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COMPREHENSIVE DEMOGRAPHIC RESEARCH IN UKRAINE

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/ S.I. Pyrozhkov, E.M. Libanova, N.S. Vlasenko and others/ Editor: E.M. Libanova, Corresponding Member of NASU, Dr. Sc. (Economics). – Ukrainian Center for Social Reforms, 2006 – 184 pages.

The monograph presents a complex investigation of demographic situation in Ukraine, carried out in the framework of realization of the United Nations Population Fund (UNFPA) project. The analysis of the main demographic trends is presented, including fertility, mortality, morbidity and migrations. The research is also devoted to the most urgent problems of demographic development in Ukraine; it proposes the principal recommendations on the strategy of demographic development. The authors have developed statistical and dynamical models of demographic processes and structures.

The edition is supposed for experts in demography, social policy, scientists and pedagogical workers and students.

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ISBN

CONTENTS

pp.

1. METHODOLOGY OF MODERN DEMOGRAPHIC STUDIES

Population development in time corresponds to the dynamics of a complex open system. Mutual impact of the number and age structures, fertility, mortality, and migrations is absorbed into the environment of social and economic relations. These relations form a background and conditions, which define direction and actions of some demographic factors. They make an impact on reproductive behavior, peculiarities of mortality of the population and its mechanic redistribution among territorial subsystems.

Laws of the population can be divided into: 1) laws of natural movement (the law of replacement of generations, reproduction of the population), 2) laws of territorial movement (migrations and situation), 3) laws of social movement (peculiarities of changes of social, professional, educational and other structures). Economic and sociological laws of the population are defined separately (Fig. 1).

Economic laws of the population are investigated by the ***economics of population***. This branch studies correlation between different features of the economy and a type of demographic reproduction and demographic processes. The ***economics of demo-processes*** is defined as a separate branch, as it studies the qualitative characteristics of demographic reproduction, essential correlation of demographic structures (age, social etc.), movement of the population with productive function and consumption.

The laws of natural movement of the population are used in the ***theory of demographic transition*** (demographic revolution). This concept is used for explanation of the change of types of the population reproduction. There area four phases of the transition from the archaic type of reproduction (high fertility – high mortality), through the expanded type (2 subsequent periods of decrease in mortality and fertility) to the narrow type of reproduction (low fertility - low mortality).

Sociological laws study not only social mobility, which has been already mentioned, but also a role and functions of a family depending on socially stipulated activity of humans (reproductive and vital behavior). Sometimes, the lows of social mobility are united into the ***theory of social mobility***.

“Experience on the laws of the population…” by T.R. Malthus has been among the first attempts to theoretically substantiate the dynamics of the population number. This research shows a contradiction of the population growth and limitation of the resources base (the law of diminishing return). Despite of „anti-scientific” character of this concept, the issues, investigated by Malthus in the end of the XVIII century, contributed to the further development of economic studies and demo-economic models.

The analysis of the population growth makes a particular interest for the science. The ***theory of the stable population*** has been formed on the basis of investigation of the correlation between age structure and regime of the population reproduction.

As Fig. 1.1, shows, demographic models present system-forming elements, which create demographic constructions with a number of the applied demographic methods and approaches.

The model of exponential (Malthusian) ***population*** is the first historical attempt to determine the law of the population growth, mentioned before. The constant population growth and some of its parameters (age structure or function of reaching of some age) are correlated in the model.

$$\int_u^v \frac{C(x)}{C(0)} e^{rx} \times e^{-rx} f(x,t)dx = 1$$

where r – coefficient of natural growth of the stable population,

e – base of the natural logarithm,

$C(x)$ –age structure,

$f(x)$ – function of fertility.

Replacement of the coefficient of natural growth of the stable population with a calculated figure provides with description of age structure of this population under condition that its regime will stay the permanent one for as long as possible. Thus, the range of exponential cases is replaced with a case of the ***model of the stable population***. The system of correlations between functions of fertility, mortality and age structure is extremely important for the theory and practice of demographic studies.

When presenting the stable population in the simplified view, leaving its age structure to depend only on the function of reaching of some age, the ***model of the stationary population*** is obtained. The coefficient of natural growth is equal to zero in it, while the number of births is balanced by the number of deaths. This model is an important theoretical substantiation, when calculating life tables, which are purposeful to be defined as a separate class of models.

The model of logistic population is among analytical concepts of the population change in time:

$$P(t) = \frac{K}{1 + e^{\alpha - rt}},$$

where K, r, t – parameters of the model. This curve successfully describes the dynamics of the population number in the regions of development, in „close" systems under conditions of the limited resources. Sometimes, it has practical importance, when calculating the life tables and under different methods of smoothening.

Graphic methods have particular theoretic-methodological importance in demography, including methods of demographic network (or a network by W.Lexis) and of age pyramid.

Demographic network reflects the numbers of persons and events in their lives (births, deaths, marriages etc.) in the correct age and in calendar year. It is used as geometric substantiation of ratios between human numbers. It is used to calculate the main characteristics of demographic processes. Sometimes, the life tables are built directly by the network (for instance, French ones).

Demographic tables present a large class of demographic models (Fig. 1.1). ***Demographic table*** is a numerous model, presenting a number of subordinated and related magnitudes. They reflect a change in intensity of the corresponding demographic process, depending on the own time of a cohort and change of the number of a cohort. The tables of marriages, divorces and fertility are defined (as well as by the sequence of a birth), as well as mortality (also, by the reasons of death), and combined tables.

Demo-economic tables present a separate class. They have very important theoretically-methodological importance for the economics demographic processes. Under conditions of the stationary population model, the rates of economic activity, production and consumption, as well labour potential, are related there. The synthetic tables are also proposed there.

Demographic projection is developed on the basis of ***the matrix model*** of replacement of age groups. It is used under investigation of probabilities of transition of social or professional groups of the population in the theory of social mobility. It is also very important for modeling of the stable population (Fig. 1.2). Generally, this model can be described as:

$$\overline{P}^{t+n} = A^n \overline{P}^t$$

where $\overline{P}^t$ – a column of age-specific numbers of the population at the beginning of a year t, A – matrix of the replacement coefficients and n – a power of a matrix (the number of projected years).

The ***methods of standardization*** of demographic coefficients include the direct one, the indirect one, the inverse one and methods of double standardization. They are supposed to provide a possibility of the correct comparison of the crude coefficients during

demographic analysis. The theoretic substantiation is presented by a system of indices, proceeding from a fact, that differences in the crude coefficients result from differences in some (age-specific) coefficients and peculiarities of age structure. This approach provides with a possibility to estimate a direction and level of an impact of intensity of demographic process and age structure. Often, age structure of the stable population is taken as a standard.

The methods of cross-section analysis (conditional, hypothetic generation). It is based on the fact, that persons of all age groups live (are born, die) in every calendar year (or in 2 subsequent years). So, any indicators and models can be estimated for such generation. The positive feature of these methods is a relative availability of the comparative data and a possibility to analyze the modern changes in demographic movement. The negative feature of the indicators, calculated for such generation, include their conjuncture character, large dependency on probable sudden changes in the society and nature (wars, natural catastrophes).

The methods of cohort analysis (cohort methods, methods of the real generation). They aim investigation of demographic processes in the groups of people, who have been born at the same time (persons of the same age), who have married at the same time, i.e. those, belonging to some demographic category. There area some advantages: the real generations of people are investigated, so their reproductive behavior is studied during their whole lives. There are also some disadvantages: the rates for the real generation can be obtained only when it will leave the investigated state, for instance, from the fertile age in case of a birth or will die in case of investigation of the life expectancy. In this regard, the problems of the data availability are urgent (few countries have reliable statistics for a period in more than 100 years), as well as of comparison of the data (impact of migrations, territorial changes) etc.

The methods of demographic projections (perspective analysis). The methods develops modeling of demographic future (in case of probabilistic or scenario approaches to projection) on the basis of investigation of the qualitative and related quantitative numerous shifts in the population and its self-reproduction. The analytical (including the caution projections) and retrospective projections are also possible. They aim on definition of some conditional characteristics. For instance:

- The number and age structure of the population in the reporting year under unchangeable parameters of natural and migratory movements;
- The necessary parameters of natural movement for reaching of the needed number of population in some year;
- The needed parameters of migratory movements under unchangeable parameters of natural movement for reaching of the needed number of population in some year.

The retrospective projections also can be developed for definition of certain conditional parameters („what would be, if ...”), estimation of human losses after natural or social catastrophes, estimation of adequacy of the projection calculations methods etc.

The methods of potential demography considers the population as a number of bearers of some living potential, which is estimated in person-years. Thus, the living potential of a person is estimated as:

$$V_x = \frac{e_x + e_{x+1}}{2}$$

where e_x – the average life expectancy at reaching x years. To eliminate the impact of structural factors is important for potential demography. The methods of potential demography let us to consider the fact, that the living and labour potential of the young population is higher, as compared with the old one.

Thus, the theoretic-methodological problems of demography still remain developed insufficiently. The methodical approaches, which are based on demo-statistic understanding

of demography, are much more developed, as compared with essential dependencies and correlations. Recently, this gap has even grown in the result of the broad use of IT in the practice of demographic studies. The technical means and expansion of the actual statistical base provide scientists with possibilities to realize the mathematic models, which have to be shortened and simplified 100 years age. Many new mathematic models have been developed, which provide more perfect description of demographic processes. But, the understanding of the changes of qualitative parameters has not improved a lot.

The theory of demographic transition is a bright example, which tries to explain the global structural shifts in reproductive behavior of the population Thus, demographic transition had different characteristics even in the European countries, resulting in their division into several “types”. Recently, the changes of demographic processes in the countries of Asia and Africa have become so different of the classical examples, that it is rather difficult to explain them this way.

Finally, demographers can only constitute the realized fact, when a process is ended. Demographic theory does not provide a certain answer on questions about the future population. The methodology of demographic projections, being based on a uncertain concept of demographic transition, suggests direction of the population system to stabilization.

The probabilistic approach could be regarded as development of demographic projections. But, its theoretic base is also weak, while the expert estimations are used as substantiation of projections (who can be wrong), time series (though the dynamics of demographic processes can change) and consideration of correctness of the previous projections (again, there is no understanding of errors).

But, it is purposeful to use the theory of not-balanced systems in probabilistic approach to demographic projections. The population can respond to the peculiarities of such a system, regarding a capacity to self-organization; possible large turns in the natural and mechanical movement in the points of bifurcation etc.

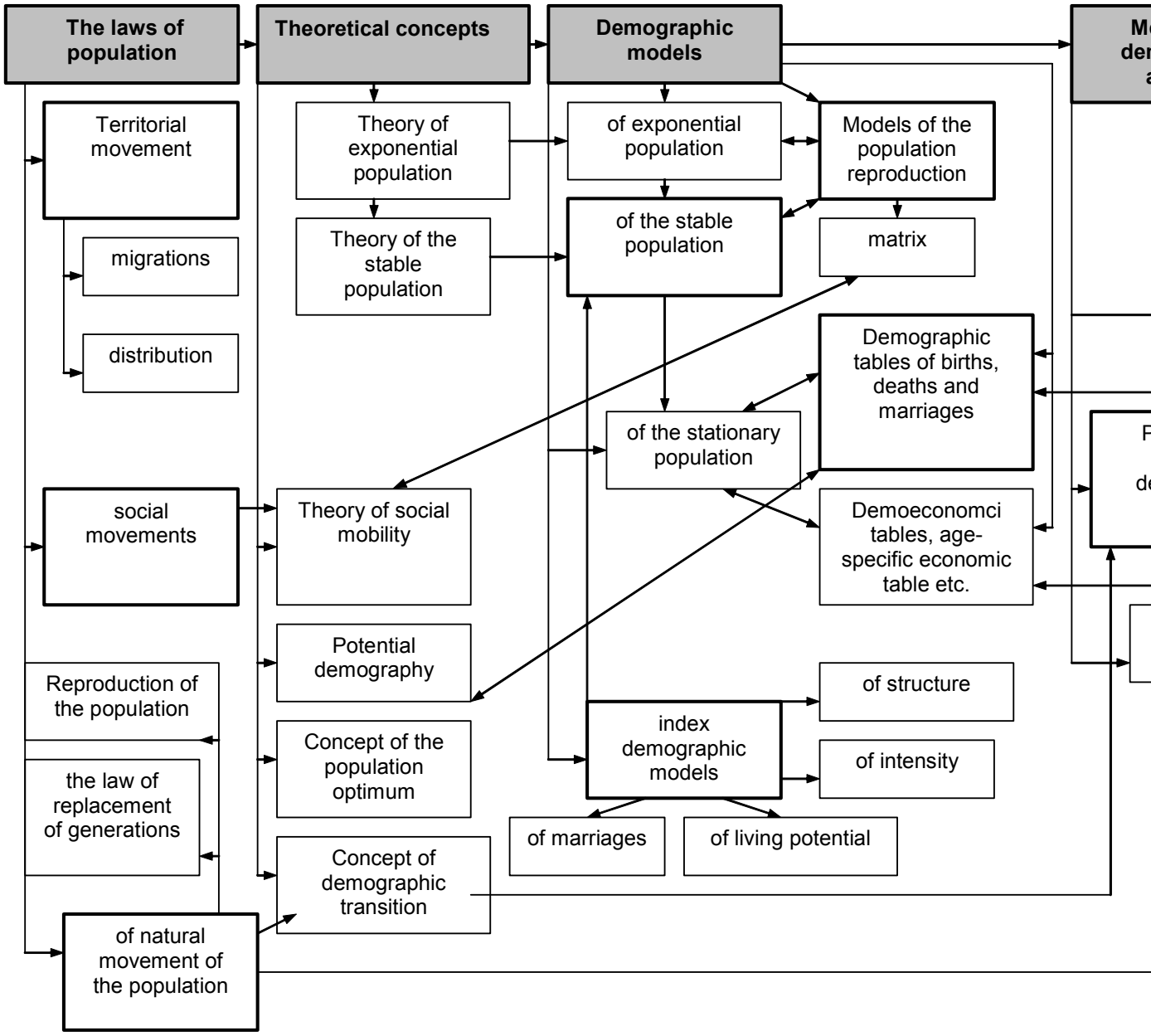

Fig. 1.1. The simplified system of theoretic demographic constructions and methodological approaches.

2. THE POPULATION NUMBER AND TERRITORIAL DISTRIBUTION

2.1. The population number dynamics

As on January 1, 2005, the number of the permanent population of Ukraine was 47100.5 thousand persons, while there were 46834.9 persons on the 1st of October of 2005. Presently, our state occupies the seventh place among the European countries by the total population number (after Russia, Germany, Turkey, United Kingdom, France and Italy) or the fifth place among countries with territories, situated exclusively in Europe.

The growth of the population number has been observed during the most of the XX century, despite of periodical wars and famines. In 1989, the number of citizens of Ukraine has exceeded the rate of 1913 almost in 1.5 times (within the modern limits). But the preconditions of the depopulation have been developed in the country long before the beginning of 1990. Firstly, the transition to the narrow reproduction of generations has taken place in 1960's in the result of the global trends (when a generation of daughters is smaller than a generation of their mothers). Secondly, the progress of health protection system has resulted in increase of the average life expectancy, increase of a share of persons, who reach elder age, and respective transformations of the age structure of the population – development of the population ageing. It is known, that the general reproduction coefficients (which determine the dynamics of the population number) largely depend on the age structure: a probability to die is always higher among persons of elder population groups, as compared to the youth, while only women of young and middledle age take part in childbirth. So, even under high intensity of birth rates and low death rates, caused by structural factors, the number of born persons will be small, while the number of died ones will be large.

Though the total population number has been growing, the slowing down of the population growth has been observed in the middle XX century in the result of combined action of intensive factors (decrease of birth rates) and structural factors (raising of a share of elder persons within the population) (Fig. 2.1.1). Thus, the population number has grown almost on 12.6% during the first period between population censuses after the World War II (1959-1970), on 5.6% during the second one (1970-1979) and on 3.9% during the third one (1979-1989).

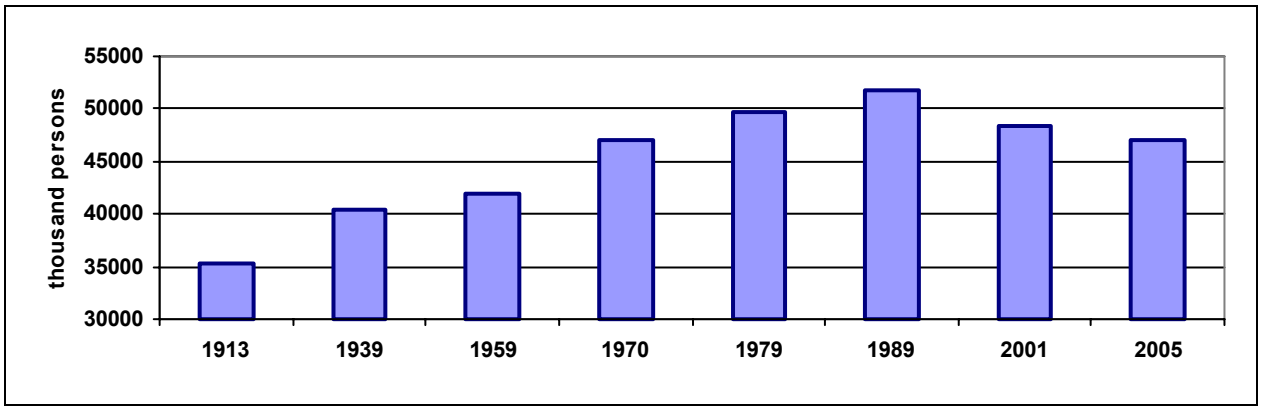

Fig. 2.1.1. Dynamics of the available population in Ukraine during 1913-2005.
1913 and 1939 – by estimation within the present limits, 1959, 1970, 1979, 1989, 2001 – by the data of Censuses, 2005 – by estimation of the State Statistics Committee of Ukraine as on October 1

The radical changes in the trends of the population dynamics have been observed during 1990's in Ukraine. In 1991, the total number of persons, who have died, exceeded the number of born persons for the first time under absence of famines or wars, while the decrease of the total population number started two years later (the module rate of the positive balance of migration was less than the natural decrease rate); the balance of external migrations was negative a year later. As a result, the number of the Ukrainian population has decreased on 3.8 mln. persons during 1993-2001, after reaching its maximal indicator (52.2 mln. persons at the beginning of 1993). The rates of decrease of the population have been slowing down during the last years, though the rates of this reduction are very symbolical: while the population growth rate was 99.0% in 2001, it made 99.1% in 2002, 99.2% in 2003 and 99.3% in 2004.

The decrease of the population number, resulting from the trends to have few children and of the population ageing, is common for post socialist countries of Europe. Regarding the European countries of the former Council of Mutual Economic Aid, the population growth rate has been higher than 100% only in Slovak Republic and Poland, starting from the middledle 1994 and till middle 2001. The correspondent Ukrainian rate was 93.8% - just like in Lithuania, slightly higher than in Bulgaria, Latvia and Estonia and lower than in Hungary, Belarus, Russia, Romania and Czech Republic. Contrary to the transition countries, the developed countries of Europe presently experience a slow growth of the population, caused by either exceeding of migration incomes over natural movement losses (Germany, Italy) or by preserving of the additional natural growth, owing to the long-term inflow of migrants (France, Switzerland etc.).

Natural movement has been the main determinant of the population number dynamics during the second half of the XX century in Ukraine. Totally, the exceeding of births over deaths provided more than 90% of the population growth during 1959-1989, while almost 90% of the total reduction of the population number resulted from natural decrease during 1989-2001 (Fig. 2.1.2).

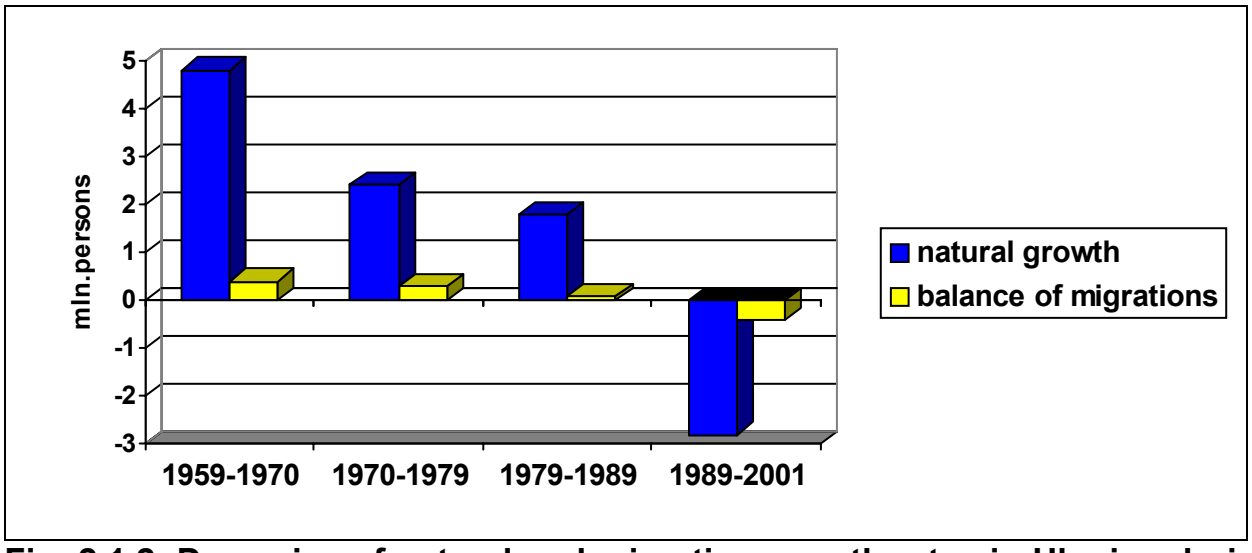

Fig. 2.1.2. Dynamics of natural and migration growth rates in Ukraine during 1959-2001.

The balance of migration has become larger (by its module meaning), than natural growth only during 1990-1992 (Fig. 2.1.3). But, the natural losses of the population had already exceeded the migration outcomes in 3.4 times in 1993, while in the next years the contribution of migration into the population dynamics has been constantly decreasing. The positive balance of migrations has covered only 1% of natural losses during January-September of 2005.

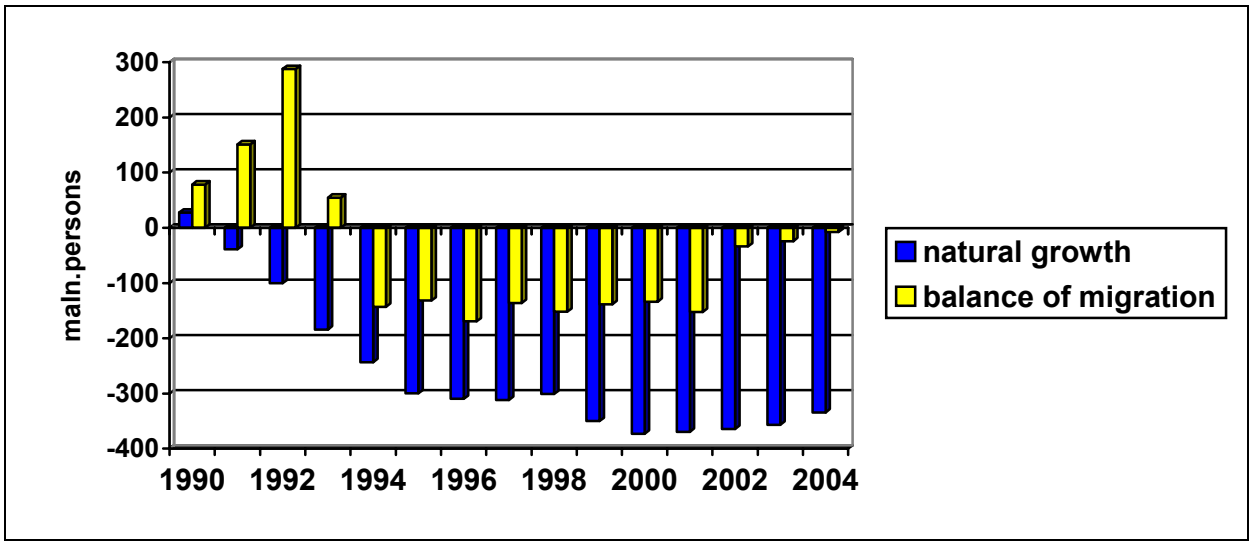

Fig. 2.1.3. Dynamics of natural and migration growth rates in Ukraine during 1990-2004.

The decrease of the population number has started during the Soviet times in some regions. Thus, according to the population census in 1989, the number of citizens was smaller, as compared with the previous census of 1979, in 7 regions (Vinnytska, Zhytomirska, Kirovogdradska, Sumska, Khmelnitska, Cherkaska, and Chernihivska oblasts). At the same time, high rates of the population growth have been observed in some regions: the number of population has grown in 2.7 times in Sebastopol city during 1959-1989, while in Kyiv city – in 2.4 times, in AR Crimea – almost in 2 times. The notable changes have taken place in the territorial structure of the population distribution in the result of non-uniform dynamics of the population number during 1959-2001. A share of the citizens of the capital city has grown more than twice in the total population number (from 2.6 to 5.4%), while a share of Crimeans– in 1.5 times (from 2.5% to 4.2%). Contrary, a share of the population, residing in the regions, bordering with Kyivska region (in particular of Vinnytska and Chernihivska ones) has decreased on 0.7-1.5 percentage points.

During 1993-1994, depopulation has been observed practically in all regions of Ukraine. The population growth has been noticed during the longest period in Rivnenska, Ivano-Frankivska and Zakarpatska regions (depopulation has been started there in 1995, 1996 and 1997 respectively). In 2002, the number of the population of Kyiv city started to grow again (after 9 years of decreasing) in the result of migrations. Generally, the growth of the population has been noted only in Kyiv city and several western regions (Zakarpatska, Rivnenska oblasts) during the last period between censuses, while the regions of Donbas have experienced the largest population losses. The decrease of population has been taking place in all regions and in AR Crimea and city of Sebastopol during the period of 5.12.2001 - 1.10.2005, while a small growth has been registered in cities of Kyiv.

2.2. Structure of the population by citizenship[1]

According to the population census in 2001, 48143.0 thousand persons (99.35% of the total population) are citizens of Ukraine. There are 192.6 thousand foreign citizens in our country (0.40% of the total population) and 84.0 thousand persons without citizenship (0.17%), while another 37.5 thousand persons have not specified their citizenship (0.08% of the total population) (regarding the permanent population, foreign citizens make 0.35%, persons without citizenship – 0.17%).

The absolute majority of the foreigners (85.5%), who belong to the available population of Ukraine, are citizens of the CIS and Baltic states. More than a half of all foreigners and almost 63% of citizens of the "new foreign countries" make citizens of Russian Federation (103.7 thousand persons), there are also numerous groups of citizens of Moldova (15.1 thousand), Armenia (10.7), Azerbaijan (8.5), Georgia (6.4), Belarus (5.9), Uzbekistan (5.4) and Kazakhstan (5.2 thousand persons).

There are only 27.9 thousand citizerns of the "old foreign countries" within the available population. The most numerous groups include citizens of Vietnam (5.0 thousand persons), China (3.0), India (2.3), Jordan (1.7), Syrian Arab Republic (1.5), Israel, the USA and Poland (by 1.1 thousand persons).

Almost all ethnic Ukrainians, who reside constantly in Ukraine, are the Ukrainian citizens, while foreign citizens and persons without citizenship make only 0.13% of their total number. A share of non-citizens of Ukraine is also small within the majority of ethnic groups of the former USSR (in particular, it makes 1.3% among Russians) and within ethnic groups, which have been residing in our country for ages. A share of non-citizens is very high among foreigners from the "old foreign countries": respectively 85.0% among citizens of Vietnam, 77.3% among citizens of India and Pakistan, as well as of China, 59.9% among Arab citizens, 59.0% among citizens of Afganistan and 59.0% among ethnic groups, who are aggregated into a group "other nationalitites" (including nationalities of Africa, Latin America, some countries of Asia and Europe). Regarding ethnic groups, which origin from the present and former "hot spots" of the CIS (Chechens, Tadjiks, Azerbaijanians, Armenians, Georgians) thess indicators make 16-37%, as well as among Coreans and Kurds (a part of these ethnic representatives are former citizens of the USSR, another part – those, arrived from abroad).

The males exceeding can be observed in sex structure on non-citizens of Ukraine, as men make 54.1% of foreigners in the presenr population and 51.2% of persons without citizenship, while women notably dominate among the Ukrainian citizens (53.7% against 46.3% of men). Particular gender imbalances are observed in the structure of citizens of the "old foreign countries": there are 3,404 males per 1,000 females. Persons, who origin from countries, which have not belonged to the former Soviet Union, are mostly repesented by students of the Ukrainian high

[1] The population structure by citizenship is analysed for the present population by some aspects, while regarding other aspects – for the constant population/

education establishments, diplomats, employees of foreign companies and international organizations, refugees. Men dominate within all these categories.

