104.7
Russians	Parity progression ratio (1999=100)							
Probability of having 1st child	100.0	98.8	97.6	98.4	105.8	109.4	107.8	109.4
Probability of having 2nd child	100.0	103.6	105.5	113.1	111.3	115.8	117.2	119.3
Probability of having 3rd child	100.0	100.4	99.9	95.2	102.0	102.1	101.6	102.7
Probability of having 4th child	100.0	89.1	87.4	83.2	81.1	71.3	80.7	75.3
Ukrainians	Parity progression ratio (1999=100)							
Probability of having 1st child	100.0	100.1	97.4	98.0	102.2	105.5	101.9	108.6
Probability of having 2nd child	100.0	98.1	106.6	103.3	108.3	110.2	113.7	106.2
Probability of having 3rd child	100.0	106.6	98.5	107.4	111.5	106.4	106.0	109.5
Probability of having 4th child	100.0	90.5	86.9	83.7	86.9	78.3	77.1	84.3
Uzbeks	Parity progression ratio (1999=100)							
Probability of having 1st child	100.0	91.5	94.6	92.1	105.4	111.3	111.7	109.0
Probability of having 2nd child	100.0	100.4	94.4	93.0	87.2	90.6	86.6	96.3
Probability of having 3rd child	100.0	103.7	106.8	110.5	103.7	111.2	107.2	104.2
Probability of having 4th child	100.0	104.6	111.6	114.1	120.9	103.0	116.2	118.7

Source: Author's calculations based on data of Statistics Agency of RK

While the difference in the probability of birth of the first and second children between ethnic groups was not big, the probability of third-order births to two-parity women and probability of fourth-order births to three-parity women between the "Oriental" and "European" ethnic groups

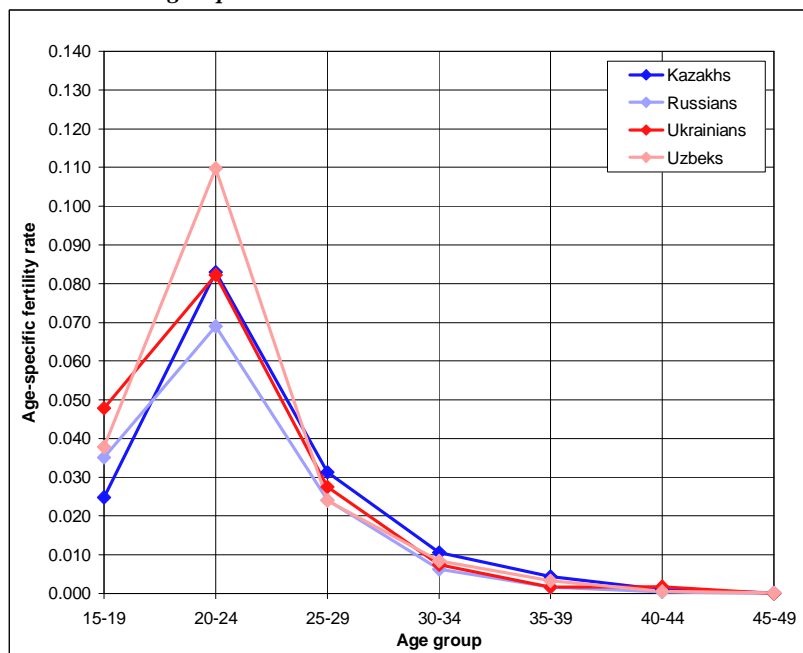
displayed a huge difference (Fig. 15). In 2006, the probability of a third child among Russians was 25.3% and among Ukrainians 28.8%, while among Kazakhs and Uzbeks it was 68.2% and 86.4%, respectively. It should be noted that in the period from 2001 to 2005, Uzbeks' probability of third order birth was slightly higher than the second order birth. Compared with 1999, the probability of three children in all ethnic groups was slightly higher in 2006, especially among Kazakhs who recorded a more dynamic growth.

The difference in the probability of fourth birth order among Russians and Ukrainians is that it was higher than the probability of third birth order during the studied period. But even these ethnic groups were characterized by a decline in the probability of fourth birth order. We can see an opposite trend among Kazakhs and Uzbeks. Compared with 1999, the probability of fourth birth order increased by 2006, but its rate remained lower than the probability of third birth order. Moreover, the probability of fourth birth order is much higher among Kazakhs and Uzbeks than that of Russians and Ukrainians. In general, the probability of next birth order among Kazakhs and Uzbeks was higher in all birth orders than that of Russians and Ukrainians, especially that of Uzbeks.

The increased contribution of the fertility of birth orders to the total fertility rate of ethnic groups is connected with an apparent increase in childbirth intensity among the middle and older age groups, which are responsible for the main contribution in each successive birth. Nevertheless, in all birth orders, the contribution of fertility of age groups and their level was also significantly differentiated by ethnic groups. This can be well seen when we compare age-specific fertility rates by each birth orders between the selected ethnic groups.