Regarding citizens of the 'new foreign countries', their gender ratio is almost parity, while the raised share of men is observed among the citizens of Azerbaijan (60.8%), Georgia (58.7), Tagjikistan (57.6) and Armenia (54.1%), i.e. of those republics of the former USSR, which experienced military conflicts and long periods of political instability (a part of the contingents is presented by refugees and forced migrants). A notable excededing of women is observed among citizens of Belarus (56.5%), Kazakhstan (54.6%) and Latvia (54.2%). As to first two ocntingents, a high share of females is provided by the highest rates of ageing among foreigners (women absolutely dominate in the elder population groups): a share of persons in the age of 60+ is 19.0% among the citizens of Belarus and 20.6% among citizens of Kazakstan. Thus, they are insignificantly smaller than the correspondent rate in Ukraine (21.4%).

Generally, age structure of foreigners is characterized by small shares of elder persons and infants (a high share of infants is observed only among citizens of Azerbaijan and Armenia) and raised shares of young and middledle-aged persons (Fig. 2.2.1). Particularly sharp exceeding of younger working age groups is observed among citizens of the old foreign countries – almost 73% of them are in the age of 18-39. The rate of ageing of these persons is only 2.7%; regarding eight most numerous groups, only citizens of Poland have raised ageing rates – 15.4%, while these rates are 7-9% among citizens of Israel and the USA, 0.6% among citizens of China and they do not reach 0.1% among citizens of Vietnam, India, Jordan and Syrian Arab Republic.

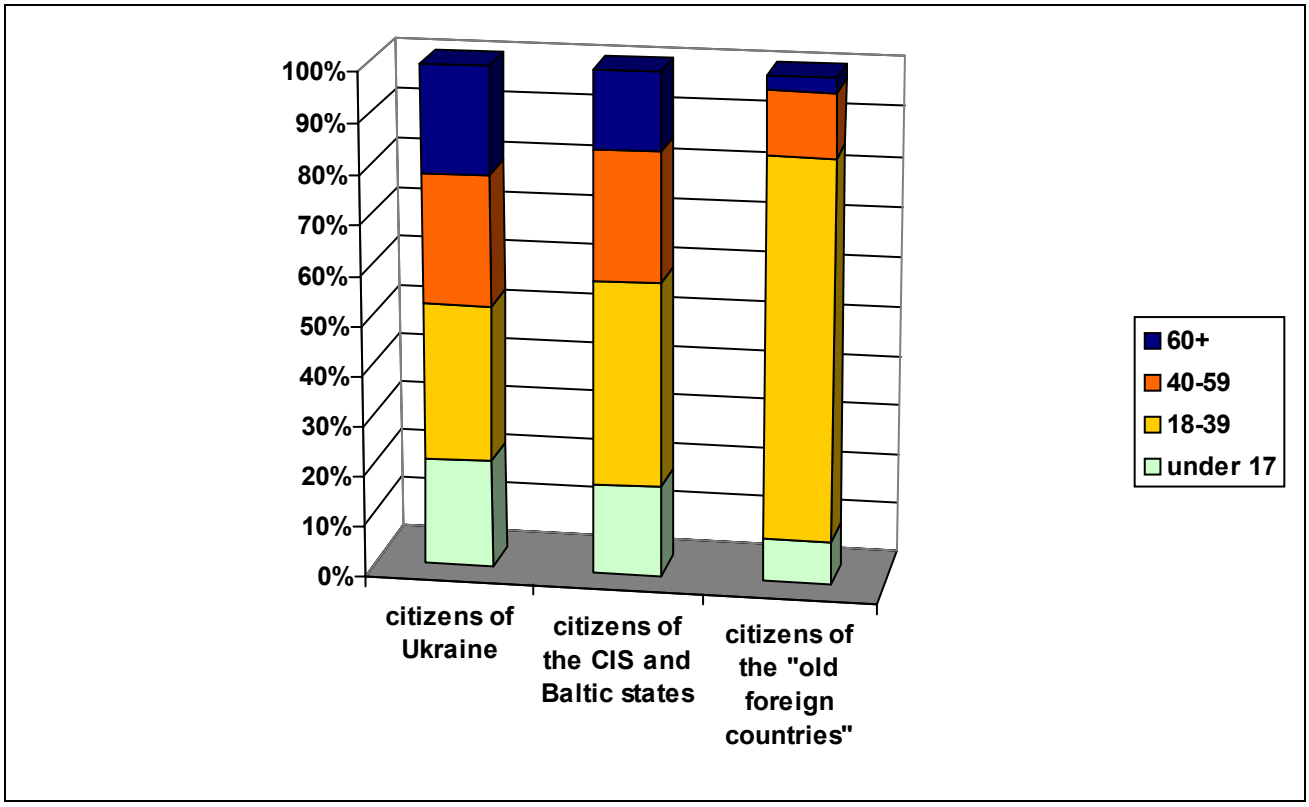

Fig. 2.2.1. Age structure of the Ukrainian citizens and foreigners

Foreign citizens are mostly concentrated in urban settlements in Ukraine: 76.4% of their contingents reside there (within the available population). The

largest urban concentration rate is observed among citizens of the 'old foreign countries' (more than 97%). There are as much rural residents as urban ones among Moldovians, while just slightly less rural citizens of Uzbekistan and Kazakhstan, as compared with urban ones.

The largest share of persons, who are not citizens of Ukraine, is registered in Sebastopol city: residents of other states (mostly of Russia) and persons without citizenship make almost 3.7% of the constsant population, that is in 7 times higher that in the country as a whole. This share is also higher than 1% in two regions – in the AR Crimea (citizens of Russia, Uzbekistan and persons without citizenship) and in Odeska region (persons without citizenship, citizens of Moldova and Russia). The smallest shares of non-residents are observed in the western regions of Ukraine.

Citizens of Russia, who reside in Ukraine constantly, are mostly concentrated in the Crimea (about a quarter of the total number), as well as in highly urbanized industrial regions. The most numerous contingents of citizens of Uzbekistan and Kazakhstan reside in the AR Crimea (including many Crimean Tatars, who have not the Ukrainian citizenship yet), while persons with origin from the Caucasuaus states are concentrated mostly in Donbas, industrial Near-Dnieper region and in Kyiv city, Kharkivska and Odeska regions. Distribution of Moldovians in Ukraine corresponds to prevalence of ethnic moldovians in our state (mostly in Odeska, Mykolajivska, Vinnytska and Chernivetska regions). The citizens of Belarus are concentrated in the northern regions (mostly – in Chernihivska region) and in the city of Kyiv, while citizens of the 'old foreign countries' - in the cities of Kyiv, Kharkiv and Odesa, as the largest numver of high education establishments are situated there.

2.3. Urbanization and peculiarities of territorial distribution of the population

The density of the population is high in Ukraine: according to the data of the last census (5.12.2001) there were 80 persons per 1 km^2, as on the beginning of 2005 – 78 persons per 1 km^2. Regarding this indicator, Ukraine occupies the 4^{th} place among the countries of the foremer Soviet Union (after Moldova, Armenia and Azerbaijan). The population density is much higher in Ukraine, as compared with the majority of countries of America, Africa, Western Asia and Northern Europe, as well as of almost all largest world countries (usually, there are poorly inhabited regions), while the density rates are much higher in the majority of the "old foreign countries", countries of Eastern and Southern Asia (Fig. 2.3.1).

The population density depends on the rate of urbanization, concentration of large cities and density of rural population. The highest rates of density are registered in Kyiv and Sebastopol cities (correspondingly 3333 and 421 persons/km^2), high rates are also observed in the easterm industrial regions (in particular in Donetska region, where it reaches 176 persons/km^2) and Subcarpathian region; the population density is low in the northern and southern regions (the lowest rate is registsred in Chernihivska region – 37 persons/km^2).

More than 2/3 of the Ukrainian population (67.7%) reside in urban settlements. In Ukraine, settlements, which are approved by legislative acts as cities and settlements of urban type, are considered as urban ones. Usually,

settlements with number of residents in 10,000 and more are considered as towns, setlttlemtns with population from 2,000 to 10,000 persons are considered as settlements of urban type, in case if the main part of the population are not employed in agriculture.

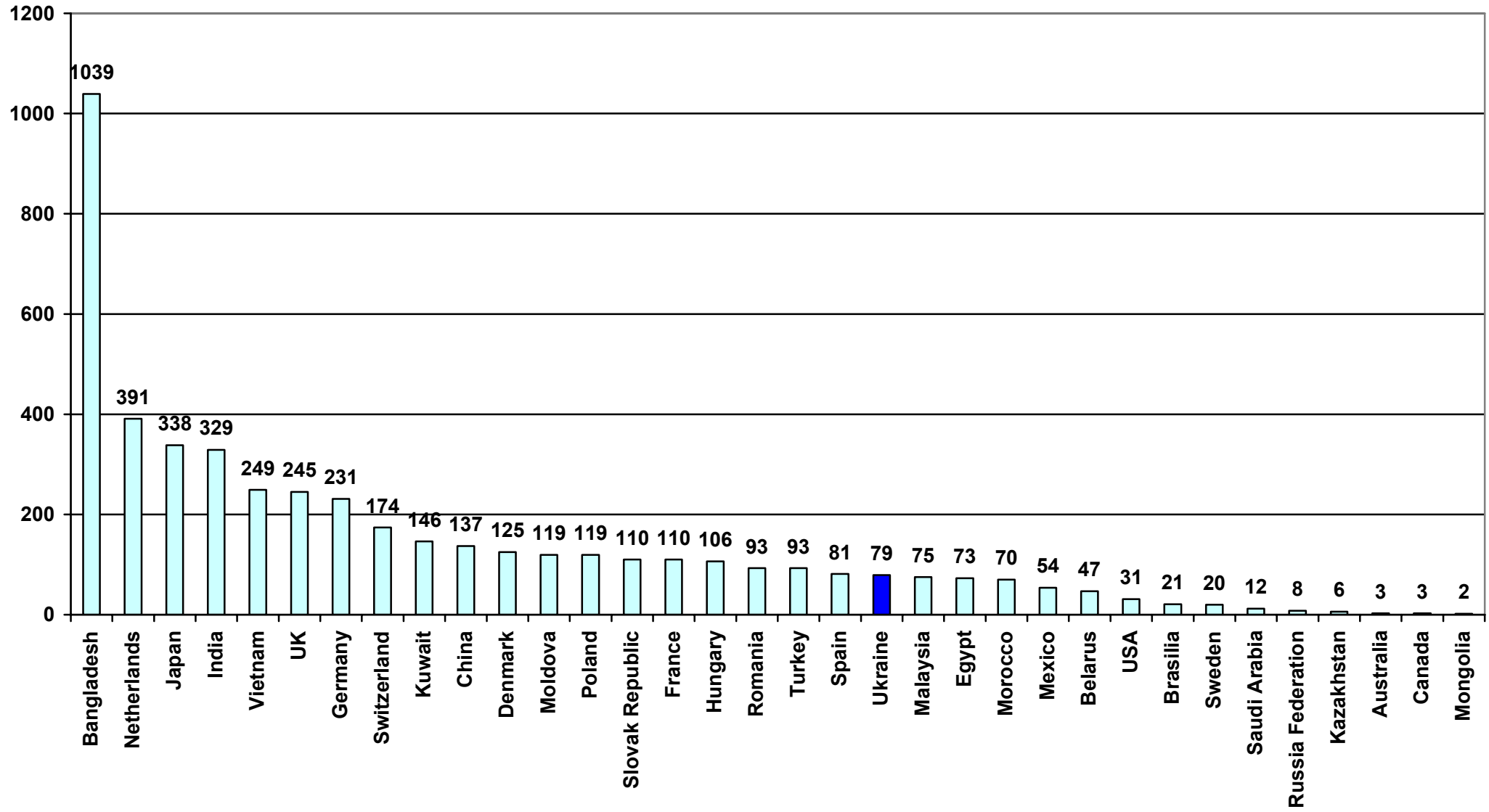

Fig. 2.3.1. The population density in some world countries (persons/km^2) as on the middle of 2003.

During 1939-1989, the rate of urbanization (a share of urban population) has gorwn almost twice in Ukraine; it has reached the rate of 50% in 1964. The development of urbanization occurred mostly by migration inflow to cities from rural area: the balance of rural population migration has been -120-290 thousans during 1960-1980, while balance of urban population – +150-360 thousand persons yearly. As the young people prevail among migrants, these trends of migration contribute to the population ageing in rural area and slowing down of the ageing in cities. As a result, more favourable natural growth rates have been observed in urban settlemens, as compared to rural area (in particular, the crude birth rate in cities is higher that in rural area, though the intensity of births is much higher in rural area), also resulting in urbanization growth.

The flows of migrants from rural area have been reduced with beginning of economic crisis, contrary, the return migration flows have grown: the importance of private part-time farms as of a reliable source of incomes has grown under conditions of wide-spread unemployment and limited possibilities to find a good-paid job. As a result, a share of urban citizens has not practically been changed during the Ukrainian independence.

Generally, the number of urban population has grown on 70.1% during 1959-2001, while the numebr of rural population has dropped on 30.1% under conditions of the total country's population growth on 15.7% (Fig. 2.3.2).

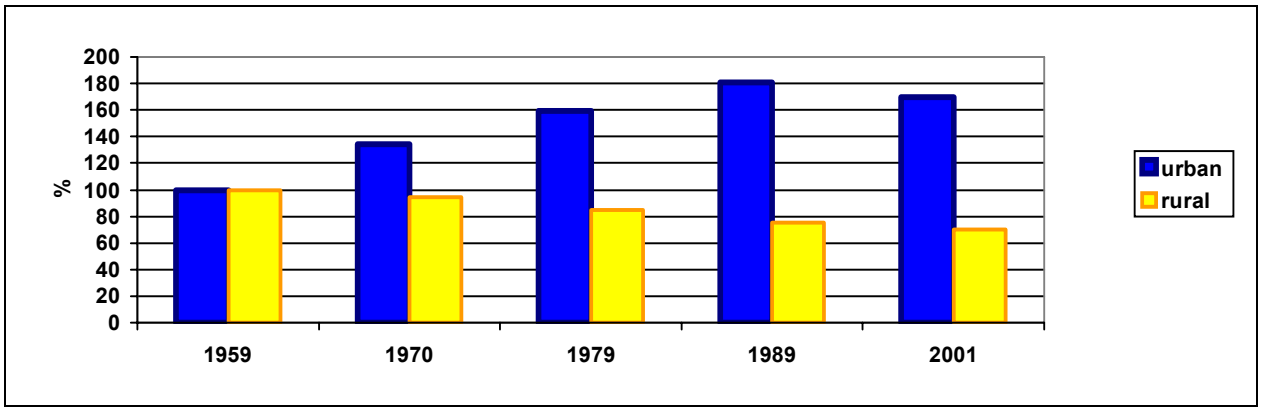

Fig. 2.3.2. Dynamics of urban and rural population during 1959-2001 (1959 – 100%).

The trend of urbanization growth has been renewed during the period after census: during 2002-2004, a share of the urban population has grown on 0.1-0.2 percentage points yearly.

The most urbanized regions (without Kyiv and Sebastopol cities) include Donetska (90%), Luganska (86%) and Dniepropetrovska oblasts (83%). The low rate of urbanization (less than 50%) is observed among the population of Vinnytska, Rivnenska, Ternopilska, Ivano-Frankivska, Chernivetska and Zakarpatska regions (recently, a share of urban population has been less than 40%). At the same time, according to the census in 1959, urban population dominated only in Crimea and in five industrial regions of Ukraine.

During the first period between population census after the World War II and the last one, the growth of the urban population has been observed in all regions of Ukraine: on 13-19% in Donbas, in 1.5 times in Dnepropetrovska and Kharkivska regions, in 1.7-2.4 times in the majority of regions, in 2.7 times in Ternopliska

region, in 3.5 times in Rivnenska region. At the same time, the growth of rural residents has been registered only in the Crimea (on 78.2% due to a large migration inflow) and in Zakarpatska region (on 20.9% due to high natural growth).

As on 1.01.2005, there were 456 cities[2], 886 settlements of urban type and 28,585 rural settlements in Ukraine, united into 10,281 rural councils. As on 1.01.2005, there were 44 large cities with population over 100,000 persons (according to the census data, there were 46 such cities, while the population of another 5 cities have reached 100,000 during 1990's) and 53 cities with population from 50,000 to 100,000 persons. About 38.5% of the total population (56.9% of the urban population) reside in large cities. A half of large cities are concentrated in the eastern industrial regions (6 – in Donetska region, 5 – in Dnepropetrovska, 4 – in Luganska, 3 – in Zaporizka) and in the Crimea (3 – within AR Crimea and Sebastopol city). There are 4 cities-millionairs in Ukraine - Kyiv (2,666 thousand persons), Kharkiv (1,465 thousands), Dnepropetrovsk (1,054 thousands) and Odesa (1,007 thousands); there are also 5 large cities – Donetsk (1,000 thousands), Zaporizhzhya (799 thousands), Lviv (734 thousands), Kryvyj Rih (697 thousands) and Mykolajiv (509 thousands). Of them, the population growth has been registered only in three largest cities in Ukraine after the First All-Ukrainian census of the population (Kyiv, Lviv and Kryvyj Rih).

The regional peculiarities of forming of rural settlements are related to the territorial differentiation of natural conditions (they make a slight impact on urbal population). Small villages are usually situated on heights of relief (under condition of excessive moisture, lowlands are often swamped). Contrary, the villages of steppe zone are usually larger; they are concentrated in gullies and other lowlands. Such situation provides them with deficite water and protection of hot dry winds. The villages in the mountain regions of the Carpathians and Crimea are situated mostly in the mountain valleys: villages are situated along river valleys by narrow strips till 10 km.

As on 5.12.2001, there were 504 villages with population over 3,000 persons in Ukraine, including 94 villages with population over 5,000 persons. The largest number of large villages is observed in Zakarpatska and Odeska regions, while there are practically no such villages in Polissya.

[2] Including 2 cities without population.

3. EVOLUTION OF SEX-AGE STRUCTURE AND ITS IMPACT ON THE POPULATION REPRODUCTION

3.1. Transformation of sex-age structure of the population

The peculiarities of sex-age structure of the population result from demographic history of a country or a region. Sex-age ratios are formed under impact of changes in the natural and migratory movements. So, it is possible to estimate the rates of natural growth in the past. This indirect way is effective in a case of unavailable of unreliable information of the current statistics, as we can use only the data of the population censuses.

But, age structure is defined not only by the rates of natural growth. Obviously, there is the inverse dependency. For instance, the “young” and relatively “old” population would provide different numbers of deaths under condition of the same death rates. It would be larger among the “old” population. The number of births is also influenced by a share of persons in the active fertile age. „Income” or „outcome” of a relatively large (by number) group of the population to (or out of) the fertile age would determine the correspondent increase or decrease of the number of births under conditions of equal birth rates.

Practical importance of investigation of age structure is growing in the context of the expected increase of the population ageing. Forming of the main financial document of a country – the Budget, development of strategies of development of cities and rayons is impossible without information on the number of different age groups of the population: those of school and preschool age, working age, pension age etc. These data determine planning of incomes and expenditures of the local budgets, projecting of the social infrastructure objects.

As demographic waves within age pyramid are often connected by reason-consequences dependencies, it is purposeful to carry out the analysis of diagrams from above, i.e. from elder generations. The corresponding analogies could be provided among parents and children in this case.

The largest crises of the XX century have influenced age structure of the population of Ukraine. It still evidences on the catastrophes, experienced by the Ukrainian population during the World War II and famines. The number of persons, who have been born during the World War I and earlier, is very small; it does not shown at the diagram any more (Fig. 3.1). A share of age groups, who have suffered of the war (those, born during 1919-23) is permanently decreasing (Fig. 3.1).

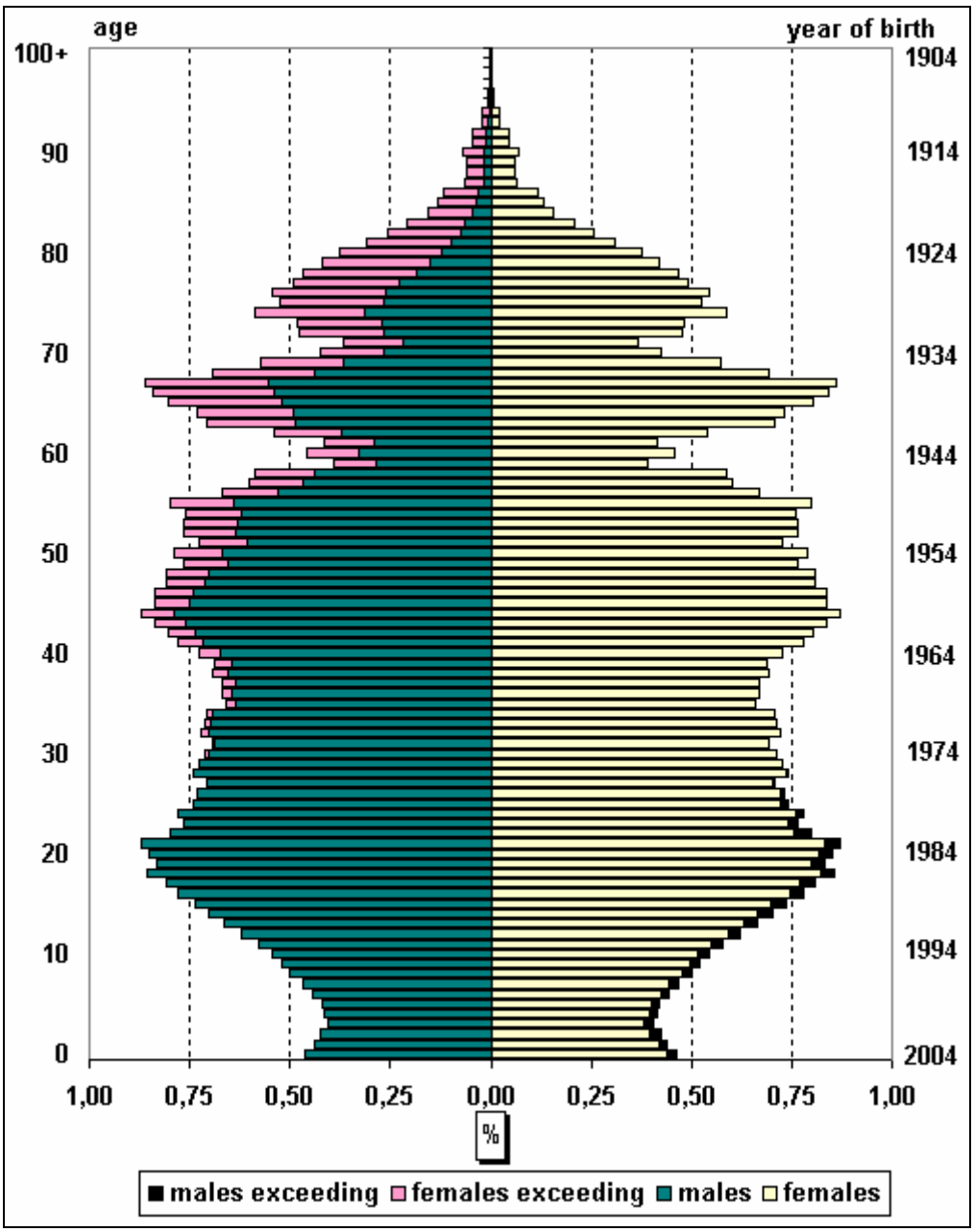

Fig. 3.1. Sex-age pyramid of the population of Ukraine at the beginning of 2005.

The fortune of persons, born in 1926-31, has been more successful in the demographic aspect, as compared to the previous and future generations. So, an increase of a share of persons in the age of 74-78 is observed at the age pyramid of 2005. Famines of 1932-33 have made a negative impact on sex-age diagram of the population of Ukraine as in the result of infant mortality growth during these years, as in the result of decrease of fertility and deterioration of reproductive health of the population. The decreased share of persons in the age of 68-73 at the beginning of 2005 results from the factor.

It is known that during 1935-40, before the World War II, the growth of births rate has been observed. Owing to this growth, we can observe the next demographic wave of persons in the age of 64-67. A sharp decrease of births was observed in 1942 in the result of the start of military actions; correspondingly, the number of persons, who were in the age of 62 at the beginning of 2005, is small. There was no large decrease of births in 1942 due to some lag of delay.

The after-war compensational growth, which would be reflected in age pyramid of Ukraine, has been smoothened by distortion of sex structure in the result of the war and famine of 1946. So, the notable „rotundity” of the pyramid is observed in the age of 41-46

(persons, who have been born during 1958-63, when a large number of persons, born during 1935-40 start to enter the fertile period). The “baby-boom” phenomenon also has been observed at the beginning of 1960’s in the majority of the world countries.

The „gap” of sex-age pyramid, responding to generations, which have been born during 1964-69, is related to the decreased number of their parents, who have been born during the war in 1942-45. Rather high fertility, which have been observed at the beginning of 1970‘s in Ukraine, is reflected in a “trunk” in the age of 30-35.

Though expansion of the pyramid in the age of 22-29 responds to the decrease of fertility during 1977-82, it is still growing (also as a share) in the result of the increased number of parent generation of “baby-boomers”.

The next notable “step” of persons, who were in the age of 21 at the beginning of 2005, results from growth on fertility owing to prolonging of maternal leaves in 1983. The rotundity is been kept till 1987, when the action of this pronatalist measure has been exhausted and fertility (as well as the number of births) started to drop. The growth of the population number in the result of anti-alcohol company of 1986-87 has also contributed, as it favoured to the decrease of mortality.

A huge gap of persons, born during 1990-2001 is a prominent feature of age pyramid of the population of Ukraine. Probably, this large decrease of birth rates results not only from deterioration of the living standards and social security in this period, but also from realization of the postponed births of the previous period. The gap, formed by the youngest generations, is even exceeding the gap, formed by the World War II (Fig.3.1). The demographic wave of persons, born during the last decades, will be observed in the age structure of the population of Ukraine due to a smaller number of their descendants in the period, which is approximately equal to 25-29 years. A small number of persons in the age of 3-6 has already become a formal reason to closing of preschool establishments[3]. There are also discussions on the need to integrate schools. Thus, this problem has been making an impact on the work of educational establishments. The situation will be worsened in a few years, when these children will reach age of 17-20; correspondingly the demand on high educational establishments will decrease, large fluctuations will be observed at labour market.

Expansion of the basis of the pyramid (increase of the number of persons in the age of 0-2) results as from growth of births, as from structural factors. Presently, women in the age of 20-24 are characterized by the highest reproductive activity in Ukraine. The persons, born in the middle of 1980’s are reaching this age nowadays (Fig. 3.1). The growth of the number of persons in the fertile age determines the growth of births. When comparing fertility in 2001 (the lowest fertility) and in 2004, it is obvious that the growth of births results on 10.9% from the increase of their intensity, and on 3.6% – from the structural factors. The structural factors will stably contribute to increase of births during the nearest 4-6 years under any variant of demographic processes.

The average age of the population is defined as by fertility rate, as by mortality rate. Usually, the arithmetic weighted and median indices are used. Thus, the average arithmetic age of the population of Ukraine was 39.5 years at the beginning of 2005. It has grown on 3 years since the beginning of 1990 (Fig. 2.2). Unfortunately, it is related not to growth of life expectancy, but mostly to reduction of fertility. The dynamics of mortality has contributed rather to decrease of the average age due to reduction of mortality in the youngest age groups and growth of mortality in the middle and elder age groups. The structural factor has made a certain impact on the increase of the average age as well, owing to incoming of rather large age groups into elder age groups.

[3] Another reasons include the need in forming spaces for shops, offices, etc. in these buildings.

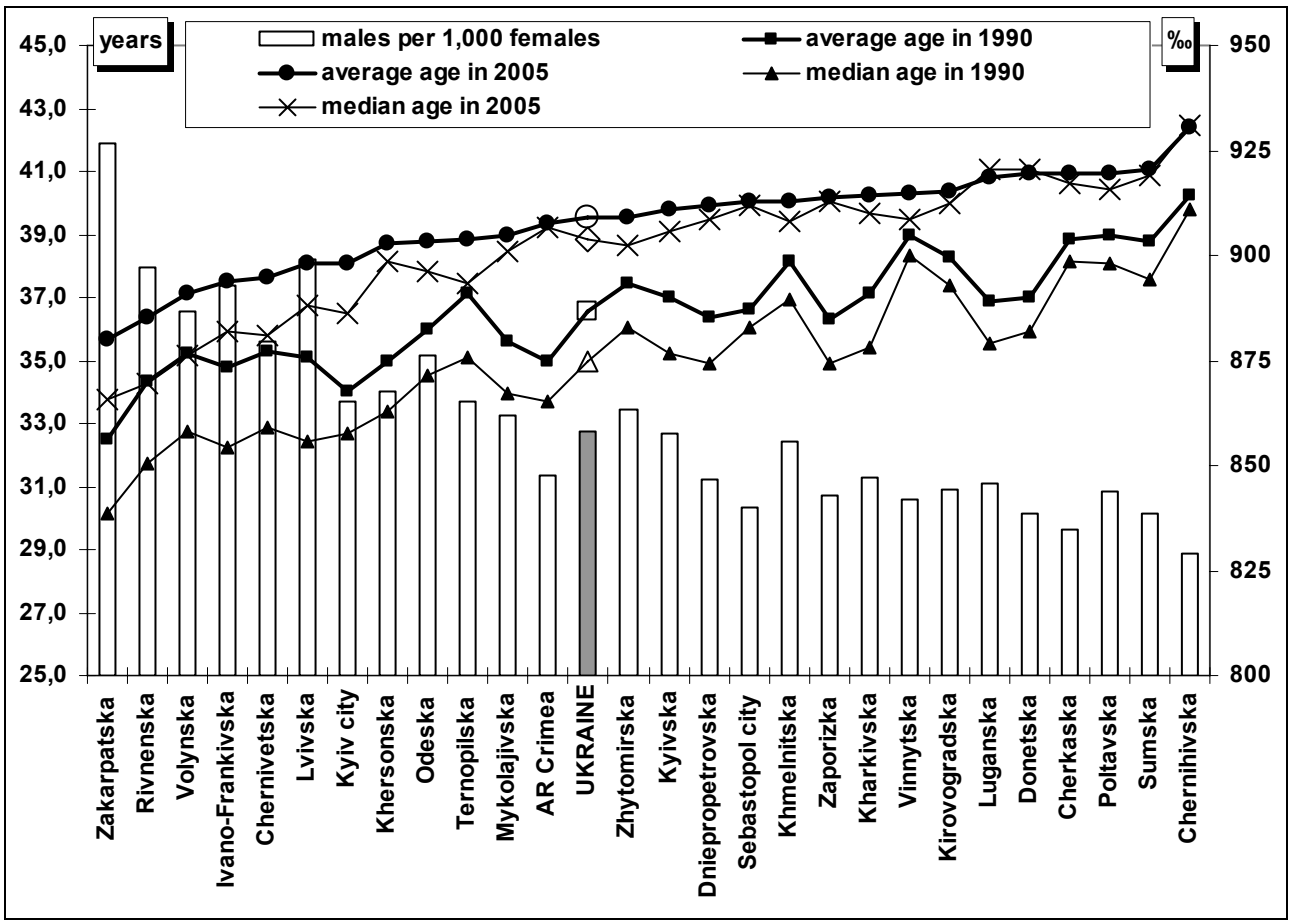

Fig. 3.2. Some indicators of sex-age structure of the population of Ukraine and its regions.

Ukraine is one of the "oldest" countries of Europe. During the last decade, it has reached such demographically developed countries as Austria, Finland, France, Norway (Table 3.1). But, it results not from the growth of life expectancy, but actually, by its decreasing. The reasons are found in even faster decrease of fertility during this period. Obviously, reduction of a share of the young population has lead to the corresponding increase of elder population groups.

Table 3.1. Rates of ageing of the population of Ukraine and in some countries of Europe (persons in the age over 65, %)[*]

Country	%	Country	%
Austria	15,5	Italy[3]	18,2
Belgium	16,9	Netherlands[3]	13,6
Croatia	15,6	Norway	15,0
Czech Republic	13,8	Poland	12,4
Denmark	14,8	Russian Federation[4]	13,4
Finland	15,1	Spain	17,0
France[3]	16,1	Switzerland	15,4
Germany	16,9	Sweden	17,2
Hungary	15,2	Ukraine[2]	15,9
Iceland	11,6	United Kingdom[1]	15,6

[*] The data are calculated by the population distribution as on the middle of 2001 by Demographic Yearbook 2001. – 52 issue. – UN, N-Y, 2003.

[1] As on the middle of 1999 [2] As on the beginning of 2005, calculated by the data of the State Statistics Committee of Ukraine.

[3] As on the beginning of 2001 [4]As on the beginning of 2004, calculated by the data of the State Statistics Committee of Russian Federation

A comparison of age structure of the population of Ukraine and of one of the “eldest” world countries – Italy – shows, that demographic development of Ukraine has been much more dramatic. „The top” of the Ukrainian pyramid is less in the result of large human losses, caused by famines and World War II (Fig. 3.3.). „The bottom” of the pyramid, though narrowing for the same depth, is not so long, as in Italy. The narrow bottoms of the pyramids are formed by a large decrease of fertility as in Ukraine, as in Italy. But, there are reasons to suggest that stagnation would not have such a long character, as it has in Italy. It is proved as by the structural factor (growth of a share of persons in the fertile age), as by the intensive factors (the growth of births has been observed since 2001).

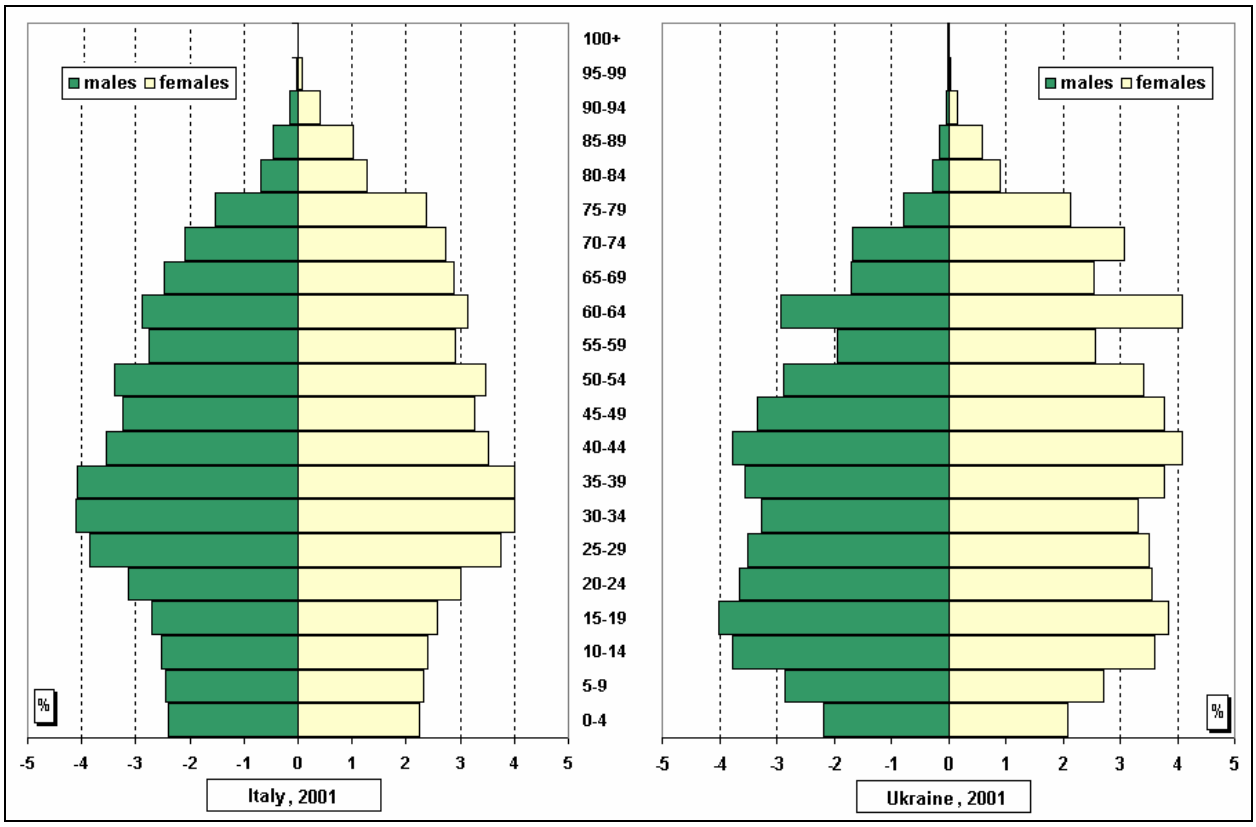

Fig. 3.3. Sex-age pyramids of the population of Italy and Ukraine at the beginning of 2001.

3.2. The ageing of the population and its social-demographic consequences

Age structure of the population determines the structure of public consumption. It is also important, that a ratio of sex-age groups of the population makes a notable impact on production. This thesis is in the basis of structural-demographic theory.

There is a hypothesis, that the technological break of Eastern Asia countries, which have been rather backward after the World War II, has occurred namely due to a relatively large share of young persons. The youth was able to perceive the innovations there, while foreign investments provided with a possibility to use this aspirations. These factors provided with a possibility to develop labour-consuming and high-technology industries. But, when the youth of the after-war period has reached reproductive age, the nest generation, born by them, was small. Later, a share of elder persons has grown. Presently, we are observing the slowing down of the rates of economic development in these countries, which have been called the „Asian Tigers” before.

The generation of “baby-boomers” has also made the similar impact on the economy of the North America. A fast development of automobile industries and construction largely result from activity and the needs of this population group.

Probably, the European economically developed countries are so stable namely due to their “aged” population. It should be noted, that the fast rates of economic growth have been absent there for a long time.

The conclusions can be made of these examples: an “aged” society is rather stable and conservative. High rates of economic growth hardly are possible because of combined impact of psychological and physiological factors.

It also should be mentioned, that the “aged” population has some positive features. Elder persons have valuable life experience and accumulate cultural inheritance of the previous generations. Persons in the pre-pension age have also valuable reserves of theoretic knowledge and productive experience. While in the first case their knowledge is used in scientific and educational establishments, the effective use of possibilities of elder persons is rather rare in the industries. Demographic projections show that the reduction of the working age population will take place soon. So, the problem of raising of pension age will become urgent, resulting in the need of employment of the “young elder population”.

Presently, this problem is faced by France. For instance, administration of such large companies, as “Air France”, “Arcelor”, “Renault”, “Pechiney”, suggest that prescheduled retirement (in France, employees can make an application for retirement in the age of 50-52) is very expensive for the society due to looses of experience[4]. To keep employees of the pre-pension age at their workplaces, a particular attention is paid to ergonomics of a workplace. If the specificity of a work requires special attention or endurance, elder persons are working as consultants, who share their experience with young generations. Thus, the connection between generations is kept; productive traditions of a company are formed and continued.

The population ageing also results in demographic changes in the size and structure of households. A share of households, consisting of pensioners only, is growing; this particularly concerns women. The dependency rate has a general trend to increase. Under conditions of preserving the solidarity pension system, there is a danger of violation of the solidarity principles, as decreased number of persons of working age will not be able to provide the increased number of pensioners. So, the need in transition to a pension system with many pillars has serious demographic preconditions.

Redistribution of financial flows for the benefit of elder persons takes place in the ageing society. The needs of elder persons are considered through the structure of their consumption and preferences. Obviously, consumption will stimulate production of those medicines, which are needed for elder persons. And contrary, development of a market of the long-term use goods, in particular of household appliances, will slow down. Reduction of a share of youth results in short-cutting of funding of education, etc.

The growth of a share and of the absolute number of elder persons has also an impact on the activity of political parties and different public organizations. Support of pensioners will be an important advantage in the electoral competition.

Thus, the population ageing has some notable consequences as at microlevels (a family, a household), as at macrolevels (redistribution of financial flows, shifts in the public production and consumption).

[4] http://www.demoscope.ru/weekly/2004/0149/analit04.php

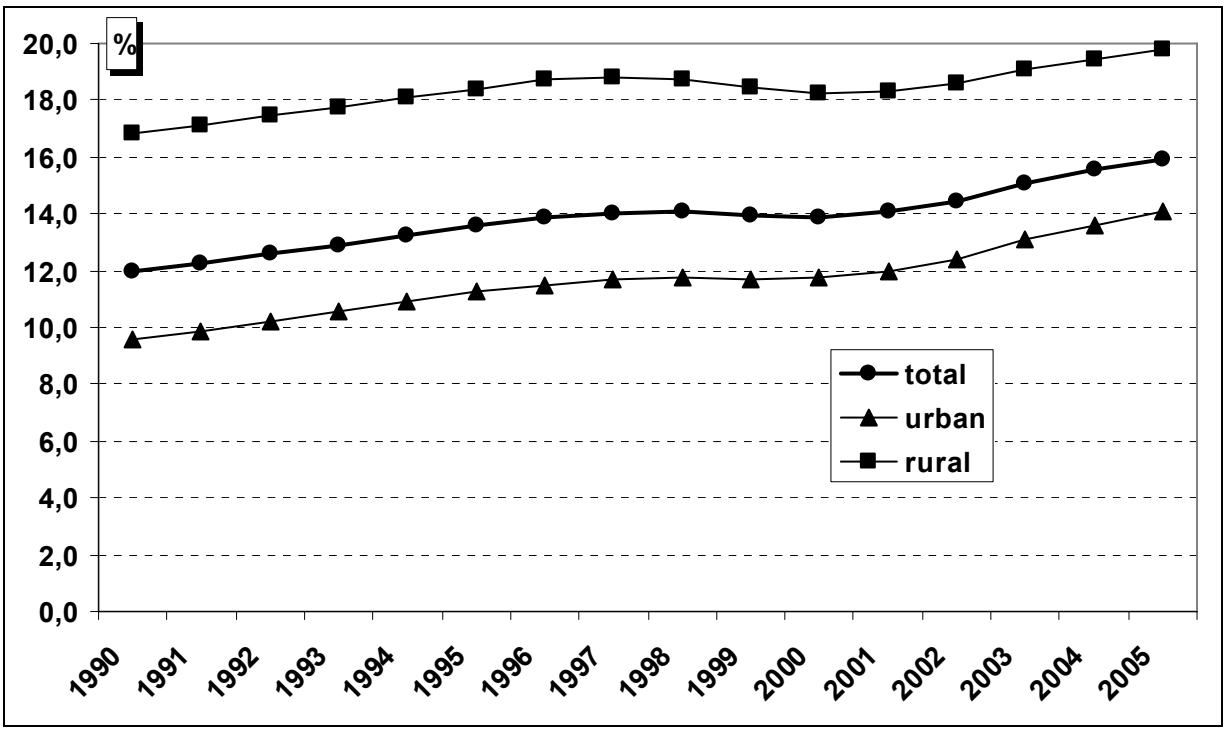

Fig 3.4. Dynamics of a share of the population in the age over 65 in Ukraine.

3.3. Peculiarities of sex-age structure of urban and rural population

Sex-age pyramids of urban and rural population of Ukraine as on the beginning of 200 are presented at Fig. 3.5. The raised share of the population in the age of 17-23 is obvious at the urban pyramid, i.e. in the age of education receiving. As to rural population, the gaps are observed at the corresponding place, responding to a demographic wave in the cities. The lower parts of both diagrams are narrow, evidencing on the similarity of the trends of fertility decrease till 2001. The basement of the pyramid is getting wider again in the result of increase of births during 2002-2004.

Gender disparities prove the males exceeding, as compared to females in the countryside until the age of 45-50. So, we can make the conclusions on more intensive departures of women to the cities. It can be observed at the urban diagram, where women dominate, starting from the age of 25-30.

Although males dominate in the young and middle ages in rural area, women make a major part of the population in pension age. Their exceeding in pension age is larger in rural area, as compared to the cities (Fig. 3.5).

So, we can conclude, that urban-rural migration flows distort the corresponding sex-age structures of the population.

A share of the population in the age over 65 has been increasing recently as among the urban, as among the rural population (Fig 3.5). But, rural population, having already higher ageing rate, has been characterized by the lower rates.

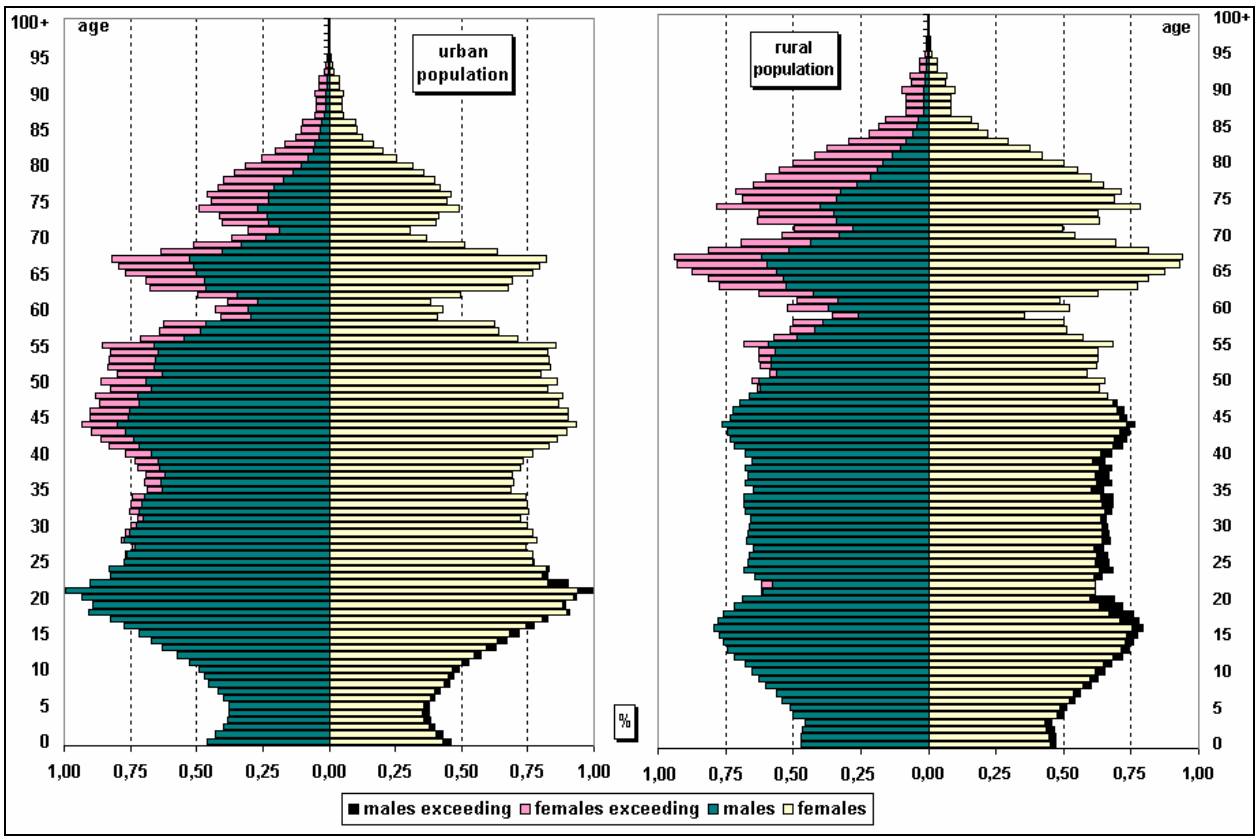

Fig. 3.5. Sex-age pyramids of urban and rural population of Ukraine at the beginning of 2005 p.

3.4. Regional variation of sex-age structure of the population

To reflect inter-regional variations, the grouping of regions by the investigated feature should be done. The methods of cluster analysis provides with a possibility to avoid subjectivity of the researcher. The features of the investigated objects (their numerous characteristics) are presented there as coordinates of multidimensional continuous space with zero curvature. The differences between objects are calculated by the next formula:

$$r = \sqrt{(a_2 - a_1)^2 + (b_2 - b_1)^2 + ... + (\omega_2 - \omega_1)^2}$$

where $a, b, ..., \omega$ – coordinates of objects.

Then, the points with the least summary distances to the objects under investigation are selected in the space. These groups form some clusters of the objects. The number of clusters is determined by a researcher on the basis of a number of the objects under investigation, peculiarities of statistical distribution of the numerous size of features, by which the grouping is been done, as well as on the basis of the aim of an investigation.

Thus, the grouping of the regions of Ukraine is done by a matrix in the size of 27X101 (the number of regions and of age groups). The described methods of clusters with k-means provide us with definition of 4 distinct groups. The decrease or increase of the number of clusters does not provide any new knowledge; it only leads to integration or disintegration of the present clusters. The received groups can be named as following: Western, North-Central, South-Eastern regions and Kyiv city (Fig. 3.6).

Fig. 3.6. Zoning of the territory of Ukraine by age structure of the population.

The comparative analysis of age structures of the population of the western regions and the rest of Ukraine proves the thesis on impact of the demographic history of a nation of its sex-age structure. Indeed, the largest differences of age structure of the population of the ***Western region*** are found in the absence of "gaps" in the elder age groups, which respond to the generations, born during the famine of 1932-33. (Fig. 3.7). Regarding other age groups, the pyramid of the population of this region generally is similar to the Ukrainian diagram. There are also rotundities, responding to "baby-boomers" and their children, as well as "gaps" of descendants of those, born during the War. The exception is made only by age groups of those, born during the last years. This gap is not so distinct, as in the rest of the regions, in the result of higher fertility. Despite of the permanent emigration of the region's population (at least, since the end of the XIX century), a high fertility rate, which has been observed there recently, contributed to an advantaged ratio of age groups of the population. Thus, a share of the working age population in the region is averagely 59.0%, while a share of the younger population – 19.7%.

Visually, sex-age diagrams of the ***South-Eastern*** and of the ***North-Central regions*** are very similar. But, more detailed analysis of age structures reveals the principal differences in the forming of age structures, resulting from migratory impact. Thus, demographic waves of "baby-boomers" and their children are reflected more clear at age structure of the South-Eastern region. It results from a large migratory inflow of the population during the after-war development of the country and growth of industrial power in the eastern region. The structural factor, amplified by increase of birth rates during the middle of 1980's, has provided a wave of their children. A high rate of urbanization of the South-Eastern region results also in low births rates. At the diagram, it is reflected in different form of the pyramids in these two aggregated regions. The gap in the age of 3-10 is not so deep in the North-Central region, as compared with South-Eastern region (Fig. 3.7). Thus, although there are 60.9% of the working populations in the South-Eastern, a share of younger persons is only 15.0%. At the same time, there are only 57.5% of the

working age population in the North-Central region, but 16.4% of the population are in the age, younger than the working one.

Urban population of such a large educational center as ***Kyiv*** has some very distinct peculiarities. As it is known, urban population has a notable lower fertility, which is reflected at the pyramid in the form of a very narrow basis (Fig. 3.7). The situation is more problematic due to a large number of students in Kyiv; they provide younger age structure on one hand, but they also have preferences and motives to postpone births. Thus, they contribute to increase of persons in the age of 18-24 and to decrease of infants. As to other age groups, age structure of Kyiv responds to the general features of the population of Ukraine. As a result, a specific structure is formed, consisting of 66.6% of the working age population and only of 13.9% of young population.

As Fig. 3.7 shows, the least changes have taken place in the regions with relatively high fertility and relatively low mortality during 1990-2005 (Volynska, Poltavska, Ternopilska, Khmelnitska regions). Insignificant shifts have been observed also in the regions with initially high ageing rates – Vinnytska, Sumska and Chernihivska regions. With exception of the regions, largely influenced by migrations (AR Crimea and Kyiv city), the largest changes have been fixed in Donetska, Zaporizka and Luganska regions. In these regions, births rates do not provide even a half of the rate, needed for provision of a simple population reproduction, while mortality rates are among the highest in Ukraine. The median age is higher than the arithmetic age in Donetska, Luganska and Chernihivska regions.

Regional gender differentiation results from two determinants, working in combination: ageing rate and gender disparities in death rates. The gap in the average life expectancy of males and females is very large in Ukraine. So, the larger is gender gap in death rates, the larger is gender imbalance. Demographic ageing of a region also makes in impact on the growth of gender imbalance. That's why the lowest ratios of males and females numbers are observed in the regions with high rates of the population ageing: Chernihivska, Cherkaska and Sumska regions (Fig. 3.7). These regions occupy correspondingly 27^{th}, 26^{th}, and 24^{th} ranges by a ratio of men and women. Donetska region is situated at 25^{th} place due to a large gender gap in death rates.

So, fertility still is the most important determinant of the number and age structure of the population of Ukraine. Relatively small share of the population, born during 1980's determines the structural growth of the population in the youngest groups, which is been taking place during the last years. Contrary, a low share of those, born in the end of 1990's will soon become the structural determinant of reduction of the youngest population in Ukraine.

„Entering" of pension age by two age „gaps" between the demographic waves (those, born during the famines and during the World War II) is contributing to the structural decrease of mortality. But, an impact of mortality is very strong in the young groups (namely – in the working age groups) as well, so less people reach elder ages, as compared with countries of Europe.

An impact of age structure of migratory movements is not obvious at the level of the country. It looks like migrations have a positive impact on forming of age structure of the population. At the regional level, in particular in the urban-rural context, an impact of age structure on migration can result in total absence of rural residents, who might leave countryside.

The zones, defined by the similarity of the population age structure, reflect the peculiarities of demographic and social-economic history of the region of Ukraine.

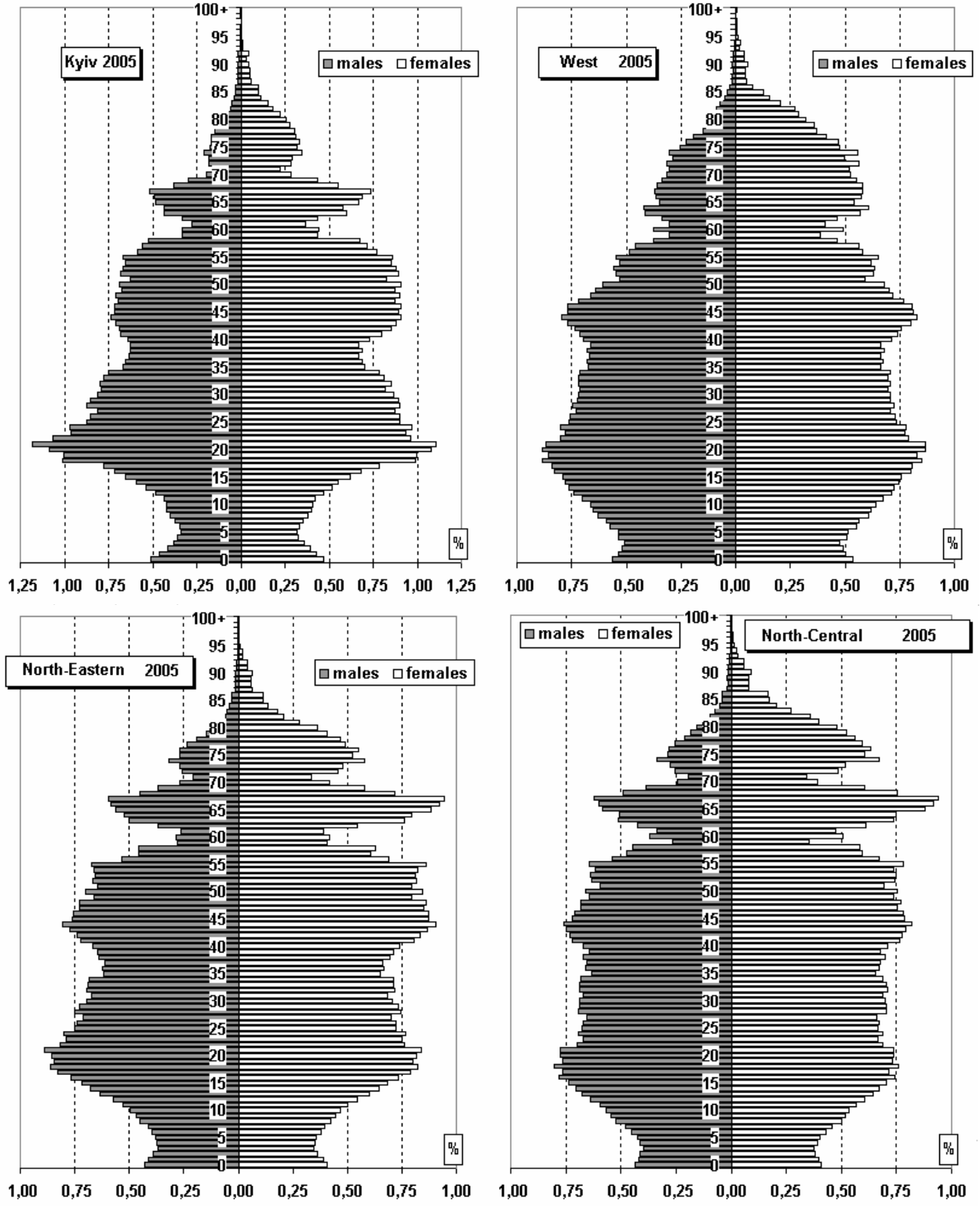

Fig. 3.7. Sex-age pyramids of the population of aggregated regions of Ukraine

4. DEMOGRAPHIC MODELS

The models of statistical correlations, based on regression equations, present very interesting methods of scientific researches. But, they have some negative features.

In case of attempts to construct a model of multiple regression (double regression is an example), a researcher faces many problems of methodological and methodical character. The processes are so complex in the system „economy-population", that exclusion of some independent processes becomes an unsolved task. But, the mutual independence of arguments is the first requirement of the regression model.