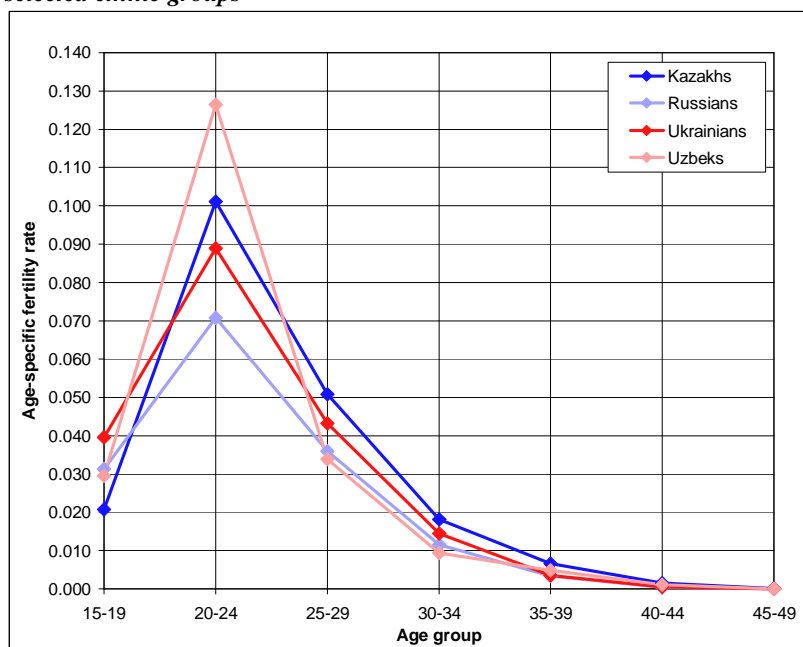
The graphs 17 and 18 illustrate the age of fertility by first birth order in all four ethnic groups for 1999 and 2006. In 1999, the highest fertility rate in the youngest age group (15–19) appeared among Ukrainians, whose fertility rate of the first birth order in this age group was 0.048 (per one woman). This was 48.1% more than among Kazakhs whose fertility rate in this age group was the lowest (Fig. 17). In this age group, fertility rate by first birth order among Ukrainians was slightly higher than that of Russians and Uzbeks. In this birth order, the highest fertility rate appears in the 20–24 age group in all ethnic groups. In 1999, Kazakh women of this age group accounted for 53.5% of all births in the first birth order, while the figures for Russian, Ukrainian and Uzbek women were 50.6%, 48.8% and 59.7%, respectively. Compared with other ethnic groups, the highest fertility rate by first order in the age group 20–24 was recorded among Uzbeks, and fertility rates of Kazakhs and Ukrainians were almost the same. The lowest level was among Russians. The level of fertility rate by first order for the age group 25–29 differs sharply from the previous ages. Especially among Uzbeks, the level of fertility rate was lower compared with other ethnic groups. In the age groups 30–34 and 35–39, there was a slightly higher fertility rate by first order among Kazakhs and Uzbeks than among Russians and Ukrainians (Fig. 17).

Fig. 17 –Age-specific fertility rate by first birth order, Kazakhstan, 1999, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

Fig. 18 –Age-specific fertility rate by first birth order, Kazakhstan, 2006, selected ethnic groups



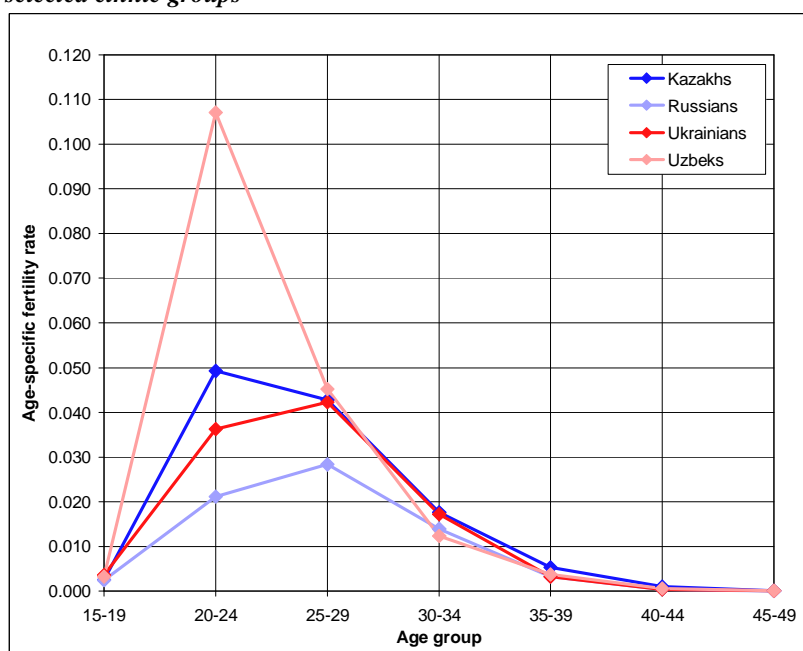
Source: Author's calculations based on data of Statistics Agency of RK

Compared with 1999, age-specific fertility rates by first order of birth increased almost in all four ethnic groups, except for the youngest age group (Fig. 18), by 2006. In the younger age group, fertility rate among Kazakhs decreased by 16.7%, among Russians by 10.6%, among Ukrainians by

17.3%, among Uzbeks by 21.9%. Despite this, a decline in the contribution of this age group to first-order fertility remains significantly high, particularly among Russians and Ukrainians in 2006. Among Russians it was 20.4% and among Ukrainians 20.8%, but among Kazakhs their contribution was only 10%. Uzbeks's level of fertility rate in this age group in the first birth order is smaller than that of Russians and Ukrainians, but remains higher than Kazakhs'.