The problem of lags of delays is unsolved. It is known, that social-economic phenomena are more conjuncture, than the majority of demographic ones. Thus, the actions of demographic policy make impact on the living standards of the population not immediately, but with a delay. So, the indicators of social-economic system, which are related to demographic system, should be used for the previous years. The length of this period always is an object of discussions.

The estimation of some social, cultural and cultural and behavior factors is complicated in the result of their presentation in numerous form (reproductive aims and public opinion, formed historically, and those, making an impact on reproductive activity), as well as by absence of the needed data (prevalence of persons, belonging to some religious confessions, which do not support regulation of fertility).

So, it is purposeful to concentrate on investigation of the internal correlations in the system „population" by usie of only indicators of internal processes. The use of the next demographic-statistical methods is useful: index and table ones.

INDEX MODELS

The idea of construction of index models consists of the next positions. The dynamics of the crude coefficients (of fertility of mortality) depend as on changes of age-specific intensity of the process, as on transformation of age structure. So, the disparities, resulting from the process and the structure, can be determined by comparison of age-specific coefficients and age structure of two populations.

Proceeding from this, we have two indices: of intensity and of structure. Index of intensity reflects an impact on crude coefficients of the intensity changes. To calculate it, age-specific shares of the population, which are subjects of the basic comparison, should be fixed:

$$I_{\text{int}} = \frac{\sum S_x^0 \times k_x^t}{\sum S_x^0 \times k_x^0}$$

where S – a share of age group x,

k – coefficient for age group x,

0 – indicators of basic population,

t – indicators for compared population.

Index of the structure fixes age-specific intensities of the population under comparison; age-specific shares of the population differ:

$$I_{str} = \frac{\sum S_x^t \times k_x^t}{\sum S_x^0 \times k_x^t}$$

The mentioned formulas show that multiplication of these indices is equal to a ratio of crude coefficients. Thus, the total impact of all determinants is estimated:

$$\frac{k^t}{k^0} = I_{\text{int}} \times I_{str}$$

Models of fertility

Regarding fertility, the basic period should be accepted as 2001, as the lowest rate was observed at this year. As a result, 2001 is an attractive for statistical comparisons. Later, fertility has been growing during the next three years. But, a share of the population in the fertile age (in particular, of women) has been also increasing. The index methods could define the contribution of the intensity growth and of the advantaged age structure.

As the calculations show in Table 4.1, that the recent growth of fertility has been taking place as by growth of births' intensity, as by improvements of age structure of the fertile contingent. The age structure of mothers has been deteriorated only in rural area. Probably, it is related to increase of depart of the youth on education and work to the cities, resulting in growth of a share of women of the elder fertile age, who are traditionally characterized by low fertility.

Table. 4.1. Growth of the crude births coefficient during 2002-2004, as compared with 2001, %

	All settlements			Urban settlements			Rural settlements		
	all factors	intensity	structural	all factors	intensity	structural	all factors	intensity	structural
2002	4,1	3,7	0,4	5,4	4,6	0,7	1,7	2,1	-0,4
2003	9,1	7,8	1,2	13,0	11,0	2,0	1,8	2,6	-0,7
2004	14,3	12,0	2,3	20,8	17,1	3,7	2,6	3,6	-1,0

Models of mortality

As in case with fertility, it is purposeful to choose a year with an important demographic event as the basic one for comparisons. So, we could select 1995 or 1996 as the basic ones, as the lowest rates of life expectancy have been noticed in Ukraine. Unfortunately, after a short increase of the average life expectancy in 1997-98, the trend to the deterioration has been outlined later. Recently, the situation has been stabilized at the level, close to the worst one in several decades.

When choosing 1996 as the basic year, it is possible to calculated indices of intensity and structure for every next year. When calculating the received results as a percentage (Table 4.2), the determinants of the changes in mortality are shown by gender and types of settlements.

Table 4.2 shows, that the intensity of mortality in cities still has been lower for both sexes that in 1996 recently. An impact of age structure has been negative. But, rather low mortality has decreasing the negative impact of the structure till 2000 (for women – till 2003). In 2004, the intensity index has contributed to decrease of mortality for urban population, while age structure has intensified its positions (in the result of ageing).

The relative simplicity is the advantage of index method. Unfortunately, it still conceals some peculiarities of age-specific changes in the population mortality.

MODELS, BASED ON THE THEORY OF THE POPULATION STABILITY

Researchers have been interested in estimation of age structure of the population by integral indices for a long time. R. Pearl and Ju.O. Corchak-Chepurkivsky have been developed the most successful forms of the numerous characteristics of age structure of the population, which has been formed. Index of incidence of age pyramid by Ju.O. Corchak-Chepurlovsky [1] characterizes an angle of incidence of edges of an age pyramid (of its part, responding to the age of 15-59, to be more exact) to its basement. Approximation of the index to zero means, that a contour of a pyramid is more close to a right angle. The numerous index of the population distribution of R. Pearl estimates a rate of deviation of age structure of the real population from age structure of the stationary population.

Stationary population is a theoretic construction, according to which the yearly number deaths is equal the yearly number of births (as well as the corresponding crude coefficients). Age structure is provided only by a function of reaching of some age $l(x)$:

$$C(x) = \frac{l(x)}{\int_0^{\omega} l(x)dx}$$

If we would try to estimate, which structure will be characteristic for the population in a long-term perspective (several decades) under condition of unchanged regime of mortality and fertility, a function of fertility should be put into the model. Age structure of the population, formed during some time, is described by the function:

$$C(x) = \frac{l(x)e^{-rx}}{\int_0^{\omega} l(x)e^{-rx}dx}$$

where r – coefficient of natural growth of the stable population,

e – base of the natural logarithm,

ω – number of age groups.

The practical importance of the model of the stable population is in definition of parameters of reproduction of a conditional generation (i.e. of that one, which have been living during some year) and adjustment to the period till stabilization. Thus, sex-age structure of the population could be obtained, which would respond to the regime of the population, which has been formed.

The main equation of the stable population can be written in the form:

$$\int_0^{\omega} e^{-rx} l(x) f(x)dx = 1$$

where:

$l(x)$ – function of reaching of some age,

$f(x)$ – function of fertility,

r – coefficient of natural growth of the stable population, which is the only real root of the equation.

S.I. Pyrozhkov has proposed to estimate a rate of deviation of age structure of the real population of the structure, which would be formed under the same regimes of mortality and fertility (i.e. the corresponding stable rates). The rate of instability can be described as following:

$$\psi = \sqrt{\frac{\sum_{0}^{\omega}[C_r(x) - C_s(x)]^2}{n}}$$

where:

C_r – shares of age groups of the real population,

C_s – shares of age groups of the corresponding stable population,

n – number of age groups.

When calculating age structure, which would be formed under codnitions of mortality and fertility, common for the population of Ukraine in 2004 (i.e. structure of the stable population), it is possible to present it as following (Fig. 4.1).

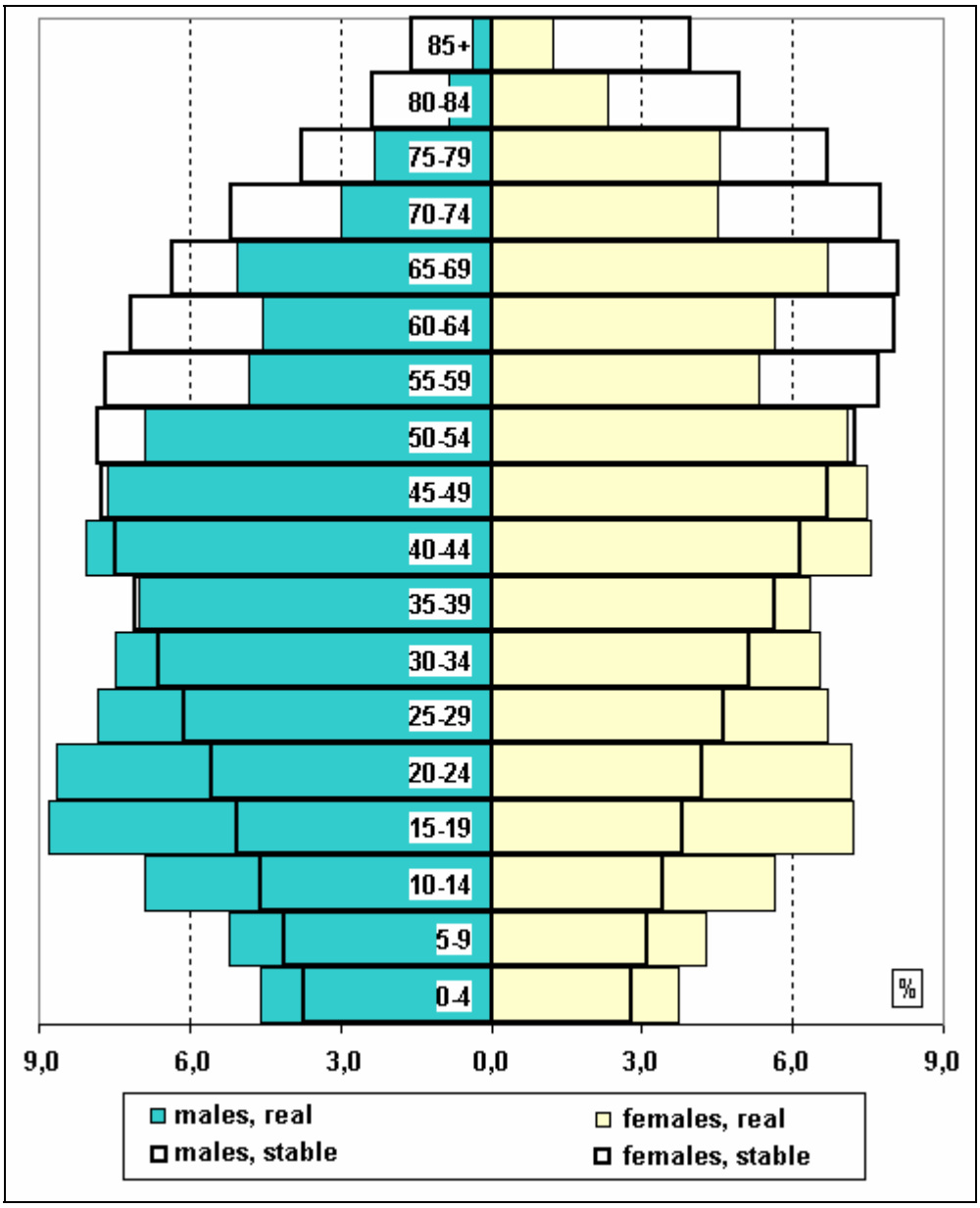

Fig. 4.1. Comparison of the real population of Ukraine (2004) with the stable one, which responds to the real regime of reproduction.

The coefficient of instability of age structure of the population of Ukraine was 4.01 for men and 5.78 for women in 2004.

MODELS, BASED ON THE LIFE TABLES

The life tables are demographic numerous models, presenting the systems of magnitudes, which are put in orders. The life tables are the most correct and adequate characteristics of some population mortality.

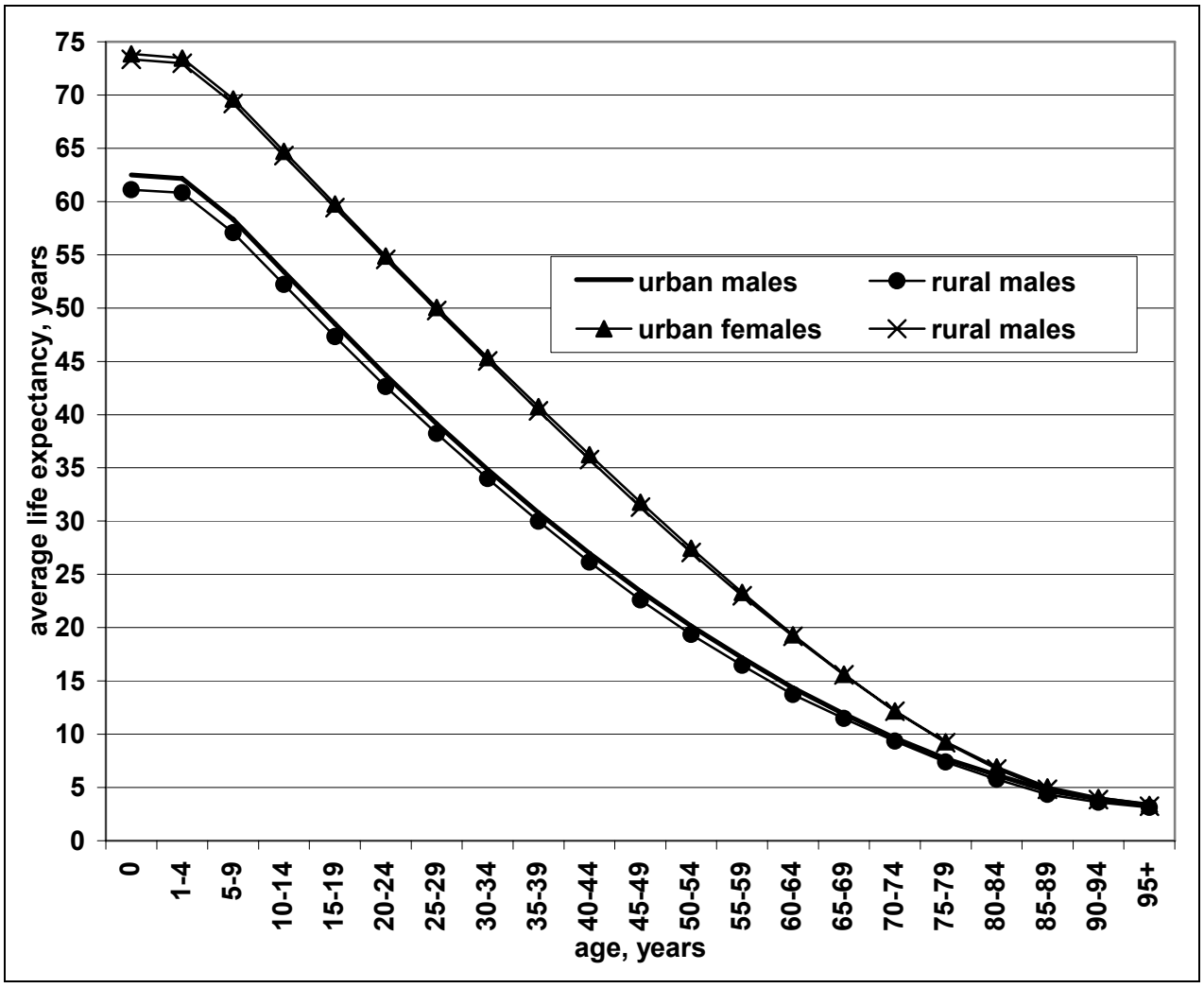

Fig. 4.2. Life expectancy at reaching of some age in Ukraine, 2005.

Table. 4.2. Growth of the crude death coefficient during 1997-2004, as compared with 1996, %

	males in urban settlements			females in urban settlements			males in rural settlements			females in rural settlements		
	In the result of::			In the result of:			In the result of:			In the result of:		
	all factors	intensity	structure	all factors	intensity	structure	all factors	intensity	structure	all factors	intensity	structure
1997	-1,9	-9,1	**8,0**	-3,1	-8,6	**6,0**	**0,1**	**1,3**	-1,1	**1,0**	**4,7**	-3,6
1998	-5,2	-14,1	**10,5**	-4,6	-11,5	**7,7**	-1,0	-0,3	-0,7	-0,4	**1,6**	-2,0
1999	-9,3	-19,3	**12,4**	-6,8	-15,3	**10,1**	-5,9	-6,0	**0,1**	-3,8	-3,3	-0,6
2000	-4,3	-16,1	**14,1**	-3,9	-14,3	**12,1**	-2,8	-3,1	**0,3**	-2,2	-4,3	**2,2**
2001	**1,6**	-12,5	**16,2**	-0,6	-13,0	**14,2**	-0,5	-1,3	**0,8**	-1,6	-4,6	**3,1**
2002	**2,4**	-13,2	**18,0**	-1,6	-15,2	**16,1**	-0,7	-2,2	**1,5**	-2,9	-5,8	**3,1**
2003	**4,5**	-12,2	**19,0**	-0,7	-15,7	**17,7**	**3,2**	**1,0**	**2,2**	-1,1	-4,1	**3,1**
2004	**5,3**	-12,3	**20,0**	**2,1**	-14,5	**19,4**	**5,5**	**2,6**	**2,8**	**2,5**	-1,3	**3,9**

5. ETHNIC STRUCTURE OF THE POPULATION

5.1. Ethno-demographic situation in Ukraine

Ukraine is a polyethnic state. The All-Ukrainian population census of 2001 registered representatives of over 130 ethnic groups. But, the domination of two largest ethnic groups – Ukrainians and Russians – is very clear in the structure of the population. According to the census data, there were 37.5 mln. Ukrainians (77.8% of the total population number) and 8.3 mln. Russians (17.3%) in 2001. There are also 16 nations with population from 30 to 300 thousand persons: Belarussians, Moldavians, Crimean Tatars, Bulgarians, Hungarians, Romanians, Poles, Jews, Armenians, Greeks, Tatars, Gipsies, Azerbaijanians, Georgians, Germans and Hahauses.

Regarding the cities, Ukrainians make 73.3% of the total population, Russians – 22.4%, other ethnic groups – 3.8%, while in the rural area – 87.0, 6.9 and 6.1% respectively. Jews present the most urban ethnic group among the most numerous ethnoses of Ukraine, while Romanians, Hahauses and Moldavians – the most rural ethnic groups. The basic regions of residence of Crimean Tatars, Karajims, Crymchaks and partially – of Hahauses are situated within the territory of Ukraine

Ukrainians prevail in all regions, with exception of the Autonomous Republic of Crimea and the City Council of Sebastopol. A share of Ukrainians exceeds 90% in 13 regions of the western and central part of Ukraine. Ternopil region is the closest one to be a monoethnic region, as Ukrainians make 97.8% of the population (Fig. 5.1.1).

Regarding the total number of Ukrainians, 32.4 thousand persons belong to ethnographic groups, which by their cultural and language features differ from the basic part of the Ukrainian ethnos. The most numerous ethnographic groups are presented by Huzuls (21.4 thousand persons, basically living in Ivano-Frankivska region) and Rusins (10.2 thousand persons, mainly in Zakarpatska region); there are also 672 Lemkys, 131 Bojkys, 22 Lytvyns, and 9 Polischuks.

Russians are the most numerous ethnic group in the city of Sebastopol and in the Autonomous Republic of Crimea (correspondingly 71.6 and 58.3% of the total population), they occupy the second place by their number almost in all other regions, while they occupy the fourth place only in two regions - in Zakarpatska (after Ukrainians, Hungarians and Romanians) and Chernivetska oblasts (after Ukrainians, Romanians and Moldavians). Large shares of Russians are observed in the Autonomous Republic of Crimea, as well as in the region of Donbass (38-39%), in other eastern and southern regions, especially in Sumska region (Putivlsky rayon).

Chernivetska, Odeska, Zakarpatska regions and AR Crimea are the most ethnically mixed regions of Ukraine. The total shares of all ethnoses, with the exception of Russians and Ukrainians, represent there about 16-21% (while they do not exceed 6% in other regions).

The presence of many ethnic groups in Ukraine requires their classification by researchers. Such classification is necessary not only for the correct estimation of ethnic structure of the population and its transformations, but also for development of ethno-demographic policy.

Ethnic groups of our state, with the exception of Ukrainians and Russians, could be united in four groups by character of distribution and the period of residing within the territory of our state.

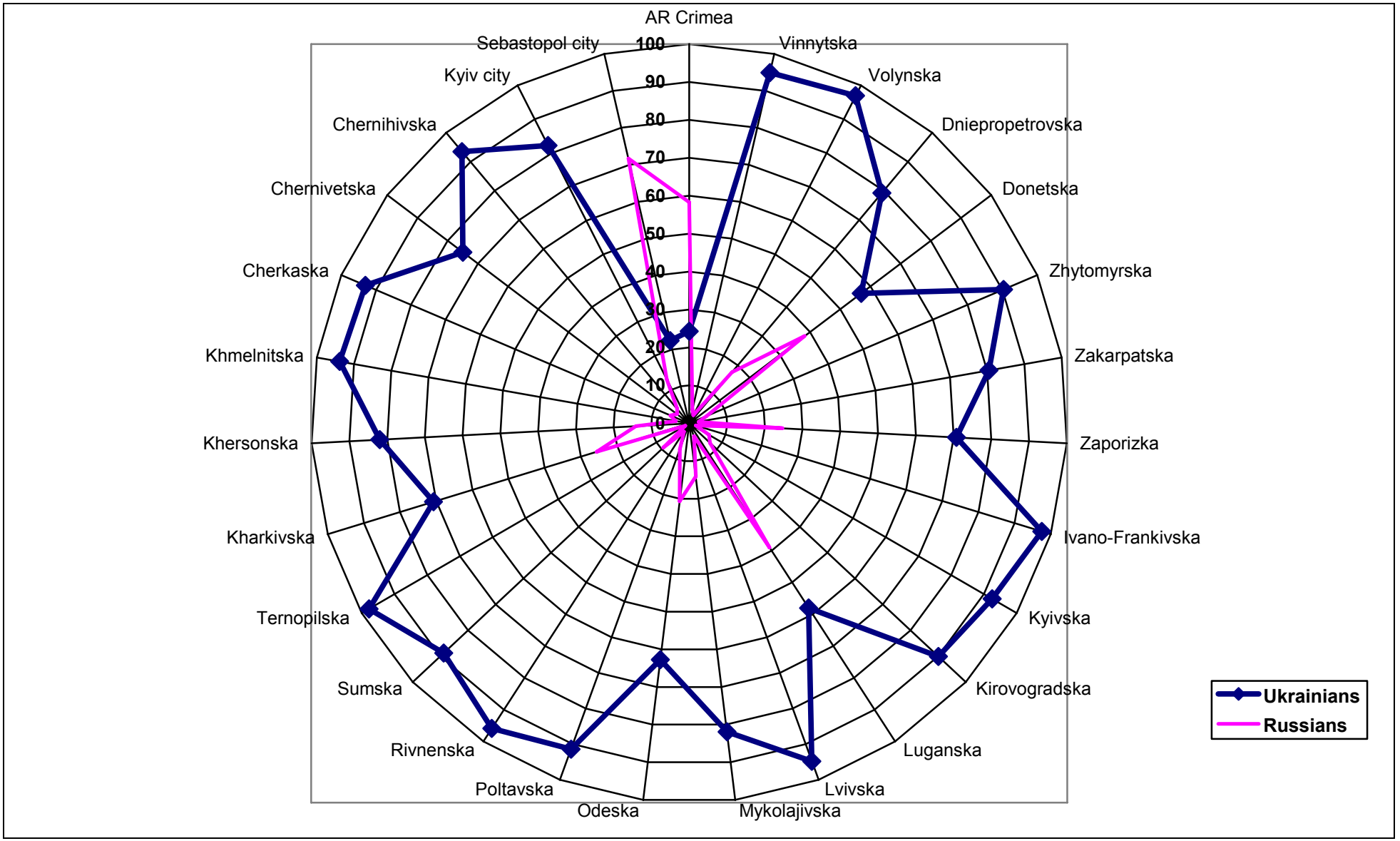

Fig. 5.1.1. Shares of Ukrainians and Russians within the total population of the regions of Ukraine, 2001

The first one is formed by people, who have been living in our country for many centuries, usually in small compact territories (from several villages up to two or three administrative regions), and, usually, make an overwhelming majority of the population in the places of historically compact residing. Such areas of residence of Moldavians are situated in Odeska, Chernivetska and Mykolajivska regions, of Bulgarians - in Odeska and Zaporizka regions, of Hungarians and Slovaks - in Zakarpatska region, of Hahauses and Albanians - in Odeska region, of Romanians - in Chernivetska and Zakarpatska regions. The area of compact residence of Crimean Tatars presently is been forming in the Crimea and southern areas of Khersonska region; there are also two Swedish villages in Khersonska region. With some cautions, it is possible to regard Turk-Meskhetines as representatives of the same group, as they have settled in the countryside of Khersonska and Donetska regions and in the Crimea at the beginning of 1990's. These nations have a high level of national identity and stability of ethnic attributes: overwhelming majority of their representatives in the rural area (and some people - and in the cities) regard the language of the ethnos as the native one (with exception of Swedes, who presently regard Ukrainian as the native language).

The second group is made of other nations, whose numerous groups have settled at the territory of the present Ukraine before the beginning of the XX century. Some of these ethnoses have been residing within the compact areas: Belarussians (in Polissya), Poles (in Zhytomirska, Khmelnitska regions and in the western regions), Greeks (in Donetska region), Czechs (in Zhytomirska region), Karajimes, Crymchaks and Estonians (in the Crimea), other small ethnic groups have had ethnic territories in the past (Armenians and Germans) or have been dispersed among the major nation of the state (Jews and Gipsies). Nowadays, the basic part of representatives of these nations lives in the polyethnic environment of the large and medium cities. The majority of Poles regard Ukrainian as the native language, while Russian is regarded as the native one by the majority of persons of other ethnoses of this group.

Russians occupy the intermediate position between nations of the first and third groups. On one hand, numerous groups of Russians have been living at the territory of Ukraine before Soviet times, while the region of their compact residence in Putivlskiy rayon of Sumska region has been formed in first half of the second millennium. However, on the other hand, the majority of the Ukrainian Russians are persons, who have arrived from the Russian Federation in the XX century, and their descendants.

The third group consists of ethnoses, which origin from the countries of the former USSR (with exception of the listed above). Their representatives have settled in Ukraine mainly during the period of the Soviet Union existence. They live almost exclusively in large and medium cities; about half of these persons regard the language of the ethnos as the native one, and approximately as much – Russian language.

The fourth group unites natives of the "old foreign countries", who have arrived to Ukraine partially during the Soviet period, but, mainly - after the independence. The language of their ethnos still is native one for the majority of them.

5.2. The dynamics of the ethnic structure of the population and its determinants

The defining tendency of ethnic development of Ukraine during the Soviet period has been presented by the growth of a share of Russians and decrease of a share of Ukrainians in the result of the migratory exchange of the population between the Soviet republics and russification of the Ukrainian population in the eastern and southern regions of Ukraine. A share of persons, who regard Russian language as the native one, has also increased. During the period of 1959-1989, a share of Ukrainians has decreased on 4% within the total number of the population of Ukraine, while a share of Russians has grown on 5%. The prevailing of these most numerical ethnoses have been amplifying (but, with

not intensive rates) during all the period of stay of our state within the USSR.

The number of Jews and Poles has sharply decreased on a background of the permanent growth of the population of Ukraine during 1959-1989. The Census of 1979 has fixed reduction of the number of Greeks for the first time, while the Census of 1989 has also registered the decrease of the number of Bulgarians and Hungarians. The numbers of Russians and Tatars have been growing with the highest rates during 1980's, while the numbers Crimean Tatars, Armenians and Azerbaijanians have been also growing during the last years of the USSR.

During the period between Censuses (1989-2001), the number of Ukrainians has slightly increased, despite of the general population reduction, but the number of ethnic Russians has decreased on a quarter. Regarding 18 most numerous ethnoses, only six of them have quantitatively increased, while the reduction of absolute number of Belarussians, Moldovians, Tatars, Gipsies, Germans and Hahauses has been observed for the first time. The Jews, having lost almost 4/5 of their number, have moved from the third place by their number to the tenth one among the ethnic groups of Ukraine. The growth of shares of Ukrainians and persons, who regard Ukrainian as the native language, has been noted for the first time after the World War II in Ukraine. That means, that overcoming of the tendency of the population russification, common for the Soviet times, took place (Fig. 5.2.1).

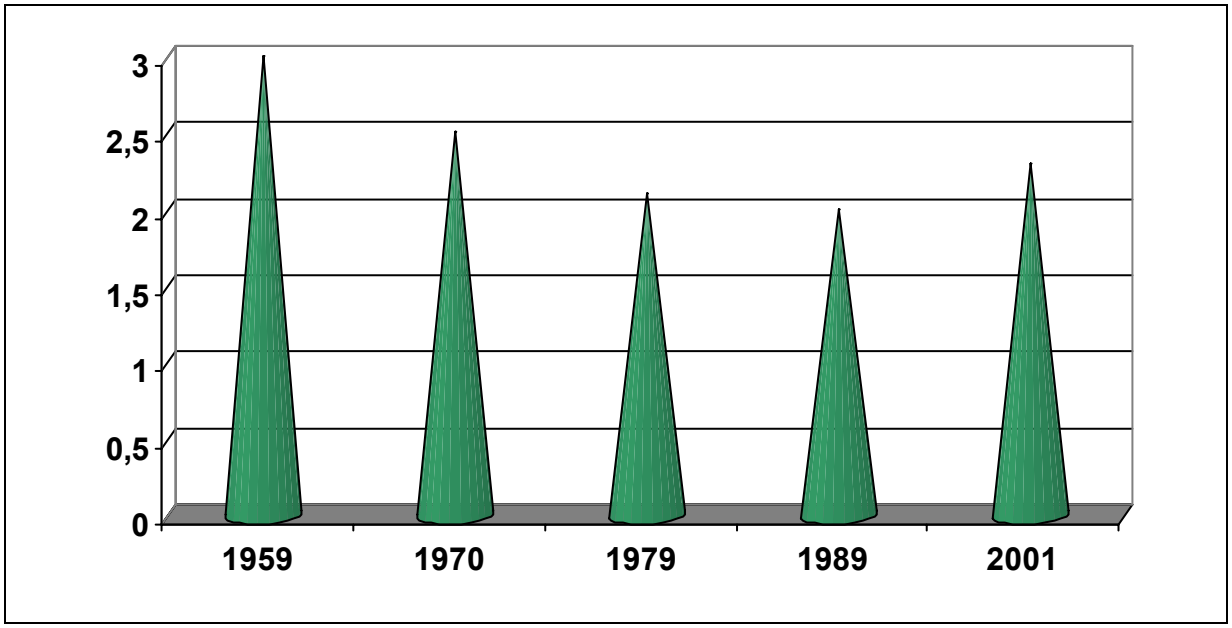

Fig. 5.2.1. Number of persons, who regard Ukrainian language as the native one, per 1 person, who regards Russian language as the native one, according to the data of censuses of 1959-2001.

Migratory processes have become the man factor of transformations of the ethnic structure of the population. With disintegration of the USSR and declaration of the independence of Ukraine, the returning of ethnic Ukrainians and representatives of the deported nations (Crimean Tatars, Germans, Greeks, Armenians and Bulgarians) has started from the former Soviet republics. At the same time, a lot of Russians, Belarussians, representatives of other ethnoses of the "new foreign countries", have returned to the countries of origin. The scales of emigration from Ukraine have largely increased with removal of the "iron curtain"; while initially mostly Jews, Germans and Greeks have departed, nowadays emigration of representatives of practically all ethnoses has increased. The economic crisis in the states of Trans-Caucasus had more deteriorated consequences, than in Ukraine, while military conflicts in Caucasus also stimulated inflows of migrants from this region to Ukraine.

Nowadays, the return of Ukrainians from the former republics of the USSR is taking place, with exception of Russia and Belarus. The opposite flows of migration of Ukrainians between Ukraine and Belarus are approximately equal. As to Russia and the countries of the Western and Central Europe, more Ukrainians depart there, than arrives from these states.

The process of repatriation of the deported nations has already been taking place over ten years. The Independent Ukraine, as a democratic state, has recognized the right of the deported people to return to the places of their traditional residing. Presently, above 280 thousand of Crimean Tatars, Germans, Greeks, Bulgarians and Armenians have returned to our state (mainly to the AR Crimea). The arrival of such number of repatriates within rather short period has contributed to the existing problems of housing, land, employment, social and cultural services to the population of the Crimean peninsula, as well as of provision of settlements with the necessary infrastructure. Ukraine faces the problem of reception and accommodation of the deported nations, as the states of their departure, contrary to the declared intentions, actually do not take part in funding of the corresponding programs. Some funding (rather small) for solving of the repatriates problems has come only from some international organizations (Department of the Supreme Commissioner of the United Nations on Refugees, International Fund "Renaissance", Agency on International Development of Turkey, etc.). The political and legal problems of obtaining of Ukrainian citizenship by the deported persons still remain urgent.

Regarding repatriates, Crimean Tatars occupy the first place by their number. The return of Crimean Tatars has been taking place with fast rates since 1989, while this process has been slowed down after 1992 in the result of economic recession in Ukraine. The majority of the deported Crimean Tatars have come back to Ukraine (basically to the Crimea) from Uzbekistan, Russia, Tajikistan, Kazakhstan and Kyrgyzstan.

The families of the deported Germans have been settled in the eastern and southern regions (Odeska, Mykolajivska, Khersonska, Zaporizka, Kirovogradska regions) and in the Crimea. Simultaneously with returning of Germans to Ukraine from the eastern regions of the former USSR, their emigration to Germany is taking place; it has been started since the Soviet Union. The emigration of Poles is taking place as well; a few thousands of Czechs and Slovaks, who lived in the Chernobyl zone, have moved out of Ukraine in the beginning of 1990's.

The analysis of ethnic features of migration is complicated; as in the second half of 1990's, a share of persons, having the new passports without of the "nationality" column, has increased among the migrants. As a consequence, when summarizing the structure of migrants by a nationality, a group of persons, whose nationality is not specified, is becoming larger. The situation has changed only in 2004, when it was possible to collect complete data on the structure of migrants by their ethnic identity.

The ethnic structure of the interstate migrants generally responds to the population structure by ethnic identity (Table 5.2.1); the basic changes, which have been fixed in 2004, as compared with 1994-1996 (increase of shares of Ukrainians and Crimean Tatars, decrease of shares of Russians and Jews), result from the transformations of the population ethnic structure during this period. At the same time, Ukrainians made less than 40% of persons, who have arrived to Ukraine during the period between censuses, and less than 30% of persons, who have left Ukraine during this period. At the middledle of the first decade of XXI century, a share of Ukrainians among persons, who had arrived, has decreased (due reduction of intensity of re-emigration of ethnic Ukrainians), while it has grown among persons, who have departed (owing to exhaustion of the mobile contingents of ethnic minorities of the country). Regarding the total number of persons, who have emigrated to the countries of the former Soviet Union, ethnic Russians made 55.6% in the middle 1990's and 44.3% in 2004. The flow of Armenians and Crimean Tatars, who are arriving to Ukraine, is basically provided by the former Soviet republics

(correspondingly by Armenia and Uzbekistan). Also, the emigration of Armenians to Germany, Russia, the USA and Israel takes place. A share of Jews is trivial within all migrant flows to the CIS and Baltic countries, while they represent almost a half of the migrant outflow from the former USSR. Their share is also high among those, arrived to Ukraine, evidencing on development of return migration. The intensity of departure of ethnic Russians out of the former USSR has been higher than that of Ukrainians in the middle 1990's; presently the ratio of these ethnoses within the migration flows responds to their shares within the total population structure.

Table 5.2.1. Distribution of migrants by ethnic belonging in different migration flows, *%*

	1994–1996				
	Inter-state	Arrived from the "new foreign countries"	Departed to the "new foreign countries"	Arrived from the "old foreign countries"	Departed to the "old foreign countries"
Ukrainians	77,8	40,9	33,4	29,2	25,8
Russians	16,9	39,4	55,6	13,9	15,7
Jews	0,2	0,3	0,5	6,8	42,2
Armenians	0,2	2,9	0,7	0,2	0,3
Tatars and Crimean Tatars	0,7	6,0	1,2	0,3	0,2
Others	4,2	10,5	8,6	49,6	15,8
	2004				
Ukrainians	87,9	39,7	49,3	27,8	56,9
Russians	9,4	38,3	44,3	9,1	14,3
Jews	0,03	0,2	0,1	8,4	9,7
Armenians	0,2	3,3	0,5	0,2	0,2
Tatars and Crimean Tatars	0,9	7,6	0,8	0,2	0,1
Others	1,5	10,9	4,9	54,3	18,8

**Calculated by authors by data of the State Statistics Committee of Ukraine*

Thus, the emigration has been loosing its ethnic features during the last years (in particular emigration of the "old foreign countries"): a share of Jews is decreasing, while shares of Ukrainians and Russians are increasing.

The natural reproduction makes also certain impact on the dynamics of ethnic structure of the population. In particular, there are more children in families of Crimean Tatars, Armenians, Gypsies, Azerbaijans, than in Ukrainians or Russian families. Generally, the fertility is higher among Ukrainians, as compared to Russians, in the result of a more rural type of settlements. The ratio of representatives of different age groups is also different in the structure of different nations, resulting in ethnic differentiation of the general coefficients of natural movement. Thus, a very high rate of ageing (47.5%) is observed among Jews (the majority of young Jews has emigrated or assimilated), so the natural growth of this ethnic group has been negative even before the beginning of depopulation of the whole population. Regarding 9 most numerous nations, the oldest age structure is observed among Poles and Belarussians, as the pyramiddles of these ethnoses have a very narrow bases, making a precondition for their further sharp reduction in Ukraine.

Averagely, Ukrainians are younger than Russians. That also has affected the dynamics of these nations during the period between the censes (it should be noted, that the changes in these ethnoses numbers have not been so striking in rural area, where the differences in the age structures of Ukrainians and Russians are not so large).

The ethnic groups of Asian origin have young age structure (including the Asian part of the former USSR). Regarding nine largest ethnoses of the state, Hungarians, Romanians and especially Crimean Tatars are the youngest ones; the rate of ageing of Crimean Tatars is only 14.5%. However, the sex-age pyramide of Crimean Tatars has a notably narrower basis, as compared with the pyramids of Hungarians and Romanian. It proves the significant decrease of birth rate after repatriation. Firstly, owing to resettlement to the region, where the aims on few children dominate, the demographic transition of Crimean Tatars has been accelerated; secondly, the low birth rates result from unsolved numerous problems of the deported persons.

Regarding a ratio of the basic age groups (0-14 years, 15-59 years, over 60 years), 54 most numerous ethnos of Ukraine (consisting of 1,000 persons and more) can be united into 7 classes (the classification is carried out on the basis of a method of cluster analysis). The results of classification are presented at Fig. 5.2.2.

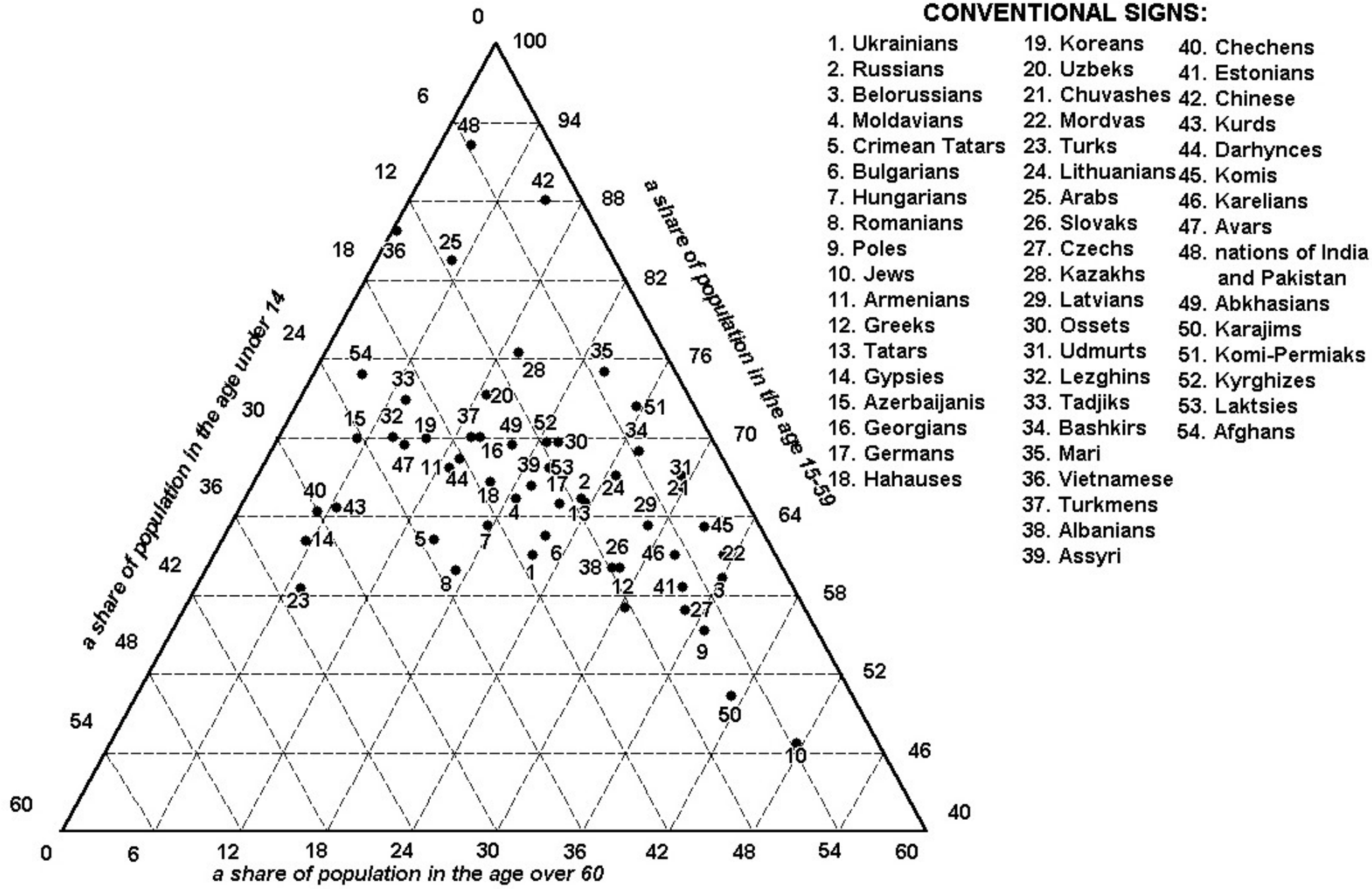

Fig. 5.2.2. Age structure of ethnic groups with number of over 1,000 persons within the population of Ukraine

The first two classes are formed by nations, which origin from out of the former USSR (Table 5.2.2). A share of persons in the age of 15-59 is very large (more than 88%) in the structure of Chineses and persons from India and Pakistan (the Ist class). These ethnic groups have been mostly formed in Ukraine of persons, who have arrived to our country with purpose of education. There are few persons of these ethnic groups, who stayed in Ukraine and created families and have children, in particular of those, who have reached age of 60, as compared with other natives from the developing countries. Chineses have started to come to obtain high education mostly after "perestroika" and warming of mutual relations between the leaders of the former USSR and the Peoples Republic of China, while the highest growth rates have been registered for persons from India and Pakistan during the period between the Censuses (1989-2001). The highest shares of persons, who have been residing in Ukraine for a long time, are common for Vietnamese and Arabian people (the IInd class). The groups of Vietnamese people have been working at the Ukrainian enterprises since the Soviet times; there were also many refugees from the military conflicts zones in Palestine among Arabs, who have arrived to the former USSR (over 40% of Arabs are the Ukrainian citizens). Correspondingly, a share of persons in the age of 15-59 is smaller in the age structure of these nations (as compared with Chinese, Indian and Pakistani people), while a share of infants is high (11-15%).

Table 5.2.2.Age structure of ethnic groups by specified classes (as on 5.12.2001), %

Classes of ethnoses	Share of age contingents in the structure of ethnoses					
	Minimal shares in a class			Maximal shares in a class		
	0-14	15-59	60+	0-14	15-59	60+
I	2,8	88,3	2,2	5,6	92,2	8,9
II	11,6	83,9	0,5	13,9	85,5	4,6
III	5,9	46,6	41,0	8,6	50,4	47,5
IV	28,6	58,9	5,3	34,5	64,7	6,8
V	14,3	60,2	3,6	24,3	74,7	17,8
VI	4,2	61,5	13,6	17,6	76,4	25,1
VII	3,3	55,5	27,7	12,4	67,7	36,9

Jews and Karajims turned out to be at other pole (the IIIrd class), as they have very high rates of the population ageing in the result of mass emigration and assimilation processes (more than 40%).

These three classes (consisting of six ethnoses) differ by their age structure from the other numerous ethnic groups of the population of Ukraine; the disparities among other four classes are less notable. There are some ethnoses with high shares of infants (more than 28%) and low ageing rates (5.3-6.8%), including ethnoses of Asian origin (Gypsies, Turks, Chechens, Kurds), which form the IVth class; the raised share of persons, younger than 15 (14-24%), and low share of elder persons (till 18%) is registered among ethnoses, included to the Vth class – almost all ethnic groups, which origin from Asia and Caucasis (including more numerous Afghan political refuges, as compared to other developing countries), as well as Crimea Tatars, Hahauses, Hungarians and Romanians, who are situated mostly in rural area in Ukraine.

The basic differences between ethnoses of the VIth and VIIth classes consist in larger rates of the population ageing of the second group (27.7-36.9% against 13.6-25.1%), owing to emigration and assimilation processes.

Another factor of transformations of ethnic structure during the period between censuses is found in the revival of identity of some individuals and population groups. During the Soviet period, the phenomenon of concealment of the national origin was

widespread, as it could become an obstacle for the career. Therefore, some part of Ukrainians (as well as of many other nations) regarded themselves as Russians, as they have been regarded as informally exclusive nation of the USSR. Nowadays, these persons regard themselves as representatives of the main ethnos of independent Ukraine. Rates of assimilation of Poles and Jews to the environment of the Ukrainian ethnos have sharply decreased. The number of Russians, Jews and Poles has been decreasing more significantly in Ukraine during 1989-2001, than it could be expected, resulting from tendencies of natural movement and migrations. Intensive reduction of the number of Russians has took place in those regions, where they make a small percent of the total population, while in the AR Crimea their number has decreased slightly, it has even grown in the city of Sebastopol.

However, the natural movement and assimilating processes considerably concede to migrations by the force of impact on dynamics of ethnic structure of the population. It can be proved by the data of the censuses data of 1989 and 2001. Firstly, the number of Crimean Tatars has grown in 5.3 times in Ukraine in the result of the population exchange with the states of the former USSR during 1989-2001, while the number of Armenians - on 84%, of Chechens - on 56%, of Abkhazians - on 47%, of Georgians - on 45%, of Azerbaijanians - on 22%; the number of Greeks and Germans, despite of their intensive outflow to the historical native land, has not almost changed. At the same time, the number of representatives of the majority of ethnoses of the countries of the former USSR has decreased in 1.5-2 times. Owing to activation of migrations from the Third World countries, the number of persons of Indian and Pakistani origin has increased in 8.5 times, of Vietnamese people - in 8.2 times, of Arabian people - in 5.3, of Chineses - in 3.3, of Afghans - in 2.8 times. The number of Kurds has grown in 8.8 times in the result of their arrival from the Middle East and from the former Soviet republics. The process of entering of the world economic environment by our state, expansion of the international organizations network, creation of joint ventures and branches of foreign companies have caused the repeated increase in the number of representatives of the title ethnoses of the countries of the developed market economy (of Americans - in 64.5 times, of Dutchs - in 3.2 times, of Englishmen and Japanese - almost twice).

Crimean Tatars and other representatives of the deported nations arrive mostly to rural area, while people, who origin from the Caucasus, countries of the developed economy and the Third World countries prefer urban settlements. The urban character of residence of these ethnoses is largely determined by the purpose of their arrival, as they aim to obtain education in Ukraine. According to the Census of 2001, the number of Arabs, residing in urban cities, is in 14.5 times larger than the number of residents in rural area. The corresponding exceeding reaches 7 times among Georgians, 4.4 times among Azerbaijanians, 3.8 times among Armenians.

Males prevail in the structure of immigrants from the region of Caucasus and Central Asia, as well as from the countries of the Third World. As a consequence, men make 67.0% of Tadjiks, who live in Ukraine, 65.6% of Azerbaijanians, 61.0% of Chechens, 58.7% of Georgians and 56.6% of Armenians. As to the nations, which origin from the countries of the Third World, a share of men is even higher and makes: for Vietnamese – 64.2%, for Chineses – 67.6%, for ethnoses, incorporated in the column "other nationalities" (mainly people of Africa and partially of Latin America) – 75.0%, for Persians – 75.4%, for Afghans – 77.1%, for Cubans – 80.9%, for people of India and Pakistan – 84.0%. The raised share of men is common also for the natives of the developed countries, in particular for Englishmen (60.7%), for Americans – (58.3%), for Frenchmen (57.8%), for Austrians (54.5%), for Dutchs (54.0%), for Canadians (52.9%) and for Italians (51.7%).

5.3. Language attributes of the population

Ukrainian language is regarded as the native one by 67.5% of the population, while Russian in the native one for another 29.6% and other languages - for the rest 2.5%. A share of the population, who regards Ukrainian language as the native one, reaches 85.8% in rural area (9.5% regards Russian language as the native one), while in cities it makes 58.5% (correspondingly 39.5%). The respondents of only 4 of 27 regions of Ukraine regard Russian language as the native one (the Sebastopol City Council, AR of Crimea, Donetska and Luganska regions), while in three regions (Zaporizka, Odeska and Kharkivska oblasts) the number of persons with native Ukranian and Russian languages is approximately identical. More than two thirds of the population of another twenty regions regards the Ukrainian language as the native one. A share of persons with native Ukrainian language is higher than a share of Ukrainians in Khmelnitska oblasts and in seven western regions, while in other regions the opposite situation is observed.

According to the Census of 2001, 87.8% of the population freely speak Ukrainian (78.0% in 1989), 65.7 freely speak Russian (correspondingly 78.4%). However, by the expert estimations, many individuals are inclined to overestimate their level of possession of Ukrainian language and to underestimate of level of Russian language possession; while the opposite situation has been observed in the Soviet period. It can be proved, as only less than a quarter of the population of Galicia (Lvivska, Ternopilska, Ivano-Frankivska regions) nowadays freely speak Russian, while more than a half of the population did it 13 years ago. At the same time, the level of possession of Ukrainian language has increased in 1.3-1.5 times in some regions (the Crimea, Donbass, Odeska region) (Table 5.3.1).

Table 5.3.1.Shares of persons, who freely possess Ukrainian and Russian languages, 1989 and 2001

	Freely possess Ukrainian, %		Freely possess Russian , %	
	1989	2001	1989	2001
AR Crimea (including Sebastopol city)	25,3	36,7	97,0	95,6
Vinnytska	95,6	98,9	65,7	47,9
Volynska	97,4	99,5	64,1	40,1
Dniepropetrovska	78,7	91,7	84,1	79,0
Donetska	56,7	72,3	93,6	93,4
Zhytomyrska	93,4	98,5	66,4	55,5
Zakarpatska	82,7	91,1	58,9	29,4
Zaporizka	70,5	86,6	87,8	85,9
Ivano-Frankivska	97,2	99,5	52,7	23,2
Kyivska	93,5	97,9	68,9	52,5
Kirovogradska	91,4	97,5	71,7	57,3
Luganska	58,1	75,0	91,4	91,1
Lviska	95,7	99,2	63,4	21,1
Mykolajivska	77,9	91,1	80,0	73,6
Odeska	56,7	77,8	84,5	80,5
Poltavska	93,0	97,7	75,9	62,7
Rivnenska	97,2	99,4	63,7	35,3

Sumska	88,5	94,9	75,7	67,5
Ternopilska	98,8	99,5	54,6	19,1
Kharkivska	74,7	87,5	91,0	83,1
Khersonska	82,4	93,2	80,3	73,2
Khmelnitska	95,5	98,8	66,2	46,7
Cherkaska	94,4	98,0	67,6	55,6
Chernivetska	77,7	88,5	64,2	44,2
Chernihivska	92,1	96,8	69,6	62,4
Kyiv city	81,2	93,7	91,9	74,7

About 96.8% of the Ukrainians freely speak Ukrainian and 58.1% freely speak Russian, while the corresponding rates for Russians are 58.8 and 98.9% (Fig. 5.3.1). Thus, Russians demonstrate higher rates of possession as of the language of their ethnos, as of Ukrainian language. Also, Russians more fluently, than Ukrainians, speak foreign languages (3.0% of Russians and 1.5% of Ukrainians speak English, while the corresponding rates regarding German are 0.7% and 0.4%). It can only partially be explained by a rural type of settlement of the title nation: a share of Russians, who speak English and German, is almost in 1.5 times larger. Regarding nine most numerous ethnoses, the high level of single language possession is common for Romanians and Hungarians, who are concentrated basically in monoethnic villages of Zakarpatska and Chernivetska regions.

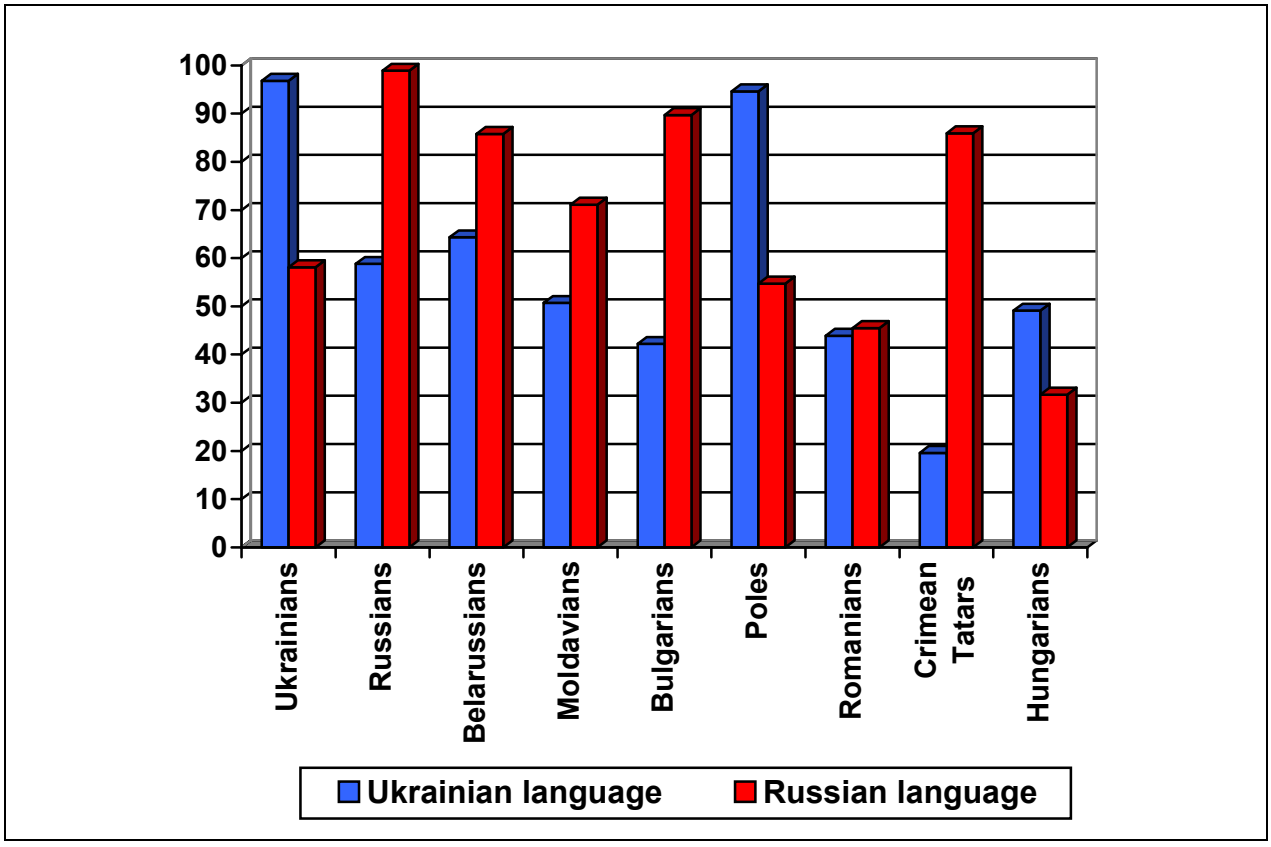

Fig. 5.3.1. Level of possession of Ukrainian and Russian languages by representatives of the most numerous ethnic groups

Ukraine has signed the European Charter of Regional Languages or Languages of Minorities on the 2nd of May, 1996. According to the Law "On ratification of the European Charter of Regional Languages or Languages of Minorities", approved in

2003 by the Verkhovna Rada, the positions of the given Charter are applied to such national minorities of Ukraine: Belarussian, Bulgarian, Hahauses, Greek, Jewish, Crimean Tatars, Moldavian, German, Polish, Russian, Romanian, Slovak and Hungarian.

The level of possession of Russian language is high among Ukrainians (over 65%) in the age groups of 17-55, while it is the lowest one among elder persons and young citizens. Ukrainians, who regard Russian language as the native one, are averagely younger on 3 years, than those, who regard Ukrainian language as the native one.

5.4. Race and religious structure of the population

Such characteristics of the population, as race and religious structures, are closely related to the peculiarities of ethnic development of a country (a region). Almost the whole population of Ukraine belongs to the Middle-European branch of Europeoid race. The total share of other anthropological types does not exceed 2-3%[5]. The Southern Europeoids represent the main race minority (including the majority of Crimean Tatars, representatives of the Caucasus nations, Gypsies, nations of Southwest Asia, Afghanistan, Iran, a part of Indian and Spanish people, etc.), the northern branch of Europeoid race is also presented by few groups (Baltic nations, Karelians, Finns), as well as the Asian branch of Mongoloid race (Koreans, Chinese and Siberian nations), Central Asian (Turkmens, a part of Crimean Tatars, Uzbeks, Tadjiks, Tatars, Bashkirs), South Siberian (Kazakhs, Kyrghizes), SubUral (Chuvash, Udmurts, Mari), Ural (Khanty, Mansy), South Asian (Vietnamese and other nations of Southeast Asia), South Indian (nations of the South of India), Negroid (natives of the Tropical Africa, a part of Cubans), Ethiopian (natives from Ethiopia, Somali, South Sudan) races, as well as metises (a part of natives of Latin America) and mulattoes (descendants of marriages of Ukrainians and Africans, a part of Cubans etc.).