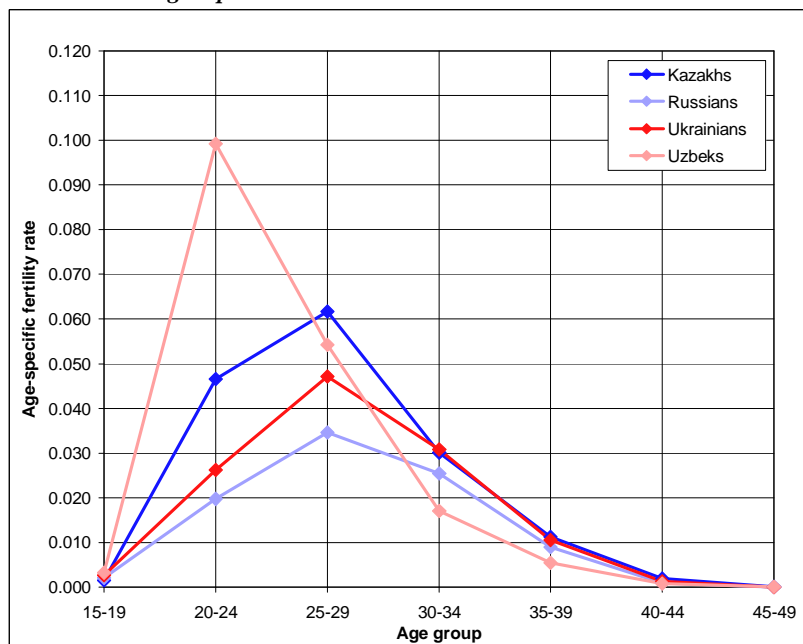
The highest fertility rate in this birth order remains in the age group 20–24 in all ethnic groups. Compared with 1999, the fertility rate in this age group particularly increased among Kazakhs (21.9%) and Uzbeks (15.1%) by 2006, whereas among Russians (2.6%) and Ukrainians (8.1%) the growth rates were less intensive. In spite of the growth in all ethnic groups, there was a decrease in the proportion of this age group in the first birth order. There was a large increase in fertility rate in the age groups 25–29, 30–34 and even in the age group 35–39. For example, in 2006 the fertility rate by first birth order in the age group 25–29 increased among Kazakhs by 62.1%, among Russians by 48.7%, among Ukrainians by 56.8%, among Uzbeks by 41.6%, being higher than in 1999. Uzbeks' level of fertility rate in the first order in this age group was even smaller than that of Russians and Ukrainians. A high level in this age group compared with other ethnic groups, as shown among Kazakhs in 1999. In 2006, the proportion of women aged 30–34 with the first order of birth was also significant; due to the high fertility rate rise in this birth order. Only Uzbeks' growth was 12.8%. In general, all these trends have increased the proportion of these age groups in the first birth order. In some ethnic groups in the older age groups fertility rate also rose markedly, but their share in the first birth order is insignificant.

Fig. 19–Age-specific fertility rate by second birth order, Kazakhstan, 1999, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

Fig. 20 –Age-specific fertility rates by second birth order, Kazakhstan, 2006, selected ethnic groups



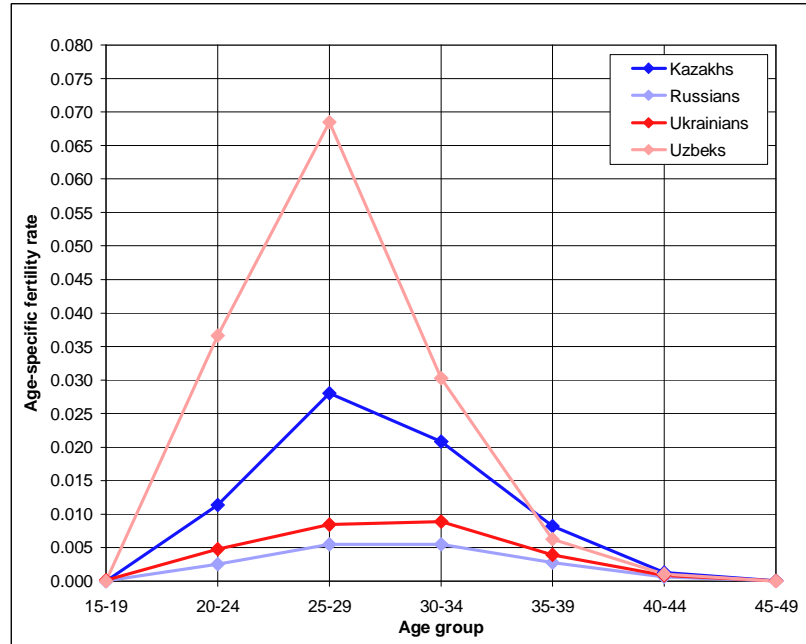
Source: Author's calculations based on data of Statistics Agency of RK

In the second birth order (Fig. 19 and 20), fertility rate in the age group 20–24 attracts attention. The upward trend in second birth order fertility is not reflected positively in the age group of women 20–24. Fertility rate of second birth order of women of this age group has declined in all ethnic groups. Thus, compared with 1999 in 2006, the contribution of the age group 20–24 in the second birth order fertility among Kazakhs decreased from 41.5% to 30.4%, among Russians from 30.5% to 21.5%, among Ukrainians from 35.1% to 22.1%, among Uzbeks from 62.2% to 55.1% (Fig. 19 and 20). Despite this, in all ethnic groups, their share in the second birth order is significant, especially among Uzbeks whose fertility rate by second order considerably exceeds the fertility rate of other ethnic groups.

While in the younger age groups (15–19 and 20–24) there was an evident drop in fertility rate by second order, in the middle and older age groups one can see some growth. Thus, as a result of growth in the age group 24–29 the level of fertility rate by second order was higher than in the age group 20–24 among Kazakhs in 2006. Its level was also higher than that of Uzbeks whose fertility rate by second order in this age group was less dynamic. A growth of fertility rate in the age group 25–29 was also observed among Russians and Ukrainians, but as the increase was insignificant, its share in the second birth order was reduced by 2006. However, in the age groups 30–34 and 35–39, the growth of fertility rate by second order was more intense than among Kazakhs and Uzbeks. In 2006, the level of fertility rate by second order in these age groups among Russians and Ukrainians approached that of Kazakhs and outpaced fertility rate of Uzbeks. Among Uzbeks of these age groups, the growth dynamics of fertility rate by second order was low, which

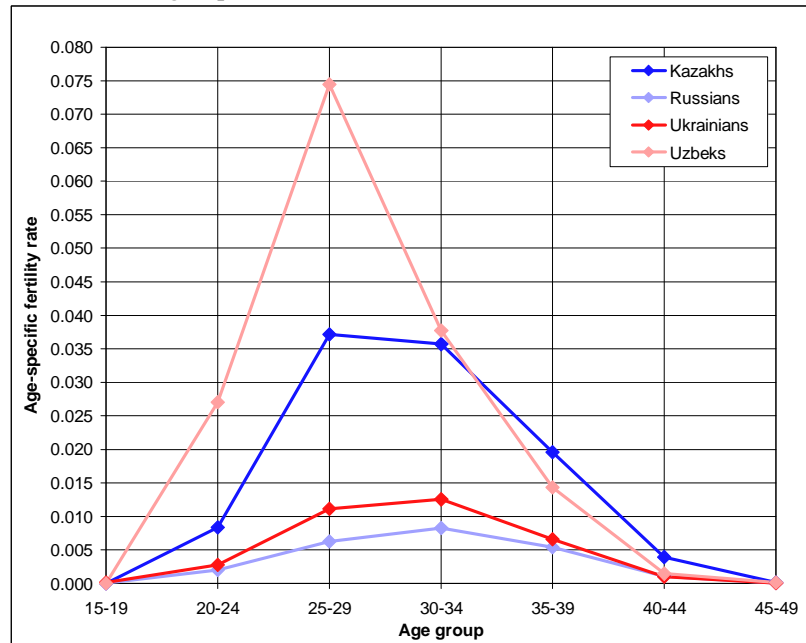
explains their low level in 2006, compared with other ethnic groups. We can also see some growth in the older age group 40–44, particularly among Russians and Ukrainians, but their share, as in the first birth order, remains low.

Fig. 21 –Age-specific fertility rate by third birth order, Kazakhstan, 1999, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

Fig. 22 –Age-specific fertility rate by third birth order, Kazakhstan, 2006, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

Age-specific fertility rates of ethnic groups in third birth order are characterized by a huge margin (Fig. 21 and 22). The decline of fertility in younger age groups continued, as it did in the second birth order, but more rapidly. Thus, compared with 1999, fertility rate by third order in the age group 20–24 decreased among Kazakhs by 26.4%, among Russians by 19.8%, among Ukrainians by 41.9% and among Uzbeks by 26.3% by 2006. Despite the recession, the level of fertility rate in the 20–24 age group in that order of birth of Uzbeks also remains relatively high.