The beginning of “perestroika” was featured by the renaissance of religious life of the society: development of the churches, growth of the interest to the religious dogma and ceremonialism, increase of the percentage of the believing population. After the independence of Ukraine these trends have developed. The number of religious organizations has grown from 6.5 thousand to almost 30 thousand during 1988-2004. While there were 18 religious currents in the beginning of 1988 (including churches, confessions, trends), their number has reached 87 as on the 01.12.2000.

There were 29,699 officially registered religious organizations in Ukraine at the beginning of 2005, including 28,481 of believers’ communities, 294 centers and departments of confessions (dioceses etc.), 378 monasteries, 298 missions, 75 brotherhoods, 173 spiritual educational institutions. Kalso, there were 1,106 organizations, which have been informing the state authorities on their activities, but have not been registered. The number of clerics in Ukraine almost reaches 28,000, while the number of monks exceeds 6,000; there are also more than 12,00 Sunday schools and 351 periodical religious editions are published.

Regarding the total number of the registered religious organizations, 53.1% of them belong to the orthodox religion, including 36.4% – of the Ukrainian Orthodox Church in jurisdiction of the Moscow patriarchy (UOC), 12.1% – of the Ukrainian Orthodox Church of the Kyiv patriarchy (UOC-KP), 4.1% – of the Ukrainian Autonomous Orthodox Church (UAOC), 0.5% – of old-believers churches, Russian orthodox free Church (abroad) etc., 11.9% of the organizations are under jurisdiction of the Ukrainian Greek-Catholic Church (UGCC), 3.4% – of Rome-Catholic Church, more than 26.8%

[5] There are no any statistics on the race structure of the Ukrainian population, while the use of information on ethnic structure of the population provides with only approximate estimations (belonging to a race is not an ethnic attribute, as representatives of several races could belong to the same ethnos).

represent different Protestant currents (Baptism, Adventism and others among them), 1.6% – of Islamic dogma, 0.7% – of Jewish currents.

Among the most powerful religious confessions, Ukrainian Orthodox Churches of Moscow and Kyiv patriarchies are the all-Ukrainian ones. The largest network of communities of the first one are concentrated in the central regions of Ukraine, while of the second one – in the western regions. The overwhelming majority of the Ukrainian Autonomous Orthodox Church are concentrated in three regions of Halichyna (Lvivska, Ternopilska, Inavo-Frankivska oblasts), while of the Ukrainian Greek-Catholic Church – in Halichyna and Zacarpattya; the most part of the Rome-Catholic communities is concentrated in Lvivska, Khmelnitska, Zhytomirska, Vinnytska and Ternopilska regions. Generally, there are 60 communities of believers per 100,000 of the population of Ukraine, including 112 communities in the western regions, 66 – in the central part of the country, 51 - in the south and 28 communities in the east.

Unfortunately, a ratio of the religious organizations of different currents does not display the structure of the population by confessions: some communities of believers could consist as of small number of persons, as of the whole villages. The differences in conditions of organization of different communities are essential. Thus, to form the Protestant community, it is enough to have a group of people of the Protestant dogma, while the Orthodox community requires some cult constructions, corresponding subjects of cult use and so on.

The information on the religious structure of the population is obtained by sociological surveys, realized by scientific institutes. In particular, according to the monitoring, which has been organized by the Institute of sociology of NAS of Ukraine, 85.0% of respondents declared about their religiousness in 2005. Regarding all believers, 85% of them are Orthodox, almost 8% - Greek-Catholics, about 3% - Rome-Catholics, more than 1% - Protestants, almost 1% - Moslems. Until 2000, the question on belonging to the concrete Orthodox Church has been asked to respondents. Correspondingly, the most numerical group was made by parishioners of the Ukrainian Orthodox Church of Kyiv Patriarchy - about 60% of the total number [2]. More than 18% were adherents of the Ukrainian Orthodox Church of the Moscow patriarchy, about 13% - of the Ukrainian Greek-Catholic Church. The Ukrainian Autonomous Orthodox Church attracts less than 2% of believers, while about 6-7% of them belong to other religions. Thus, though The Ukrainian Orthodox Church (arbitrary in the structure of Russian Orthodox Church) has the most branched out network among the religious organizations of Ukraine, it considerably concedes to the Churches of the Kiev patriarchy by the number of believers; it also only insignificantly advances the Greek-Catholic Church. It can be explained, as the Ukrainian Orthodox Church of the Moscow Patriarchy is most influential mainly in the regions with small number of the religious population.

Generally, women are more religious than men. The role of religion in the life of the society is more important in the western areas, especially in rural area. According to the sociological survey of the Ukrainian youth, realized by the State Institute of Problems of Family and Youth in June of 2004, 91% of youth in the villages of the Western Ukraine are religious, while a share of believers in other rural regions makes - 60-75% and 64% in urban settlements [3]. 28% of the young rural residents of the western regions visit churches every week or more often (while in other rural areas – 2-6% of the youth and 5% in cities); only 2% do not visit cult buildings at all (correspondingly 15-35% and 22%).

So, despite of the present religious variety, the prevalence of the traditional for the title ethnos religions is kept in Ukraine, including Orthodox and Uniate Churches (the last one is common for residents of Halychyna and Zacarlattya). The Orthodox Church is also traditional for many other nations of Ukraine, including five of eight most

numerous ethnoses (without considering of Ukrainians) – Russians, Belarussian, Moldavians, Bulgarians, Romanians. The Greek Orthodox communities are organizationally formed and registered as a separate confession.

Regarding religions of ethnic minorities, Islam is prominent by the number of believers (the overwhelming majority of communities of Moslems are concentrated in the Crimea, there are also many of them in Khersonska and Donetskaregions), as well as Judaism – the national religion of Jews (Judaism-Christianity is also widespread among a small part of the Jewish population, presenting a synthesis of Judaism and Christian dogmas). The Reformatory Church exists in Zakarpatska region of Ukraine (Hungarian, almost all organizations are concentrated in Zakarpatska oblast). There are also the German Evangelical-Lutheran Church (communities in the AR Crimea and Odeska region), the Armenian Apostolic Church (the overwhelming majority of communities are concentrated in the Crimea, in Donetska, Lvivska and Odeska regions), the religious communities of Karajims (mainly in the AR Crimea). There were also communities of the Armenian Catholic Church (Uniane), of the Swedish Lutheran Church, of the Korean Baptist Church, Korean Methodist Churches, religious communities of Crymchaks[6] in the end of the XX century. The Rome-Catholic Church has been affirmed in the territory of Ukraine as the religion of the Ukrainian Poles, some of Hungarians of Zakarpatska region and of some other ethnic groups; however, nowadays the adherents of this church consist of the ethnic Ukrainians and Russians.

The long period of domination of atheistic ideology in the Ukrainian society has led to partial loss of the some functions of religions, in particular of provision of the spiritual communication of generations. As a consequence, the unusual beliefs has been developed during the religious revival in Ukraine (strengthening of positions of Orthodoxy, restoration of organizational structures of Greek-Catholics), including the late currents of Protestantism, neoreligions, Buddhism and others. Not casually, the largest prevalence of Protestantism and, especially, of neoreligions has been observed in the south and the east of Ukraine. These regions had very strong positions in atheism during the Soviet times, while nowadays there are rather small numbers of religious people.

When getting independent, unfortunately, it was not possible to avoid serious conflicts among confessions in Ukraine. So, the revival of the religious life of the society in the beginning of reorganization was accompanied by opposition between the Orthodox and Greek-Catholic communities in the Western regions of Ukraine. Some years later, the division in the Orthodoxy took place, culminating in the events, related to the burial of the Patriarch of UOC-KP.

The transformations of the race structure of the population of Ukraine wil result from the development of migrations from the developing countries and regions of Caucasus and Central Asia. Though the Middle-European race type will remain the dominating one, the number of Southern Europeoids, Asian Mongoloids, representatives of Central Asian, South Siberian, South Asian, South Indian, Ethiopian race will grow in the structure of the population, as well as numbers of Negroes, Mulattoes and other mixed types. Contrary, the number of Northern Europeiods and persons of Sub-Ural type will probably decrease.

The religious structure of the population also will be changed. The expected inflow of migrants will lead to increase of the present religious minorities and (or) forming of the new ones (depending on the countries of the immigrants origin). Correspondingly, the problems of ensuring of the ethnic consent and religious peace will become more urgent.

[6] The religions of Crymchaks and Karajims present the variations of Judaism.

6. FERTILITY

6.1. Trends of fertility (dynamics, age-specific rates, international comparisons).

Fertility rates have been relatively stable in Ukraine for a log period (from 1960's till the beginning of 1990's). The gross fertility rate has been varying about the level of 2.0 (Fig.6.1).

The process of fertility reduction has started into the full force in 1990's. The gross fertility rate has decreased to its minimal rate (1.09) in 2001. The absolute number of births has decreased from 630.8 to 427.3 thousand persons during 1991-2004 in Ukraine, including from 419.2 to 284.4 thousand in cities and from 211.6 to 142.9 thousand in rural area (Table 6.1).

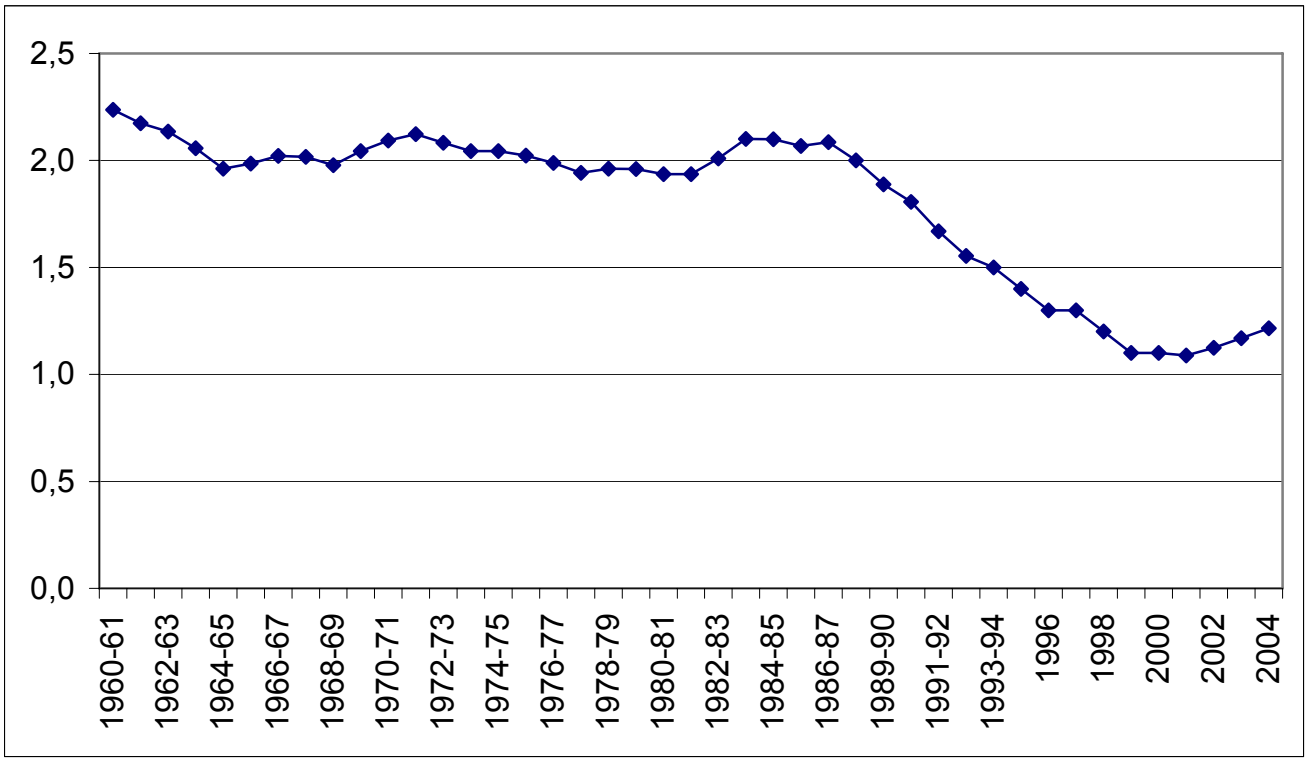

Fig. 6.1. Dynamics of the gross fertility rate, 1960-2004

Recently, some new trends have been formed in Ukraine: starting from 2002, the absolute number of born infants has been growing. In particular, there were on 14.2 thousand births more in 2002, as compared with 2001. The growth of births has been observed at the level of 36.6 thousands during 2002-2004, including 35.5 thousands in cities and 1.0 thousands in rural area. The crude birth rate has also increased: from 7.7 in 2001 to 9.0 in 2004. The gross fertility rate has been also increasing during this period (from 1.08 to 1.22).

Table 6.1. Absolute numbers of born infants and crude birth rates in Ukraine in 1991, 2001 and 2003.

	Absolute number of born infants, thousand persons			Crude birth rate, ‰		
	Urban settlements and rural area	Urban settlement	Rural area	Urban settlements and rural area	Urban settlement	Rural area
1991	630,8	419,2	211,6	12,1	11,9	12,6
2001	376,5	237,2	139,3	7,7	7,2	8,7
2002	390,7	248,9	141,8	8,1	7,7	9,0
2003	408,6	266,4	142,2	8,5	8,3	9,1
2004	427,3	284,4	142,9	9,0	8,9	9,3
2001 as % of 1991	59,7	56,6	65,8	63,6	60,5	69,0
2004 as % of 2001	108,5	112,3	102,6	110,4	115,3	103,4

Source: data of the State Statistics Committee of Ukraine.

These trends characterize a certain stability of fertility in Ukraine, as well as the end of its further reduction. But, despite of positive shifts, the present fertility rate is insufficient even for a simple reproduction of the population. As it is known, there should be 2.2 children per woman to provide the preserving of the population number by replacement of the generations of parents by children. In Ukraine, only a half of the needed number of children are born presently (1.1-1.2 children), so the country still occupies one of the lowest places among countries with very low rates of fertility (Table 6.2).

It should be noted, that increase of fertility rate, which is being observed in Ukraine now, largely result from the increase of the number of potential mothers – women of fertile age, who have been born in the first half of 1980's. So, one can speak about a "reserve" of parents, formed by the previous generations, which will positively influence the Ukrainian fertility rate during the nearest decade. But, the intensive factors have also started to play their role in the positive dynamics of fertility.

Table 6.2. Gross fertility rates in Ukraine and in some European countries in 2003.

Country	Gross fertility rate	Country	Gross fertility rate
UK	1,6	Hungary	1,2
Germany	1,3	Ukraine	1,2
Poland	1,3	France	1,9
Russia	1,3	Czech Republic	1,2
Slovak Republic	1,2	Sweden	1,6

Source: 2003 World Population Data Sheet. – Population Reference Bureau, 2004.

The situation with fertility is been complicated by poor state of the population health, especially – of mothers and infants. The obvious results of the deteriorated

heath situation are found in rather high rates of maternal and infant death, large perinatal losses, negative dynamics of infant morbidity. Another factor, which makes a negative impact on fertility rate, is presented by the raised death rates of men in the economically and reproductively active age.

6.2. Age-specific birth rates

The largest contribution to the gross fertility, as well as the highest intensity of childbirths, are observed among women in the age of 20-24 (while in the developed European countries – among women in the age of 25-29). A share of children, born in Ukraine by women in the age of 20-24, made 39.7% in 2004. Women in the age of 20-24 born children in three times more often, than women in the age under 20 and those in the age of 30-34. But, it should be noted, that the peak of fertility in this age group has started to smoothen (Fig. 6.2.). The graph of distribution of the age-specific birth rates in 2004 is very close to the graphs of 1958-59 by its shape, but with much lower rates of the corresponding indicators. The fertility rate still is rather high among the youngest women, though it has been inevitably reducing during the last years: a share of children, born by mothers in the age under 20, has decreased from 17.3 to 12.6% in the total number of born children in Ukraine during 1991-2004.

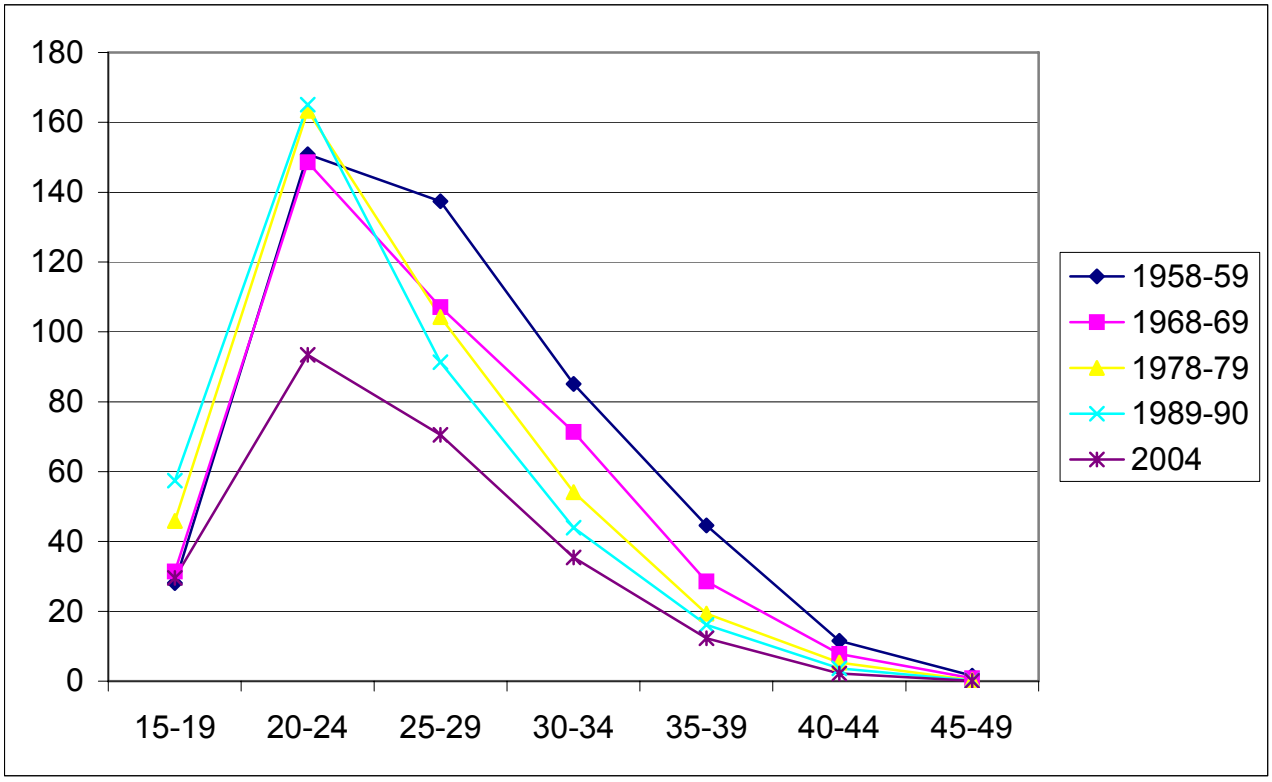

Fig. 6.2. Age-specific fertility rates, 1958-2004.

Source: data of the State Statistics Committee of Ukraine

The analysis of dynamics of the age-specific birth rates in Ukraine during 1990's shows, that the largest decrease of the intensity of childbirths is observed among women of the most active fertile rate. At the same time, one can observe that the younger are women, the larger is reduction of the correspondent rates. Particular reduction has been observed among the youngest mothers: while the intensity of childbirths of women in the age of 25-29 has decreased in 1.2 times during 1991-2003, it has decreased in 1.7 times among women in the age of 20-24 and in 2 times among women in the age under 20 (Fig. 6.3).

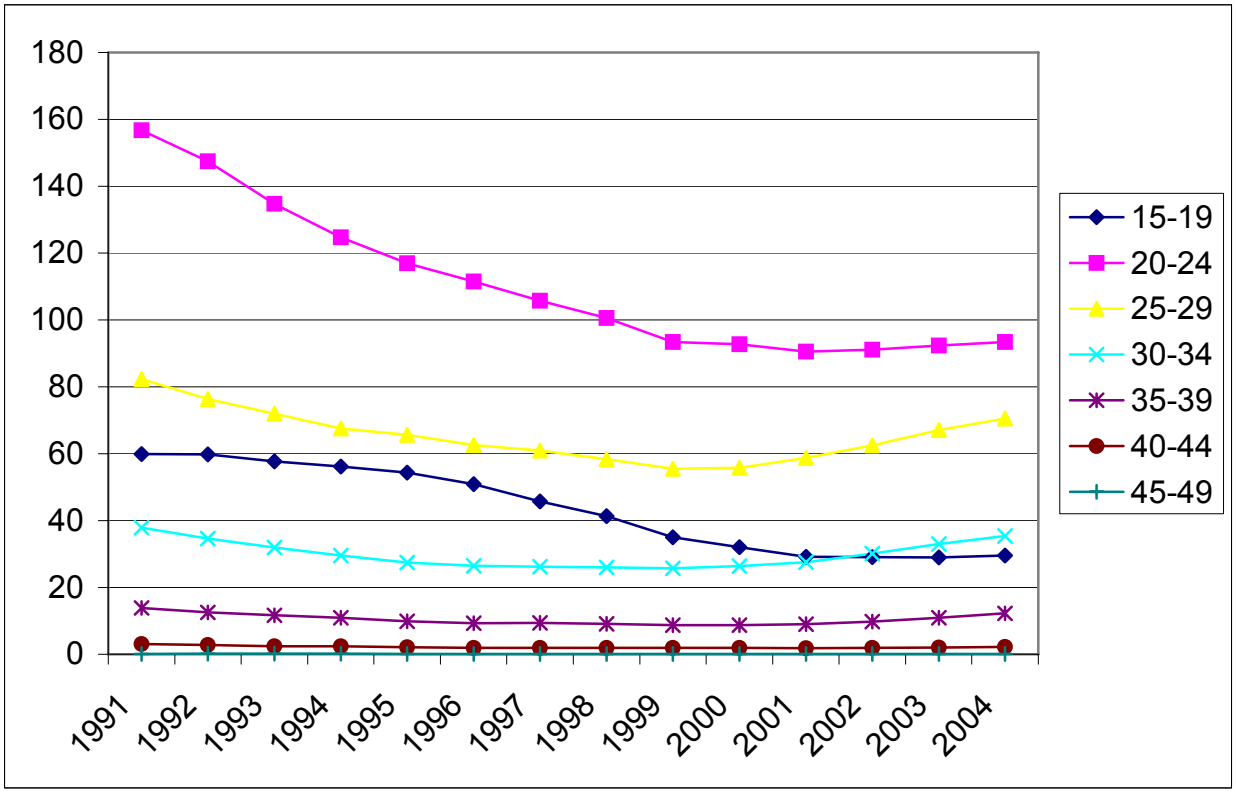

Fig. 6.3. Dynamics of the age-specific fertility rates during 1991-2004.
Source: data of the State Statistics Committee of Ukraine

The most active decrease of fertility among women of the youngest fertile age calls for particular attention, regarding the fact, that decrease of fertility in this age group of women has started rather late, as compared to the rest of women (in 1993), and has obtained high rates during the short period of time. Simultaneously, birth rates among women in the age of 20 still are rather high, in particular in the regions with domination of rural population, which traditionally have raised aims on children and earlier beginning of fertile activity.

Starting from 2001, the increase of intensity of childbirths among women in the age of 25-35 has been observed in Ukraine; the decrease of fertility among women in the age of 20-24 has been slowed down; the stabilization of birth rates among the youngest mothers (under 20) takes place. Considering, that the decrease of fertility has been realized during 1990's mostly by postponing of births (also by the first ones), the increase of birth rates among women in the age of 25-34 let us to make assumption on the beginning of realization of the postponed births by women in the age of 25-34 during 2001-2004. On other hand, these changes evidence on

the gradual forming of the new model of age-specific birth rates in Ukraine, which is characterized by ending of its traditional rejuvenation, growth of contribution of elder age groups of women under decrease of contribution of the youngest mothers to such level of the gross fertility rate, which results to some “ageing” of fertility and slowing down of the rates of families forming.

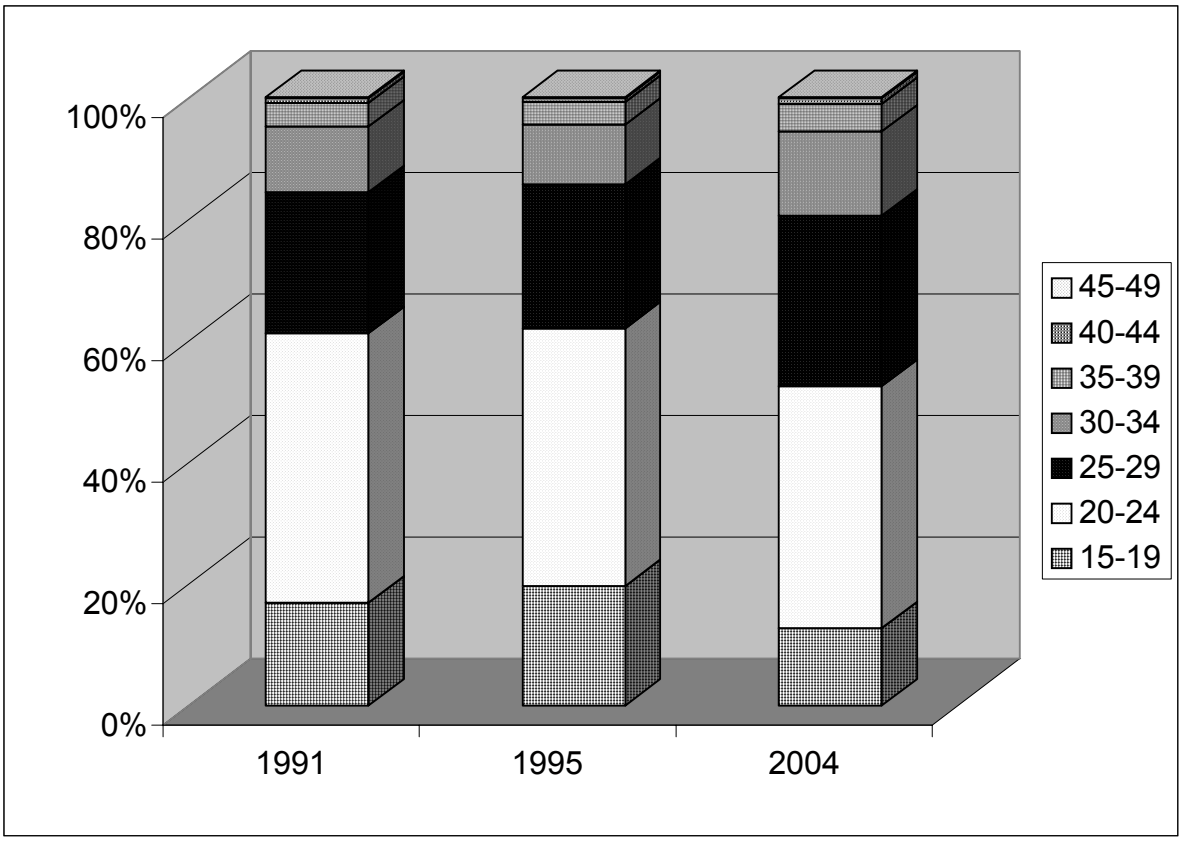

Fig. 6.4. Contribution of some age groups of mothers into the total fertility in Ukraine

Source: calculated by experts of the Institute for Demography and Social Studies of NASU

While the contribution of women in the age under 20 to the gross fertility has grown from 17 to 19.7% during the first half of 1990’s, it has dropped to 12.6% during 1995-2004. Contrary, a share of fertility rates among women in the age of 25-29 in the gross fertility rate has increased from 23.3% in 1991 to 28.0% in 2004; the corresponding increase for women in the age of 30-34 has made from 10.7 to 13.7% (Fig. 6.4). Presently, the process of the “ageing” of the fertility is more intensive in the cities. This trend is positive, as a high share of births among very young women is negative and problematic in the terms of preserving of health of a mother and a child.

Firstly, pregnancy and birth in very young age are accompanied by high risk of spontaneous abortions and complications during the birth, as well as by raised morbidity and mortality of prematurely born infants and high risk of maternal death. Secondly, the early births and early ending of fertile activity result in probable abortions of the future pregnancies on a background of insufficient prevalence of contraception. That makes a serious harm fo the reproductive health of women.

Table 6.3. The average age of mothers by sequence of births in Ukraine in 2003.