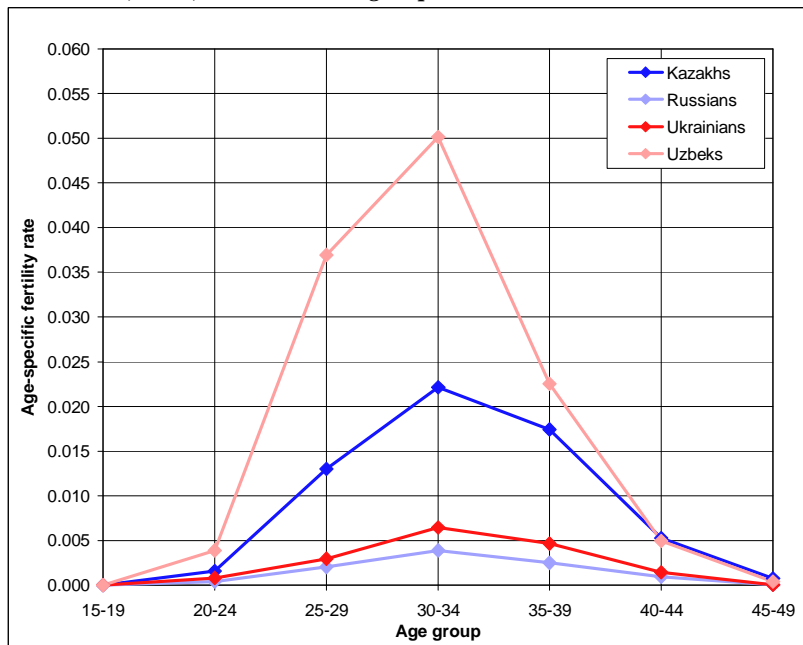
In all ethnic groups, there was an increased fertility in the third birth order among women aged 25 years and older. It was sufficient to offset the declining rate in the age group 20–24. Therefore, in 2006, the fertility rate in the third birth order among Kazakhs in the age group 25–29 increased by 32.3%, in the age group 30–34 by 71.1% and in the age group 35–39 by 138.1%, compared with 1999. One can see the same trend among Russians, but the growth was smaller. Moreover, their fertility rate by third order is very low compared with Uzbeks and Kazakhs. The third birth order among Ukrainians has, like among Russians, low fertility rates in all relevant age groups, although slightly higher than among Russians. The dynamics of fertility rates in certain age groups was not high either. It was much lower than fertility rates of Kazakhs and Uzbeks, especially in middle age groups.

Notwithstanding the fact that the growth was less intensive than in other ethnic groups, like in 1999, a high fertility rate by third birth order in the age groups 25–29 and 30–34 was maintained among Uzbeks by 2006. In this year, Uzbek fertility rate by second order in the age group 25–29 was double that of Kazakhs. A more dynamic growth of fertility rate in the third birth order of Uzbeks occurred in the age group 35–39, as in all ethnic groups. As compared with 1999, the fertility rate in the third birth order for the age group 35–39 increased by 126.4% by 2006.

In the fourth and higher birth orders, we can see that differentiation of age-specific fertility rates between ethnic groups further increased (Fig. 23 and 24). Fertility rates of Uzbeks were higher in almost all ages than those of other ethnic groups. Particularly striking is their domination in the major age groups 25–29, 30–34 and 35–39, which in all ethnic groups provide the main share of births in fourth and higher birth orders. In 2006, there was a sufficiently high growth in all these age groups among Uzbeks compared with 1999, but the Uzbek growth was slightly smaller than that of Kazakhs. According to this, the big difference between fertility rates slightly narrowed. This was particularly true of the age group 30–34, where Kazakh fertility rate by fourth and higher birth orders increased by 43.9%, whereas that of Uzbeks only by 13.5%. Increased fertility rate was higher among Uzbeks than among Kazakhs only in the age group 40–44.

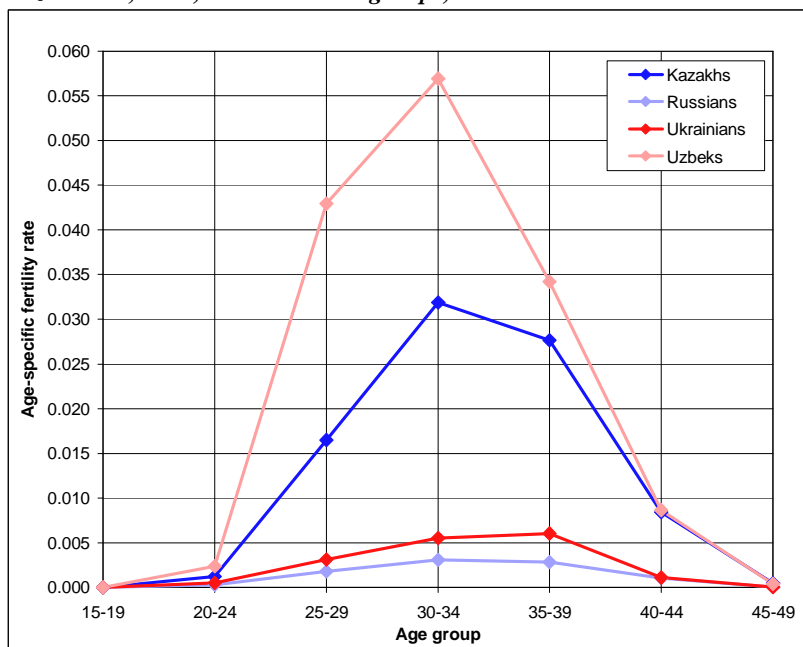
The level of age-specific fertility rates by fourth and higher birth orders among Russians was the lowest of all the studied ethnic groups. Compared with 1999, Russians recorded only a slight increase in the age groups 35–39 and 40–44, and in other age groups there was a falling fertility rate by 2006. Although Ukrainians have fertility rates by fourth and higher birth orders higher than Russians in all relevant age groups, its level remains low. A slighter increase in fertility rate can be seen only in the age group 35–39.

Fig. 23 – Age-specific fertility rate by fourth and higher birth order, Kazakhstan, 1999, selected ethnic groups



Source: Author's calculations based on data of Statistics Agency of RK

Fig. 24 – Age-specific fertility rate by fourth and higher birth order, Kazakhstan, 2006, selected ethnic groups,



Source: Author's calculations based on data of Statistics Agency of RK

In fourth and higher birth orders the difference between "Oriental" (Kazakhs and Uzbeks) and "European" (Russians and Ukrainians) populations can be simply denoted enormous. For example,

if the 1999 age-specific fertility rates by fourth and higher birth orders for Kazakh women in middle and older age groups exceeded the Russian ones five or six times, it was about eight or nine times higher by 2006.

Thus, in all birth orders of all ethnic groups the contribution of "young" mothers to the value of the final birth rate decreased, while the contribution of older age groups increased and there is a shift in the birth rate in these age groups. This trend has led to an increase in the average age of mothers in all birth orders. However, as noted in the examination of age-specific fertility rates for all birth orders, mean age at childbirth rose depending on the intensity of the birth rate in each age group in all ethnic groups. Therefore, the differences between ethnic groups can be traced not only in the values of mean age at childbirth in each birth order, but also in its dynamic growth.

Tab. 16 – Mean age at the childbirth by births order, Kazakhstan, 1999 and 2006, selected ethnic groups

Mean age	Kazakhs		Russians		Ukrainians		Uzbeks	
	1999	2006	1999	2006	1999	2006	1999	2006
Mean age:								
at childbirth	27.1	28.3	25.1	26.5	25.2	26.6	26.3	27.2
at the first childbirth	23.9	24.8	22.8	23.9	22.7	23.8	22.8	23.5
at the second childbirth	26.5	27.7	27.1	28.7	26.7	28.5	24.7	25.4
at the third childbirth	29.6	31.2	30.5	31.9	30.3	31.3	27.8	28.9
at the fourth and higher order childbirth	33.6	34.0	33.3	34.1	33.3	33.9	32.0	32.6

Source: Author's calculations based on data of Statistics Agency of RK

If we examine and compare the mean age at childbirth for each birth order, the highest birth rate in the first order appears among Kazakhs. While their mean age at first childbirth was 23.9 years in 1999, it increased by 4.6% by 2006, reaching 24.8. Among Russians and Ukrainians there was an almost same trend and the growth rate was also identical. Mean age at first childbirth for Uzbek women in 1999 was the same as Russian and Ukrainian figures. However, Uzbeks' rate became the lowest (23.5) between these ethnic groups (Tab. 16) by 2006.

Uzbeks have the lowest mean age at childbirth among the considered ethnic groups, that is observed not only in the first birth order, but also in the other orders. In 2006, their mean age of mother at birth of her second child was 25.4, of her third 28.9, and of her fourth and following 32.6 years. These figures are slightly higher than the values recorded in 1999, but the dynamics of growth was higher compared with other ethnic groups. A relative dynamic increase in mean age at childbirth of the second birth was recorded among Russians and Ukrainians. In 2006, the level of this indicator among Russians has increased by 1.6 years and among Ukrainians by 1.9 years compared with 1999, which strengthened their high rates in that birth order. Among Kazakhs, mean age of mother for the second birth also significantly increased, but a more marked rise appeared for the third birth. Thus, in 2006 the mean age at third childbirth of Kazakhs has increased by 1.6 years

or by 5.3% compared with 1999. However, the relatively high rate of mean age of mother in the birth orders still remains among Russians and Ukrainians.

An increase in maternal age is also observed for the fourth and following birth orders. However, this increase was less pronounced than those of the previous birth orders and growth dynamics of fertility rate of this birth order was practically identical for all ethnic groups.

In conclusion of this section of research, it can be said that a detailed analysis of fertility of ethnic groups by birth order showed significant changes, which influenced all the birth orders during the studied period. The analysis also revealed differing features of fertility among ethnic groups. As a result, major fertility appears in the first and second order of birth, and the proportion of higher birth orders is insignificant among Russians and Ukrainians, while among Kazakhs and Uzbeks, third and higher birth orders constitute a significant proportion of all births. As a result of this, we can observe that differences in the fertility rate among these ethnic groups in the first and second birth orders are small, but in the higher birth orders fertility rates of Kazakhs and Uzbeks are several times higher than those of Russians and Ukrainians. In general, the higher the birth order, the greater was the difference. Significant differences occur not only between "Oriental" and "European" ethnic groups, but also within them. For example, fertility rate of Uzbeks is higher in all birth orders than that of Kazakhs, and Ukrainian fertility rate is higher than that of Russians. I have to stress that in 1999 fertility rate of Ukrainians in first birth order was slightly higher than that of Kazakhs.

A significant differentiation between ethnic groups in all birth orders can also be seen in the dynamics of fertility. The highest growth intensity appeared among Kazakhs compared with other ethnic groups.

The analysis of fertility rates by women's age groups showed that fertility in each birth order shifts to more mature age groups in all ethnic groups. It also revealed significant differences in the dynamics of fertility.