Sequence of births	Age of a mother, years		
	Urban and rural area	Urban settlements	Rural area
First	23,2	23,7	22,0
Second	27,8	28,7	26,3
Third	30,6	31,7	29,6
Fourth	31,9	32,7	31,4
Fifth and more	34,3	34,7	34,1
All children	25,4	25,7	24,9

Source: calculated by experts of the Institute for Demography and Social Studies of NAS of Ukraine

In the result of changes in age-specific birth rates, the average age of mothers has increased: according to our calculations, from 24.9 to 25.4 years during 1991-2003. The analysis of the average age of mothers at birth of children of different sequence provides with the next conclusions. Firstly, the first three children are born in the young age, and even the fourth child is born by women in the age of 31.9 years (Table 6.3).

Secondly, the larger number of children is born by women, the less is the difference in the age of mothers for different sequences of birth. Mothers with two children usually are on 4.6 years older, than mothers with one child; mothers with three children are usually on 2.8 years older than mothers with two children; this difference is even less between mothers with thee and four children - it makes only 1.3 years. That means, that it is more difficult to decide to have the next child for a woman, who already has a child (the first one), than for women, who have two children. The third child is born faster, than the second one, while the fourth child – faster, than the third one, etc. So, we can assume that the periods between the births are decreasing with increase of the number of children, who have been already born; the most difficult decision is about birth of the second child. The decrease of the difference in the age of mothers with increase of the number of children proves it, with exception of the last group, which accumulate fifth and other children.

It should be noted, that the traditional “sequence” of sexual, marital and fertile activity of the population of Ukraine presently experiences some changes. As the survey of 2004, shows, the public attitude to a woman, who decides to have a child without stable and permanent relations with a man, is rather liberal: a third part of the respondents approve this possibility; 25% think that it depends on the circumstances and 32% of respondents have rather negative attitude.

The marriage is not accompanied by a birth of the first child nowadays. So, we can speak on postponing of childbirths, including the first ones, and on a slight increase of the age of mothers at their births. It is also important, that birth of children out of marriage not always results in getting married, when the so-called “forced marriages” are common in the result of the unplanned pregnancy. Usually, these marriages are short-term and, on one hand, result in rejuvenation of fertility, on other hand – in the increase of divorces among families; thus the “protective” function of a marriage is weakening.

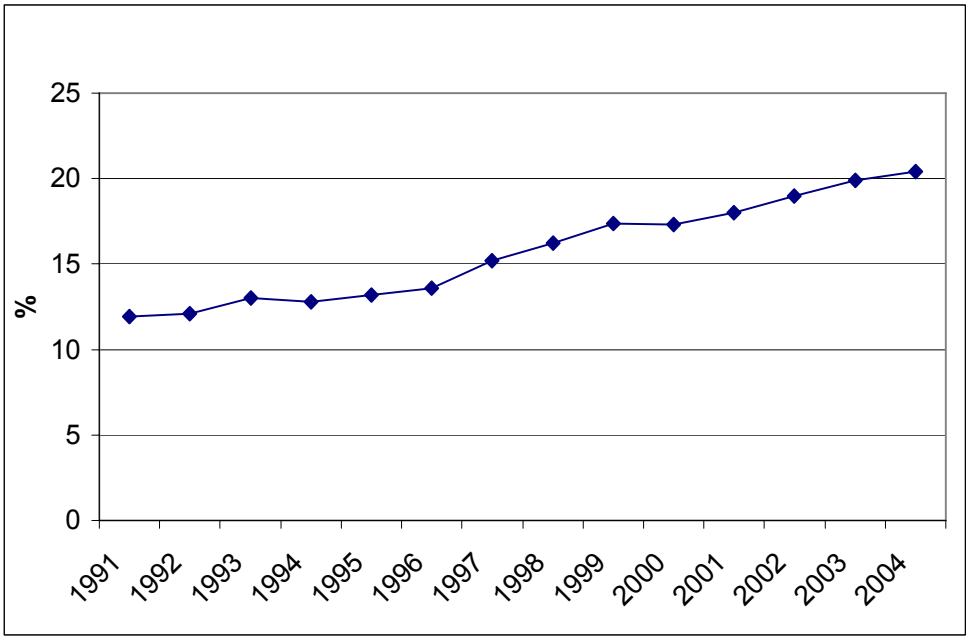

Fig. 6.5. A share of infants, born by parents, who are not in the registered marriage (1991-2004).
Source: data of the State Statistical Committee of Ukraine

Growth of a share of illegitimate births has been a characteristic feature of the dynamics of birth rates in Ukraine recently. Thus, a share of children, born by parents, who have not been in the registered marriage, has grown from 11.9 to 20.4% during 1991-2004 (Fig. 6.5). While the rate of illegitimate births has been higher in rural area at the beginning of 1990's, presently these type of births is almost equally widespread in urban and rural areas: their share was 20.7% in cities and 20.3% in the countryside in 2003.

6.3. Fertility by a type of a settlement

The comparative analysis of birth rates of urban and rural population is an important aspect of the fertility researches, as the urban-rural differences could prove the peculiarities of impact of economic, social, household and other living standards on forming of reproductive orientation of the population. Though the rate of fertile activity of rural population is higher, than the corresponding urban rates, rural birth rates have been lower, than urban ones during a log period. It is related to a very negative, old age structure of rural residents, which has been formed in the result of a large outflow of young people to cities in the result of unequal conditions of life and work in urban and rural areas. This trend has been amplified by the long-term irrational social policy of the Soviet times. High rates of ageing of rural population contributed to the decrease of the number of births; in combination with high mortality it has led to the beginning of the depopulation in rural area in 1979. The crude birth rates of the urban population have decreased from 11.9 to 8.9 births per 1,000 persons during 1991-2004, while the corresponding rates of the urban population – from 12.6 to 9.3‰.

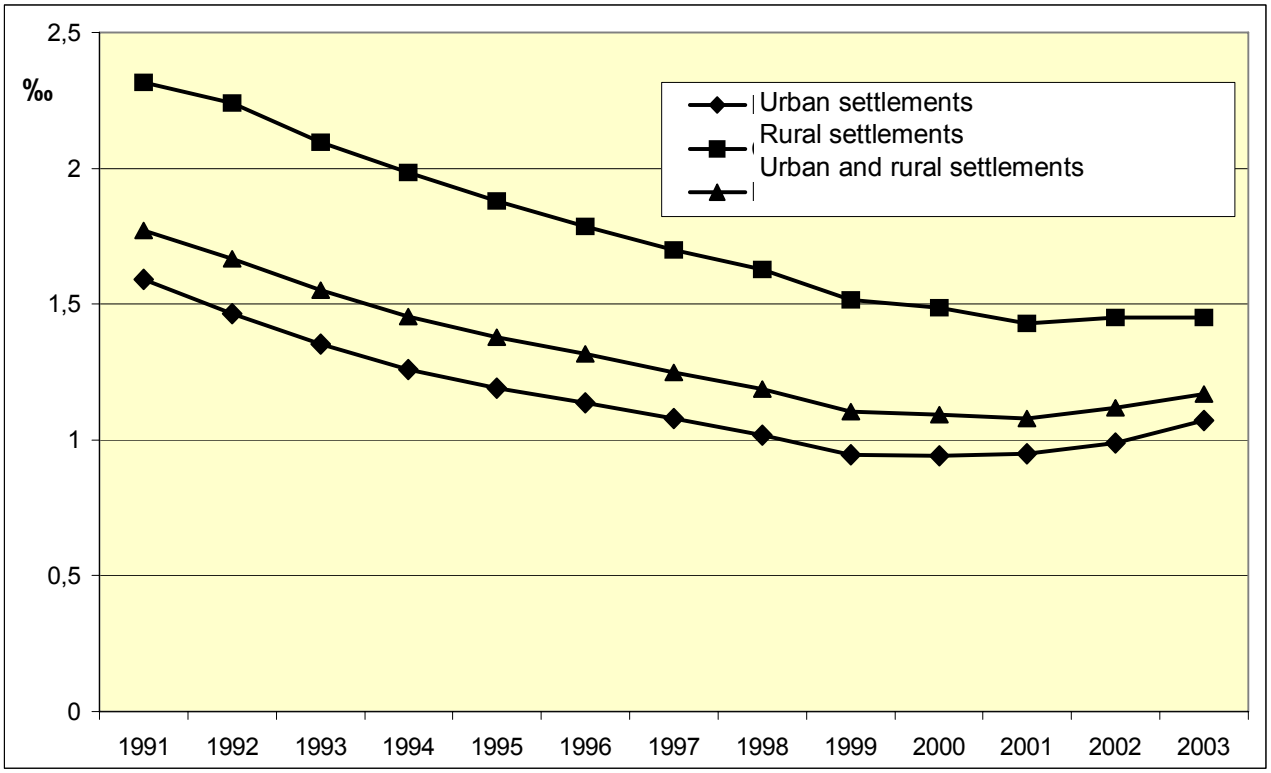

Fig. 6.6. Dynamics of the gross fertility rate in Ukraine during 1991-2003.
Source: calculated by the experts of the Institute for Demography and Social Studies of NASU.

As the crude birth rate is closely related to the impact of the population age structure, the indicators, which do not depend on the structural factors, should be used to analyze the real reasons in the fertility changes. The gross fertility rate could be such objective characteristic, as its dynamics has been defined by a stable decrease during 1990's. It has been reduced from 1.8 to 1.09 during 1991-2000, including from 1.6 to 0.9 in cities and from 2.3 to 1.5 in rural area (Fig. 6.6).

Thirdly, the early age of births of children of all sequences is observed in rural area, i.e. rural residents start their fertile activity earlier, as compared with urban dwellers. Thus, the first child is born in rural area averagely on 1.7 years earlier, than in the cities; the second one – correspondingly on 2.4 years. The disparities are growing with appearance of the next child: from the first one to the second one, while they start to drop from the third one and further. So, a place of residence as a factor of differentiation of fertility is important, when having first and second children, while it is not very important for children of the next sequences. Women, who prefer to have many children as in the cities, as in rural area, and obviously do not use the contraception means and reject of abortions, have their children in almost the same age. So, the age characteristics of women with many children differ insignificantly by a place of residence and are getting more similar with increase of children.

The growth of the gross fertility rate has occurred mostly due to the urban population during 2001-2004; the urban gross fertility rate has grown from 0.95 to 1.07. The gross fertility rate of the rural population has also grown from 1.4 to 1.5.

The reduction of fertility during 1990's has been accompanied by a clear trend to increase of the sequence of shares of the first children and reduction of the next children. A share of the first children has grown from 54.3 to 60.4% during 1991-2004, while a share of the second children has dropped from 33.1% to 29.9%, a share of the third children - from 8% to 6.3%. A share of the fourth children and the next ones is small and varies about 4%.

Almost 65% of children, who were born in the cities in 2004, were the first ones; they made more than a half of all births in rural area (51.4%) of the whole births (Fig. 6.7). A share of second children in the rural area exceeds the correspondent rate in the cities in 1.2 times. A share of the third children in rural area is twice higher, than the same rate in cities. Generally, about a third part of all first children, 39% of the second children and more than a half of the third children were born in the countryside in 2004.

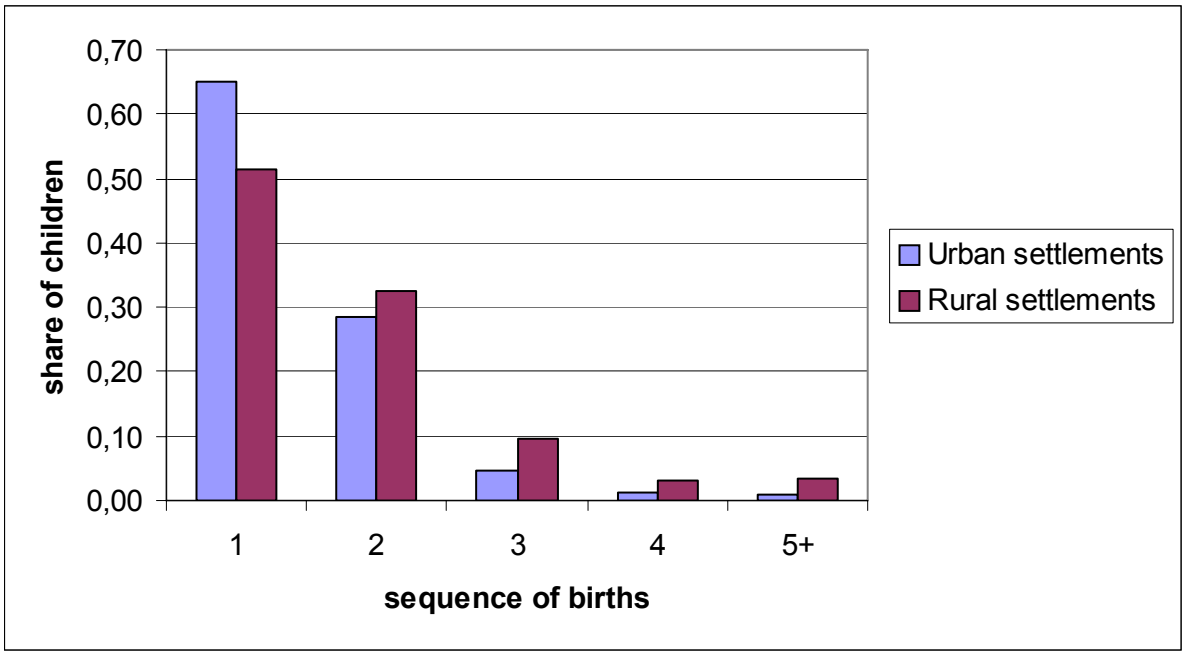

Fig. 6.7. Structure of the newborns by sequence of birth in urban settlements and rural area in Ukraine in 2004, %
Source: data of the State Statistics Committee of Ukraine

It should be noted, that the exceeding of the first children in the structure of newborns in Ukraine is also explained by early marriages and high share of young mothers. As it is known, the Ukrainian women traditionally get married and have children in the early age. The majority of women have children in the age under 30, being in the registered marriage, i.e. the main contribution to the growth of the population by the new generations is provided by young families. Thus, 80.3% of all children were born by women in the age under 30 in 2004, including 81% of women, who were in the registered marriage. Early marriages and birth of children also evidence on early ending of the fertile period of women and on fast rates of creation of families.

As Fig 6.8 shows, these indicators are characterized by important regional variation: in 2003 they varied from the minimal rate in the cities of Kyiv and Sebastopol (6-10%) to the maximal rates in Khersonska and Kirovogradska regions (17-18%).

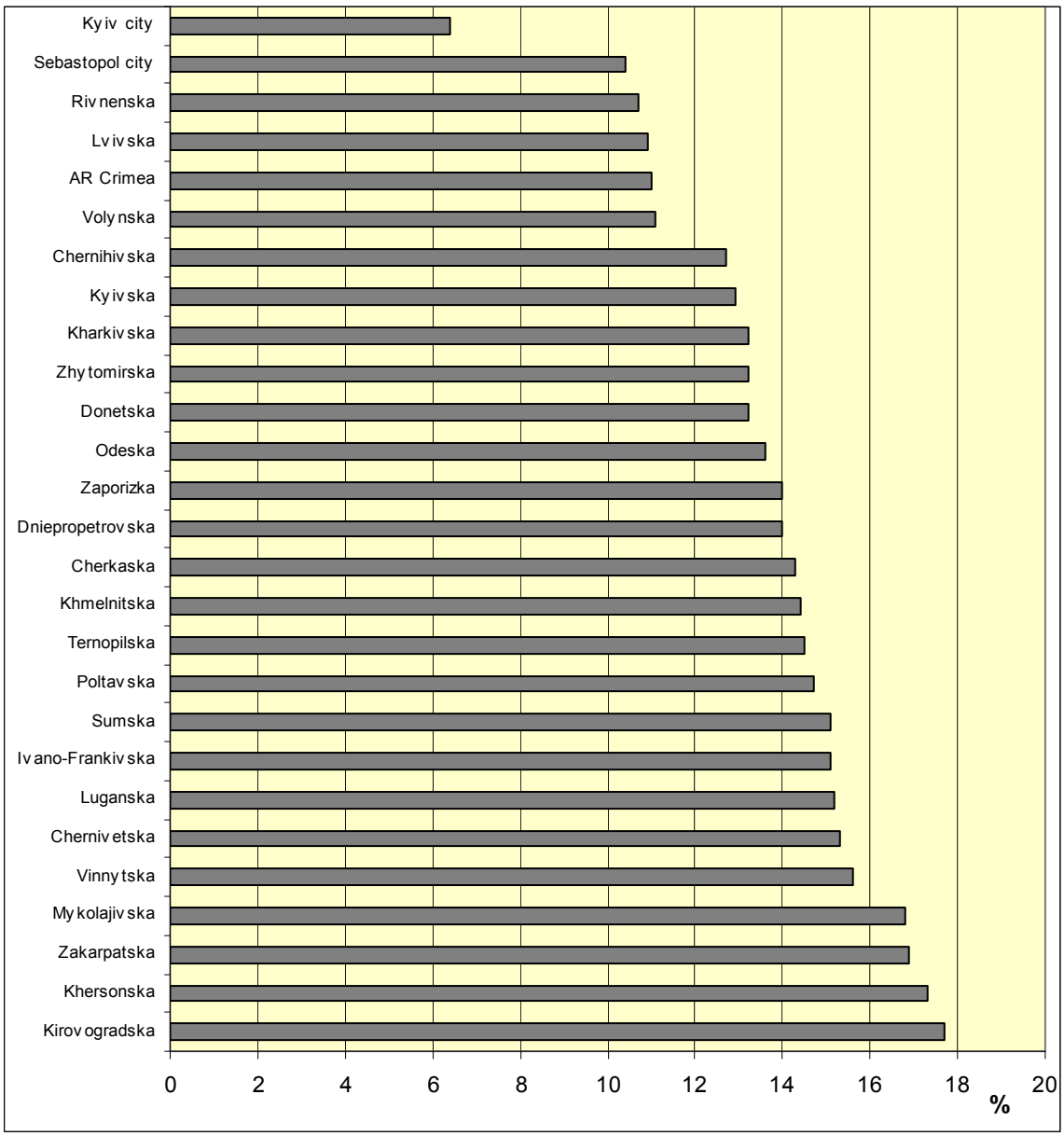

Fig. 6.8. Shares of children, born by women in the age under 20, in the total number of newborns in the regions of Ukraine in 2004, %

Source: data of the State Statistics Committee of Ukraine

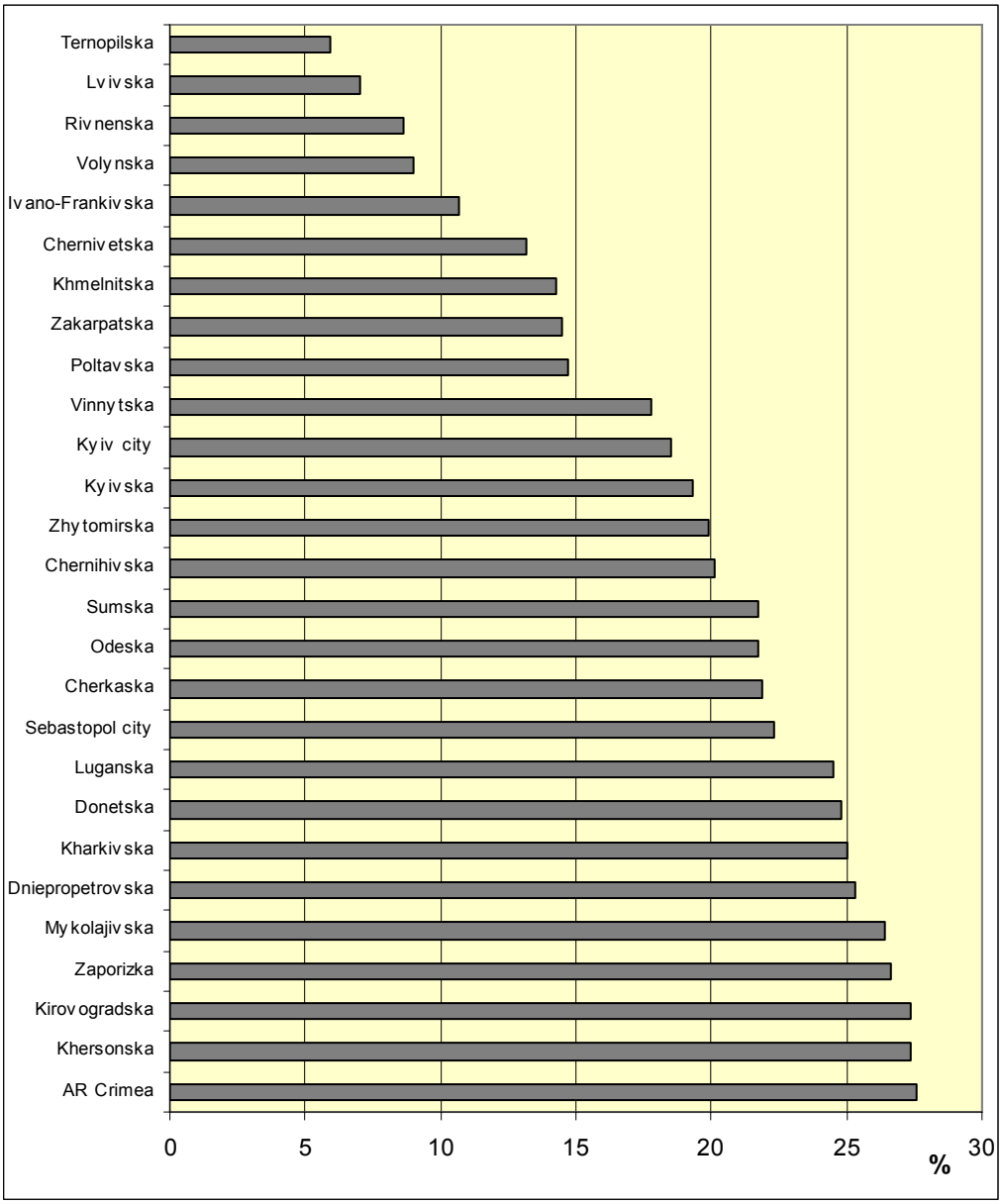

Fig. 6.9. Shares of children, born by parents, who are not in the registered marriage, in the total number of newborns in the regions of Ukraine in 2004, %
Source: data of the State Statistics Committee of Ukraine

At the same time, the rates of illegitimate births are defined by clear regional differentiation in Ukraine. While a share of illegitimate children does not exceed 10% in the western regions, it makes more than a quarter of all births in the southern and east-southern regions (Fig. 6.9). The lowest rates of illegitimate births were observed in Ternopilska region (6.5%), while the highest one – in Khersonska region (29.6%) in 2004.

It should be said, that illegitimate births not always concern the single women. Some parts of children are born in not registered marriages. The so-called consensual marriages are getting widespread among the youth. At the same time, the present statistics do not provide the data on a share of illegitimate children, who are recognized by their parents.

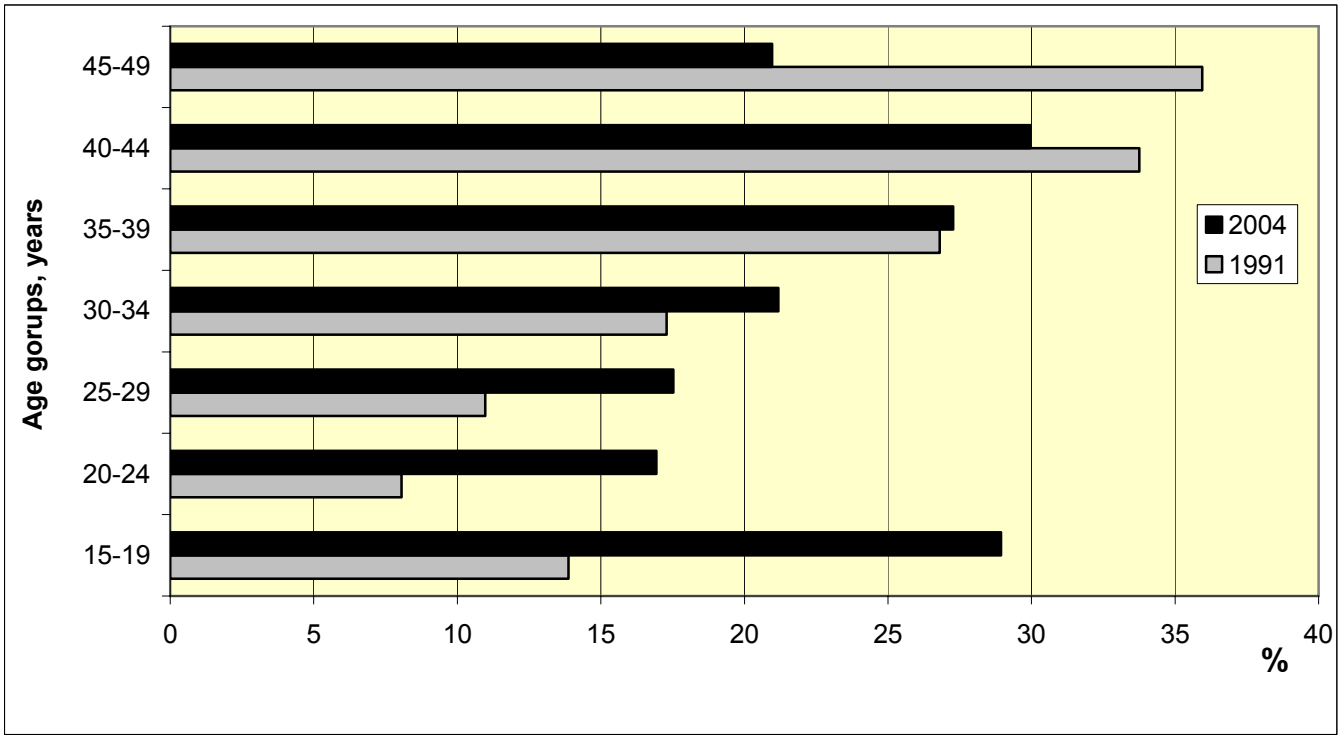

Fig. 6.10. Share of illegitimate births among children, born by mothers of different age groups in Ukraine in 1991 and 2004, %
Source: data of the State Statistics Committee of Ukraine

It is well-known, that illegitimate births are mostly common for the youngest and oldest age groups of mothers and result from insufficient availability of contraception in the young age or from the decision to have a child by a single woman of the elder age. But, as Fig. 6.10 shows, the contribution of elder women to illegitimate births has been reduced during the last decade; while illegitimate births become more widespread among women of the most active marital and fertile age. In particular, a share of illegitimate births has grown from 9.5% to 17.0% among women in the age of 20-29 during 1991-2004; while it has grown not so notably among women in the age of 30-39 (from 21.9% to 23.0%); it also has reduced among women in the age of 40-49 from 34.1% to 29.5%.

Secondly, a share of children, born by the youngest mothers, who have not been in the registered marriages, has increased almost twice; presently almost 30% of children, born by women in the age under 20, are illegitimate. These trends, obviously, are related to the changes in sexual behavior of the modern youth, in motivation of sexual relations, relations to a family and a marriage. The relation of the youth to sexual contacts becomes more liberal, as sexual contacts before marriage, more young age of the beginning of sexual life, frequent change of partners, and growth of illegitimate births show. In particular, as the survey of young families showed in 2003, only 5% of the respondents in the age under 30 think that sexual contacts before marriage are inadmissible, while 42% of the young people have been living together before creation of their families.

Thirdly, an illegitimate child not always is the first one. The average sequence of births depending on the marital status of mothers practically does not differ. The fact, that the average sequence of births was 1.78 in Ukraine in 2004 and more than a half of all born children were the first ones, provides with conclusions that the aim of one child prevail among the population. At the same time, the survey on the desirable ideal number of children provided with the next peculiarities of fertile aims of the population.