Chapter 7

Conclusion

Summarizing the results of the study, the following conclusions can be drawn:

The analysis of fertility shows that in the period from 1999 to 2006 there was a high differentiation in ethnic groups, particularly if so-called Oriental and European populations are compared. Despite a less dynamic growth in fertility rates compared to other ethnicities, Uzbeks they have the highest fertility rate in the studied period. The high fertility rate among Uzbeks is observed in all orders of birth. The highest growth of fertility rate is observed among Kazakhs who had a total fertility rate of 2.0 in 1999, which was below replacement level, but it grew up to 2.7 by 2006. Kazakhs are also characterized by the highest fertility after Uzbeks. Both Kazakhs and Uzbeks are characterized by having third, fourth and higher birth order as a significant share of all births. Both Russians and Ukrainians have a high growth in fertility rate. However, their levels of fertility rates remain lower than replacement level. The main share of births includes first and second birth orders, and higher order births remain insignificant.

Nevertheless, all ethnic groups have some similarities in fertility rate trends:

- Real growth of births;
- An obvious growth in births that started in 2002 and 2003;
- Births among young women have declined;
- There is a shift in births toward a group of older women of fertile age;
- Increase in mean age at childbirth.

On the one hand, ethnic groups of Kazakhstan have a wide range of cultural, behavioral, religious and other peculiarities that influence their reproductive behavior and reflect different phases of demographic transition among the groups. On the other hand, the inevitable interaction between the ethnic groups which formed the basis of ethnic processes may make further adjustments to the overall demographic pattern and smooth out the difference in fertility. But right now, taking into account that in the period under study the differentiation in fertility between ethnic groups remains high, we can state that in the near future, ethnic diversity of fertility will be preserved. But it can be assumed that ethnic differentiation in fertility will be reduced among ethnic groups within the "Eastern" and "European" ethnic components. This assumption seems more

realistic at present, given that the constituent parts of ethnic groups have more similar demographic characteristics, including fertility.

As written previously in the main part of the study, according to some scientists the positive dynamics of fertility in the country was mainly conditioned by favorable changes in age-sex structure of population. But the analysis of fertility, including birth order, revealed that at present there has been a real growth in birth rate in all ethnic groups, independent of the influence of age structure. So when talking about the growth of fertility under the favorable influence of age structure, we can mention basically just an increase in the absolute number of birth. Moreover, changes in age-sex structure of ethnic groups have not been the same. We believe that the real growth rate of fertility among ethnic groups in the country as a whole was influenced by the socio-economic transformation in the country. Economic stability and increased standard of living that stimulated the birth rate led to the growth of marital unions and implementation of postponed births.

The assumption that due the rise of the welfare of the population, women started to have the postponed births more frequently and a major growth in fertility was due to the postponed births is, in our opinion, partly true. We believe that postponed births became one of the factors influencing the growth of fertility. The shift of fertility to older age groups and the dynamics of changes in fertility by age groups confirm this belief. This is also confirmed when studying fertility by birth order. In all ethnic groups, a more dynamic growth was observed in the second and third order of birth, where we assume that postponed births assume a certain share. However, as we know the first order of birth increased in all ethnic groups in 2006, compared with 1999. Here the apparent increase in marital unions and the share of extra-marital births have played the central role.

In conclusion, we can say that given the fact that Kazakhstan in the long run will remain a multiethnic state, the issues of ethnic differentiation in fertility will be of major importance. Its study in modern Kazakhstan is a key element in the development of socio-demographic policies to promote fertility, to identify hypotheses about the prospects of fertility, and consequently, in the preparation of population projections, which are the base for prediction of socio-economic development of the country.

A significant change in ethnic composition of the population of Kazakhstan will probably also take place in the medium and long term perspective, due to a decrease in "European" and growth in "Eastern" parts of the population (mostly Uzbeks, Turks, Azerbaijanis, Uyghurs), which may cause a change in the socio-cultural profile of Kazakhstan's population. This also adds urgency to the problem of studying ethnic differentiation in demographic processes, particularly fertility.

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Appendices

Appendix 1:

Live births by age of mother and birth order in Kazakhstan, selected ethnic groups, 1999 and 2006

Live births by age of mother and birth order, Kazakhstan, 1999 and 2006

Age	Total		1 order		2 order		3 order		4+ order	
	1999	2006	1999	2006	1999	2006	1999	2006	1999	2006
Total	217,578	301,756	95,932	128,683	63,761	87,546	32,305	48,867	25,580	36,660
15 - 19	23,129	21,478	21,059	19,862	1,918	1,600	34	21	3	1
20 - 24	83,396	102,940	50,158	67,354	26,414	29,563	5,840	5,286	816	750
25 - 29	58,514	86,970	16,992	28,401	22,849	33,078	12,763	17,668	5,936	7,817
30 - 34	33,145	55,447	5,205	9,308	9,302	16,657	9,205	15,878	9,503	13,597
35 - 39	15,937	28,066	2,051	3,056	2,830	5,695	3,868	8,307	7,305	11,002
40 - 44	3,200	6,532	436	653	424	914	566	1,647	1,833	3,319
45+	257	323	30	50	23	39	30	61	184	174

Source: data of Statistics Agency of RK.

Live births by age of mother and birth order, Kazakhs, 1999 and 2006

Age	Total		1 order		2 order		3 order		4+ order	
	1999	2006	1999	2006	1999	2006	1999	2006	1999	2006
Total	142,363	211,715	56,241	83,157	41,837	59,676	24,152	38,379	20,133	30,503
15 - 19	10,892	11,022	9,822	10,249	1,000	768	13	6	2	0
20 - 24	52,778	69,267	30,109	44,541	17,852	20,520	4,125	3,687	569	532
25 - 29	40,150	62,390	10,945	19,091	14,875	23,156	9,783	13,942	4,546	6,199
30 - 34	24,144	41,162	3,604	6,451	5,981	10,710	7,072	12,672	7,518	11,325
35 - 39	11,925	22,259	1,483	2,278	1,824	3,837	2,792	6,692	5,919	9,446
40 - 44	2,278	5,358	255	507	290	657	352	1,334	1,426	2,858
45+	196	257	23	40	15	28	15	46	153	143

Source: data of Statistics Agency of RK.

Live births by age of mother and birth order, Russians, 1999 and 2006

Age	Total		1 order		2 order		3 order		4+ order	
	1999	2006	1999	2006	1999	2006	1999	2006	1999	2006
Total	39,215	45,117	23,725	25,924	11,180	14,437	2,717	3,441	1,593	1,315
15 - 19	7,108	5,779	6,614	5,424	452	353	14	7	1	0
20 - 24	16,321	16,506	12,089	12,578	3,709	3,510	446	362	72	50
25 - 29	9,408	12,530	3,784	5,721	4,449	5,525	864	995	319	282
30 - 34	4,050	7,188	860	1,717	1,917	3,781	755	1,237	541	461
35 - 39	1,849	2,592	294	418	584	1,129	510	681	460	362
40 - 44	451	499	83	63	66	137	120	151	184	150
45+	28	23	1	3	3	2	8	8	16	10

Source: data of Statistics Agency of RK.

Live births by age of mother and birth order, Ukrainians, 1999 and 2006

Age	Total		1 order		2 order		3 order		4+ order	
	1999	2006	1999	2006	1999	2006	1999	2006	1999	2006
Total	5,156	4,901	2,644	2,600	1,712	1,597	485	470	315	234
15 - 19	781	597	725	557	54	38	2	2	0	0
20 - 24	1,884	1,669	1,243	1,252	547	370	72	39	12	7
25 - 29	1,373	1,268	465	524	715	572	142	135	50	38
30 - 34	722	893	136	204	314	434	162	177	118	78
35 - 39	296	399	36	53	73	158	87	98	103	90
40 - 44	94	72	38	10	7	24	18	18	31	20
45+	6	3	1	0	2	1	2	1	1	1

Source: data of Statistics Agency of RK.

Live births by age of mother and birth order, Uzbeks, 1999 and 2006

Age	Total		1 order		2 order		3 order		4+ order	
	1999	2006	1999	2006	1999	2006	1999	2006	1999	2006
Total	9,534	12,273	2,994	4,036	2,700	3,341	2,148	2,611	1,692	2,285
15 - 19	751	754	692	680	59	74	0	0	0	0
20 - 24	4,159	5,152	1,774	2,556	1,731	2,004	593	546	63	48
25 - 29	2,622	3,421	359	564	678	903	1,027	1,240	555	714
30 - 34	1,443	1,908	119	148	175	269	432	594	718	896
35 - 39	482	860	43	72	50	79	85	209	304	500
40 - 44	72	170	6	16	6	11	11	21	49	122
45+	5	8	1	0	1	1	0	1	3	5

Source: data of Statistics Agency of RK.

Appendix 2: The statement about registration of birth, Kazakhstan

Туу тіркеу туралы арыз
Заявление о регистрации рождения

Баланың тегі Фамилия ребенка	
Баланың аты Имя ребенка	
Баланың әкесінің аты Отчество ребенка	
Туған күні Дата рождения	
Туған жері Место рождения	
Неше бала туды: біреу, егіз, үшеу Сколько родилось детей: один, двойня, тройня	
Жаңа туған баланы қосқанда шешесінің баласы Который по счету ребенок родился у матери, включая новорожденного	
ӘКЕСІ ТУРАЛЫ МӘЛІМЕТ СВЕДЕНИЯ ОБ ОТЦЕ	ШЕШЕСІ ТУРАЛЫ МӘЛІМЕТ СВЕДЕНИЯ О МАТЕРИ
Тегі Фамилия	
Аты Имя	
Әкесінің аты Отчество	
Туған уақыты Время рождения	
Жасы _____ толды Возраст исполнилось _____ лет	Жасы _____ толды Возраст исполнилось _____ лет
Ұлты Национальность	
Тұрақты мекені Место постоянного жительства	
Кім болып, қайда істейді Где и кем работает	
Білімі Образование	
Некені тіркеу туралы куәлік, қай АХАЖ бөлімімен берілген Жазу номері _____ « _____ » _____ 200__ ж. Свидетельство о заключении брака, каким отделом ЗАГС выдано Запись № _____ « _____ » _____ 200__ г.	
Төлқұжаттың № № паспорта уд/личности	
Өтінушінің тегі, аты, әкесінің аты, мекен-жайы және қолы Фамилия, имя, отчество, адрес и подпись заявителя	