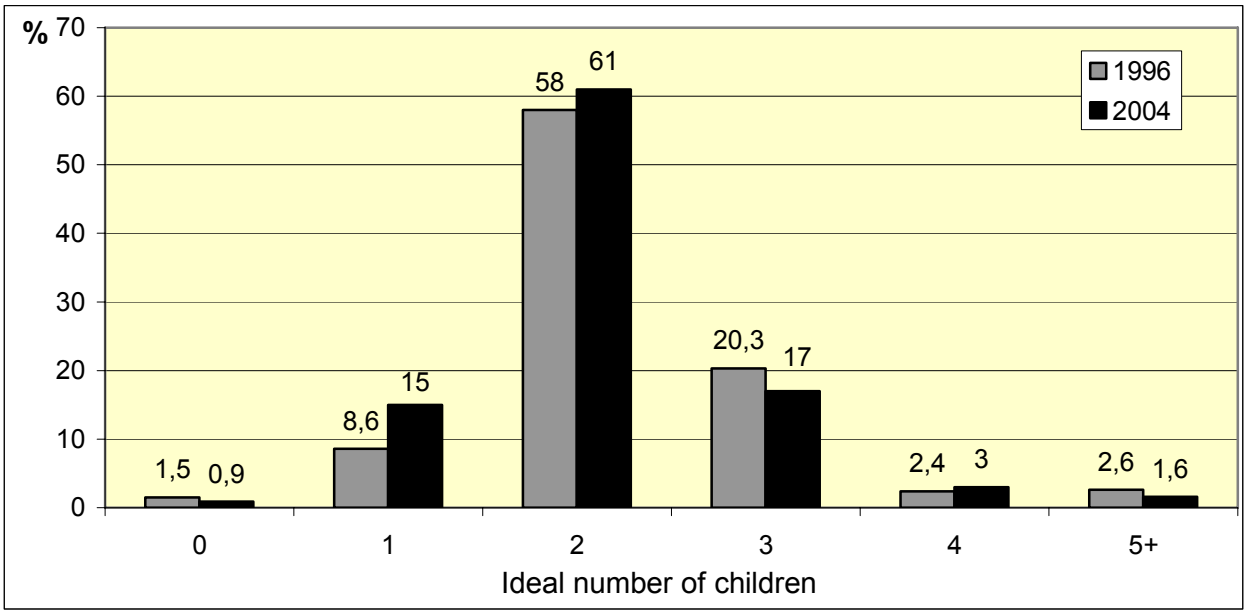

Fig. 6.11. Distribution of responds on the desirable ideal number of children in a family by the population survey results in 1996 and 2004, %

Firstly, almost two thirds of the respondents consider a family with two children as an ideal one; a share of these responds is rather stable: it made 58% in 1996 and 61% in 2004. Simultaneously, a share of those, considering, that one child is enough for a family, has notably grown during 1996-2004, while a share of those, who wish to have three children, has decreased (Fig. 6.11). In the result, the average ideal number of children has changed. While it was 2.2 children in 1996, in 2004 it made 2.13 children.

Secondly, there are no clear gender differences in the fertile aims: the male opinion is practically the same, as the female one. But, the reproductive aims are slightly different depending on education, age and social status of the respondents. They are higher among persons with primary education, employed in agriculture, unemployed and unable to work, while among the youth with high educational and social status the fertile aims are lower (Table 6.4).

Thirdly, there is the trend to reduction of fertile aims among the young generations, as compared with the older generations. According to our calculations, the ideal number of children for persons in the age of 18-28 was 2.18 in 1996, while it was 2.2 for the total number of adults. These rates were correspondingly 1.9 and 2.13 children in 2004.

Table 6.4. The average ideal numbers of children in a family by the population survey results in 2004.

Social-demographic characteristics of the respondents	Average ideal number of children in a family
All respondents, including:	2,13
- men	2,13
- women	2,13
- youth in the age of 18-28	1,90
- with primary education	2,62
-with secondary education	2,12
- with high education	2,05
- chiefs of enterprises, businessmen	2,10

- specialists, employees and military servants	2,00
- qualified and not-qualified workers	2,05
- employed in agriculture, farmers and leaseholders	2,28
- unemployed, unable to work, housekeepers and pensioners	2,21

Table 6.5. The average actual number of children of women in the age of 15-49 and over 50, according to the data of the All-Ukrainian population census in 2001*.

	Age of women, years	
	15-49	Over 50
Urban settlements and rural area, including:	1,7	2,2
- women, who are in the officially registered marriage	1,8	2,2
- employed women	1,7	1,9
Urban settlements, including:	1,6	1,9
- women, who are in the officially registered marriage	1,6	1,9
- employed women	1,6	1,8
Rural area, including:	2,0	2,6
- women, who are in the officially registered marriage	2,0	2,6
- employed women	2,0	2,3

** the average number of children is calculated per 1 woman of those, who have born children*
Source: calculated by the experts of the Institute for Demography and social studies of NASU

Simultaneously, the results of the surveys do not provide us with reasons to declare that family values have been weakened, in particular, the values of children. As the survey of the young families evidenced in 1996, 88.2% of men and 92.5% of women consider birth and raising of children as one the defining functions of a family. In 2003, this opinion was common for 82% of men and 88% of women, in 2004 – for 88% and 91.2% correspondingly. Also, a stable share of persons, who consider two children as the ideal number for family life, proves that there is a certain stereotype on the desirable size of a family among the population and its social groups. But, the majority of the population does not realize these aims on children, and the actual number of children largely differs from the desirable one, resulting from the prevalence of the one-child way of life

The calculations by the results of the All-Ukrainian population census in 2001 evidence that the average number of children for women in the age over 50, i.e. the summary fertility of women, who have ended their reproductive period of life, is 2.2 children (Table. 6.5). The same number of children has been usual for women during the previous 30 years. Presently, the situation has changed, as for women, who still are in the fertile age, the average number of children is 1.7. It is influenced, though indirectly, by different social characteristics of parents, in particular by a place of residence, employment, educational and marital status of women. While being married favor to some increase of fertility, the impact of employment obviously, is opposite. But, the most important differences are observed among women with different education levels.

Table 6.6. The average number of children of women in the age of 15-49 and over 50, who have born children, irrespective of their education level (according to the data of the All-Ukrainian population census of 2001*)

Education	Age of women, years	
	15-49	Over 50
High (complete, basic, primary and unfinished)	1,6	1,8
General secondary (complete and basic)	1,8	2,2
Primary general secondary (and those, who have no primary education)	2,0	2,5
Illiterate	2,7	3,0
All women	1,7	2,2

** the average number of children per 1 woman of those, who have born children*

Source: Calculated by the experts of the Institute for Demography and Social Studies of NASU

As it is known, the level of education and qualification of women largely defines her status, level of culture, peculiarities of family life, structure of the needs, which make an impact on the decision on the number of children in a family. As the Table 6.6 shows, the average number of children is growing with reduction of the education status of mothers: while there were averagely 1.8 children, born by women in the age over 50, who have high education, during their fertile period, the corresponding rate of women, who have only secondary education, was 2.2 children; there were 2.5 children per woman with primary education. So, the contribution of illiterate women into the reproductive “reserve” of fertility is more important, each of them have born averagely three children.

Thus, firstly, the lowest fertility was observed among mothers with highest education, while less educated women usually have many children. Secondly, these peculiarities are related as the actual number of children, as to the ideal desirable number. Thirdly, the impact of education is notable as a determinant of the families forming not for the first children, but mostly for children of the next sequences. More educated women usually postpone or even reject of the birth of the next children more often, than less educated ones. Regarding, that the education of the whole population, and of women in particular, has notably increased during the period between censuses (1989-2001), it is logically to project, that its growth would become the determinant of the limitation of childbirths in the future. High living standards, which are characteristic for the more educated part of the population, care of the education and qualitative professional-qualification level of the growing up generation require some investments of the parents; also, high employment rate, large labour burden of a woman in a family and at work, favour to limitation of the size of a family and force parents to satisfy the need in children by only one child.

Another important factor, which makes an essential impact on the fertility rate in Ukraine, is presented by abortions rate and state of reproductive health of women. High frequency of abortions, in particular during the first pregnancy, increases the risk of spontaneous abortions and further bareness, resulting in restriction of the possibility to

have the desirable number of children in a family. The negative consequences on abortions for the females' health are becoming more urgent, as they could be a factor, preventing of the satisfying of the need in children.

Table 6.7. Distribution of responds on the question „Do you approve abortions, depending on the next circumstances?", according to the results of the survey of the population of Ukraine in 1999 and 2004, %

	Approve		Do not approve		It is difficult to respond	
	1999	2004	1999	2004	1999	2004
When a woman is single	36,7	33,0	35,5	44,0	25,9	19,0
When spouses do not want to have more children	50,6	39,0	30,,8	38,0	16,7	19,3

The opinion of the population on abortions is not uniform. It is notably influenced by motives and circumstances, which lead to refusal of a childbirth (Table 6.7). In particular, when spouses do not want to have more children, the opinion on abortions is less critical, as compared with the case, when a woman explains an abortion by her loneliness. The comparative analysis of the surveys in 1999 and 2004 also evidences, that the negative estimation of abortions by the respondents has a tendency to grow. For instance, abortion has been approved by 50.6% in the case of refusal of spouses of further childbirths in 1999 and only 39% in 2004; while in a case of loneliness of a woman - correspondingly – 36.7 and 33%.

It should be mentioned, that a sharp reduction of fertility in Ukraine during 1990's could result in the long-term negative consequences in case of this trend preserving. Fertility, as it is known, is an important component of the population reproduction, which is needed for reproduction of generations, provision of the numerous renewing of the population and achievement of its long existence. Low fertility is not only a reason of the depopulation, which results in the average losses of about 365-370 thousand persons yearly. The negative results of a sharp decrease of fertility include also the notable fluctuations of the number of the working age population and deformation of its age structure, reduction of the number of persons of working age and increase of the demographic dependency rates in the result of getting retired of the more numerous persons.

These phenomena will be characteristic for the nearest demographic dynamics of Ukraine, as the radical shift in the area of fertility is not expected; the gross fertility rate will not exceed 1.3 children per woman till 2010. So, despite of more numerous generations of women, who have been born in 1980's and will enter fertile age in the nearest decade, the demographic behavior of the population, which is based on the aims of one child in a family, will make a negative impact on the fertility rate. Thus, the prospects of development of modern families in Ukraine are closely related to having of one child. The positive changes in this area, when each family will be able to realize their plans on the desirable of children, will be stable only in a case of the notable

increase of the material well-being of the population, improvement of the living and households conditions and fertile activity.

6.4. Determinants of the decrease of fertility

Decrease of fertility and transition to one-child families has become the characteristic feature of the new demographic processes in our country. They are related to changes in the fertile behavior of the population, resulting from the external economic conditions, which characterize social status of a woman in the society, the level of her education, employment, social security, incomes, as well from the level of satisfaction of the personal needs and interests. All these factors make direct impact on forming of the structure of the needs, with changed role and place of the need in children. Owing to the absence of economic interest in children, low fertility and related unsatisfied self-reproduction of the population have become the phenomena and main challenges for the present developed society. In this regard Ukraine is not an exception among the developed European countries, whose demographic regime is defined by a drop in fertility.

The smaller number of children can be regarded as the strategic priority of a family, which desires to keep some level of the material well-being and to provide better quality of education and care for children. The smaller is the size of a family, the larger possibilities of participation in labour and public activity are opened for women, as well as possibilities to satisfy their career aims.

In this regard, the smaller number of children results in the growth of qualitative characteristics of the population. We should consider, that the tern «qualitative» does not mean lower quality or lack of quality in families with high fertility rates. This term is descriptive, as it defines socio-demographic situation, when the smaller number of children leads to a possibility of larger investments into a child.

But, a very sharp decrease of fertility, which has been observed in Ukraine during the end of 1990's, resulted from the deep economic recession, decrease of the living standards and incomes of the majority of the population. This drop resulted in the notable reduction of the material base of the realization of the needs in children, as young people started to postpone childbirths till the better times. Sharp social and economic transformations in Ukraine during 1990's have an impact on forming of fertile activity and resulted in the large shifts in fertility and structure of families. But, a sharp decrease of fertility cannot be related exclusively to economic reasons. The economic crisis is forming a feeling of uncertainty in the future, and also results in the careful attitude to a possibility of childbirth.

Also, decrease in fertility at the beginning of 1990's partially has been formed by the "artificial" measures on fertility stimulation in 1980's. The state started to realize the active policy, targeted on support of families with children in the middle of 1980's; correspondingly, the last boom of fertility was observed. Many families have realized their fertility more early; correspondingly the calendar of births, replaced for the early period, has been formed. The opposite replacement of the calendar of births has took place before the beginning of 1990's, being also among factors of reduction of fertility of 1990's.

The realized analysis of fertility shows, that if women would bear children with the same rates, as in 1989 (before the beginning of social-economic transformations), the probable fertility potential would make 677.1 thousands in 2003, while the gross fertility rate – 14.2 instead of the real one in 8.5 per 1,000 persons. The probable number of births in the cities would make 447.8 thousand persons, in rural area – 229.3 thousand persons, i.e. it could be in 1.6-1.7 times higher than the real one. The deficit of births in

2003, namely the difference between the real number of births and the hypothetic one, makes 268.5 thousand persons.

The impact of the structural factor of the dynamics of births is non-uniform. It has been accelerating the drop in fertility during 1990's. Under condition of unchangeable age structure of women of fertile age at the level of 1989, the absolute number of births could make 425 thousand persons in 2003, i.e. to be on 16.4 thousands larger, than it was observed in the reality.

Another characteristic feature of the demographic situation in Ukraine is found in combination of the fertility crisis with a sharp deterioration of the population health, including the reproductive health, increase of mortality and drop in the life expectancy, which are not observed in the developed countries.

Thus, the increase of death rates, especially of males of the active fertile age, is also among factors of the fertility reduction.

A sharp drop in fertility during 1990's in Ukraine, which has been put on the global trend of the decrease in fertility, resulted in a range of serious social-economic challenges:

- Excessive ageing of the population and related large increase of the demographic dependency on the working-age part of the population result in the urgency of problems of financial provision of pension system;
- Excessive dependency rates on the employed part of the population could provoke a conflict of interests of different age groups – of working persons of the economically active age (payers of pension contributions) and of elder persons – recipients of pension benefits;
- Sharp fluctuations in the number of contingents could result in the temporarily lack or excess of preschool establishments, schools and pedagogical personnel, whose maintenance requires a large part of the budget means on education.

7. THE STATE OF HEALTH AND MORTALITY OF THE POPULATION

7.1. Health of the population and trends of morbidity

Health is among the key characteristics of the population and an important resource of social and economic development of a state. Achievement of good health and longer span of healthy life (without illness) is among the main investments into economic growth of a country. Simultaneously, reproduction of health is not only the basis of social and economic welfare, but also its result, as it reflects the conditions of public life. The disparities in health and mortality are quite sensitive indicators of quality of life and living standards at some place, as well as of effectiveness of the resources distribution, level of social infrastructure development, environment problems etc. So, the specificity of the population health forming should be investigated in close relation to the societal environment.

The deterioration of the population health in Ukraine has been characterized by the next peculiarities during the last decade:

Firstly, the prevalence of chronic diseases has increased, resulting in accumulation of a large number of chronic diseased patients. According to the data of the Ministry of Health of Ukraine, the rate of initial diseases[7] of the population has grown on 11% during 1990-2004, while general diseases rate (prevalence of diseases) has grown in 1.5 times during this period: from 110.5 to 168.2 thousand cases per 100,000 persons (Fig. 7.1.1). About 67-68 thousand diseases, revealed for the first time, are registered in Ukraine annually.

[7] An indicator of initial diseases rate shows a number of the new cases of diseases in the current year, while an indicator of general disease (prevalence) – a total number of diseased persons, accumulated in a certain time span.

Secondly, there have been some negative shifts in the structure of population morbidity. Namely, a share of infectious diseases has grown (especially of tuberculosis, HIV/AIDS, sexually transmitted infections), as well as shares of such heavy chronic diseases as cardiovascular and endocrine ones, tumours etc.

Thirdly, an increase of prevalence of diseases has been observed among all population groups, but it was the largest among infants and adolescents. Nowadays, poor health indicators of the young generation are among the largest problems. The initial disease rate of adults (in the age of 18 and older) has grown insignificantly during 1991-2004, while those of infants – in 1.2 times, of adolescents – in 1.6 times. As to the prevalence of diseases, it has grown in 1.4 times among adults, in 1.6 times among infants and almost twice among adolescents.

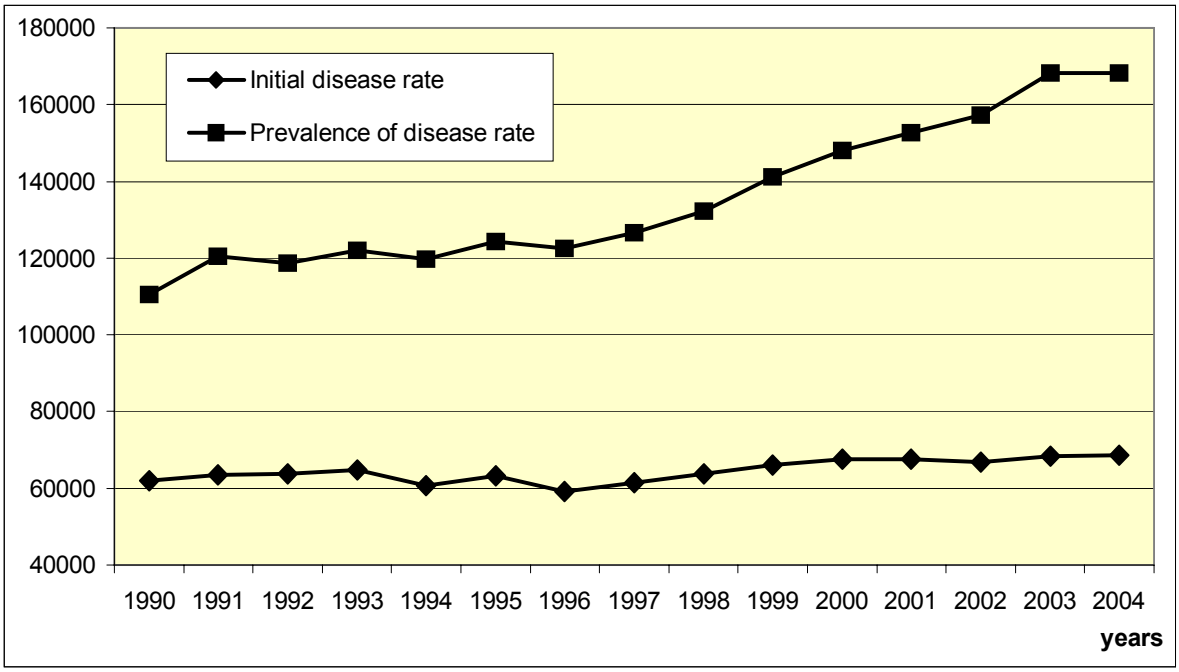

Fig. 7.1.1. Dynamics of rates of initial diseases and prevalence of diseases in Ukraine during 1990-2004 (per 100,000 persons)
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

The diseases of blood circulation and respiratory systems occupy the leading place in the structure of morbidity in Ukraine. The diseases of digestive system, bones and muscular system, eyes and their additional apparatus, genito-urinary system are also wide-spread. Regarding the structure of morbidity in 2004, the first place was occupied by respiratory diseases, which made 41.5% of the total initially registered diseases, the second one – by diseases of blood circulation system, the third one – by traumas and poisoning, the forth one – by pathologies of genito-urinary system, the fifth one – by skin and hypodermic diseases. These five reasons covered almost 70% of initially registered diseases in 2004 (Fig. 7.1.2).

The Ukrainian population health has been deteriorated during the last decade; the prevalence rates have grown almost for all classes of diseases. The growth was particularly large for some non-infectious somatic diseases (Table 7.1.1). In particular, the rate of blood circulation diseases has grown in 2.3 times during 1989-2004: from 2,341 to 5,283 cases per 100,000 persons. Regarding nosologic forms of this class diseases, hypertension and stenocardia are particularly important: in 2004, they covered 67.3% of the total number of initially registered diseases of blood circulation.

The rates of hypertonic disease are higher among women, while sharp heart attacks of myocardium and insults are observed among men more often.

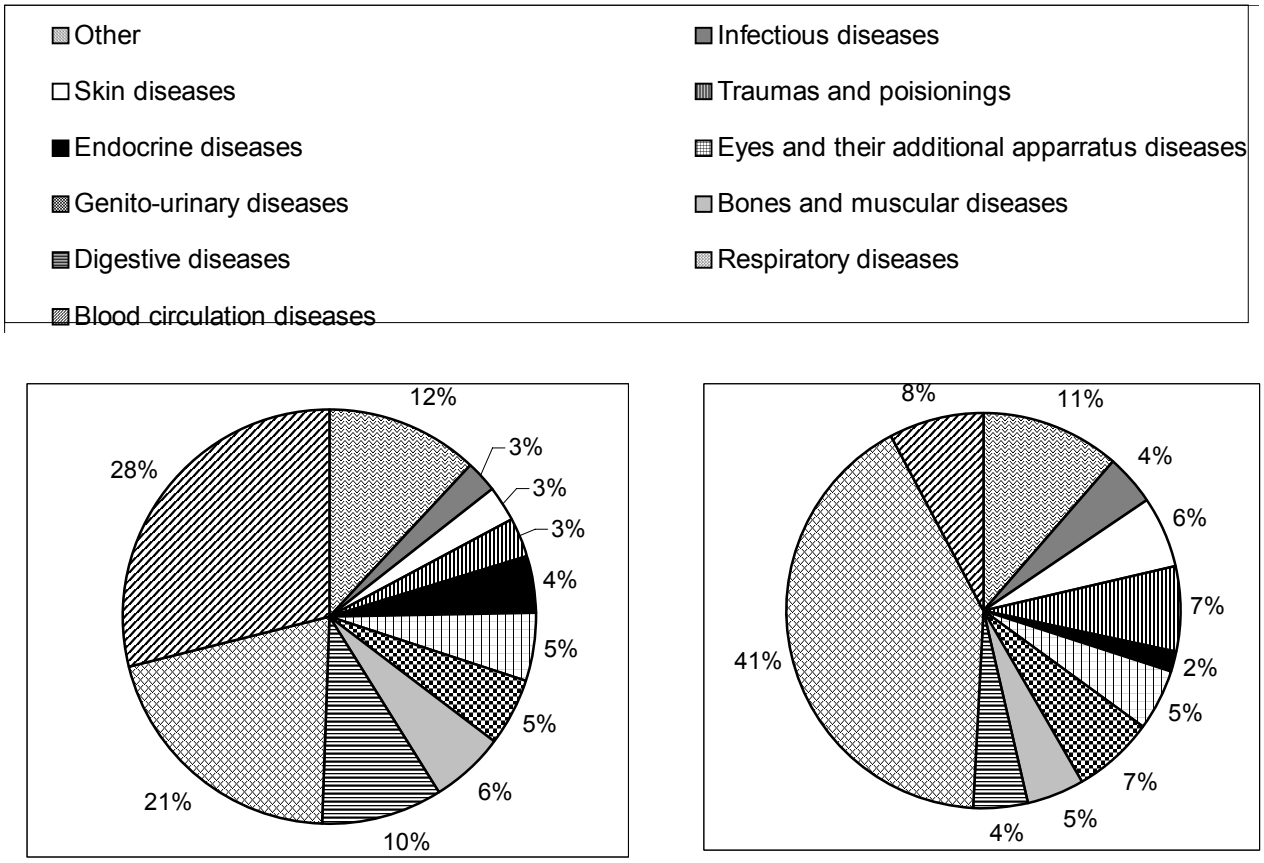

Fig. 7.1.2. Structure of initial diseases and their prevalence by the main disease classes in Ukraine in 2004, %

Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

Table 7.1.1. Rates of initial registered diseases by their main classes in Ukraine in 1989 and 2004 (per 100,000 persons)

Classes of diseases	1989	2004	2004 as % of 1989
Number of initially registered cases of all diseases, including:	63784	68907	108,0
Respiratory system	33861	28582	84,4
Nervous system and sense organs*	5131	7550	146,7
Complications during pregnancy, birth of a child and during the postnatal period	3241	5302	163,6
Blood circulation system	2341	5283	225,7
Traumas and poisonings	5712	4748	83,1
Genito-urinary system	2442	4555	186,5
Skin and hypodermic	3532	4055	114,8
Bones and muscular system	2669	3403	127,5
Digestive system	2363	2990	126,5
Infectious and parasitic	2560	2822	110,2
Endocrine system **	648	1191	183,8
Tumours	611	859	140,6
Blood and blood forming organs	174	508	292,0
Mental and behaviour dissonances	556	489	88,0
Congenital anomalies	78	117	150,0

** including diseases of eyes and ears*

***rates of 1989 do not include hyperplasia of a thyroid gland of I-II levels.*
Source: calculated by the data of the State Statistics Committee of Ukraine

As it is known, occurrence and development of hypertonic disease is related to such risk factors as poor-quality and imbalanced diet (excessive consumption of sated fats), alcohol abuse, smoking, excessive body weight, low physical activity, psycho-emotional stresses etc. In 2004, 1 million of new cases of hypertonic disease were registered, while in the end of 2004 about 3.9 mln. persons were under clinic supervision with diagnosis of this pathology. Hypertension often leads to occurrence of such cardiovascular diseases as ischemic illness of heart and affections of brain blood circulation, which, in their turn, are among the most wide-spread reasons of disability and premature death. Testifing about the scales and negative consequences of high prevalence of these diseases, the rates of death of vascular affections of brain in Ukraine are three times higher than the corresponding rates of the developed European countries (regarding ischemic illness of heart - 5 times higher). At the same time, it is quite problematic to reduce the population losses related to hypertension. Firstly, because of the low population awareness on this disease, absence of practice of control over the stresses, wide-spread bad habits; secondly, because of unsatisfactory organization of preventive maintenance, in-time diagnostics and effective treatment of patients with purpose to prevent further complications.

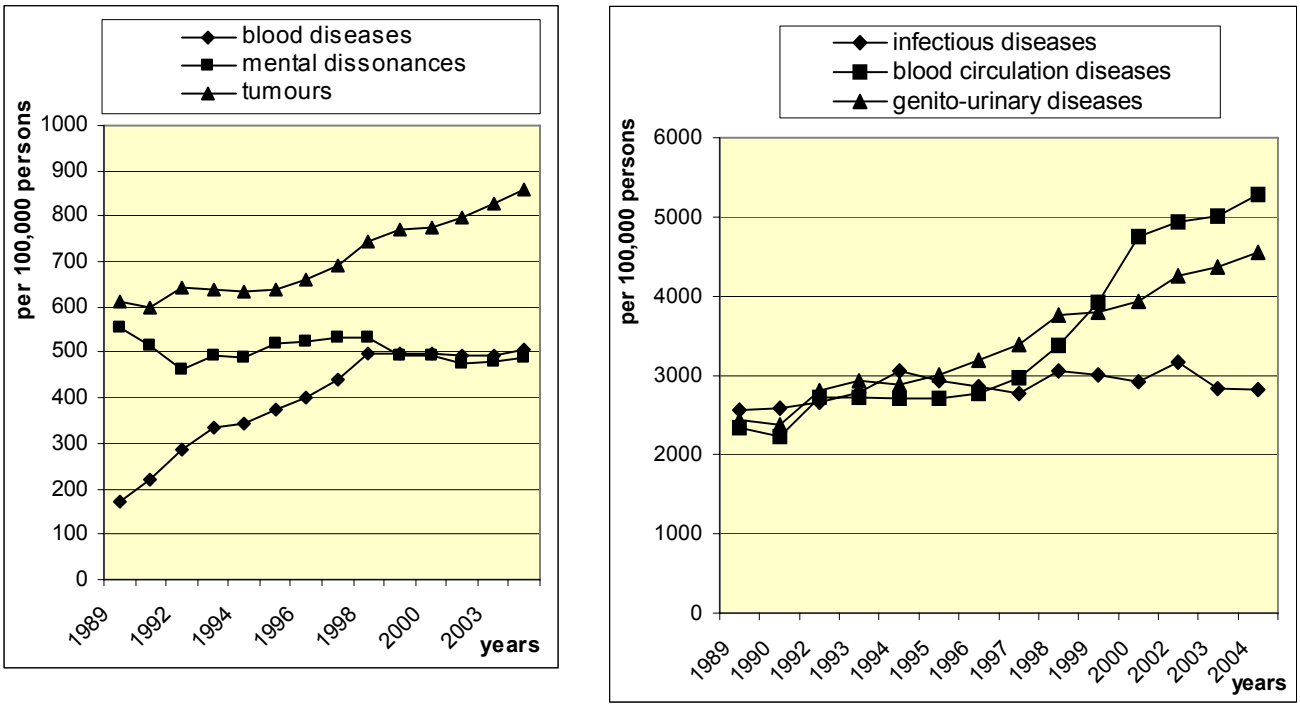

Fig. 7.3. Dynamics of rates of diseases on infectious pathologies, diseases of blood circulation, genito-urinary system, blood and blood forming organs, mental dissonances and tumors in Ukraine during 1989-2004 (per 100,000 persons)
Source: data of the State Statistics Committee of Ukraine

The rates of genito-urinary system diseases are also increasing in Ukraine (as compared with 1989, the rates have increased in 1.9 times), as well as complications during pregnancy and postnatal period (correspondingly in 1,6 times) and congenital anomalies (in 1,5 times). The increase of diseases of blood and blood forming organs has been impressive during the specified period: it made almost 3 times (Table 7.1.1, Fig. 7.1.3). Anemia is the most widespread illness of this class. The rates of oncological diseases have also grown in 1.4 times among the Ukrainian population during 1989-

2004. In 2004, the diagnosis of the initially registered malignant tumours has been revealed to 155.9 thousand persons. While men more often suffer from cancer of lungs, stomach, skin, bladder and prostate, women more often experience malignant tumours of mammary gland, stomach, skin and body, cervix of the uterus.
At the same time, prevalence of other classes of diseases has slightly decreased, including diseases of respiratory system, traumas and poisonings, other consequences of external actions.

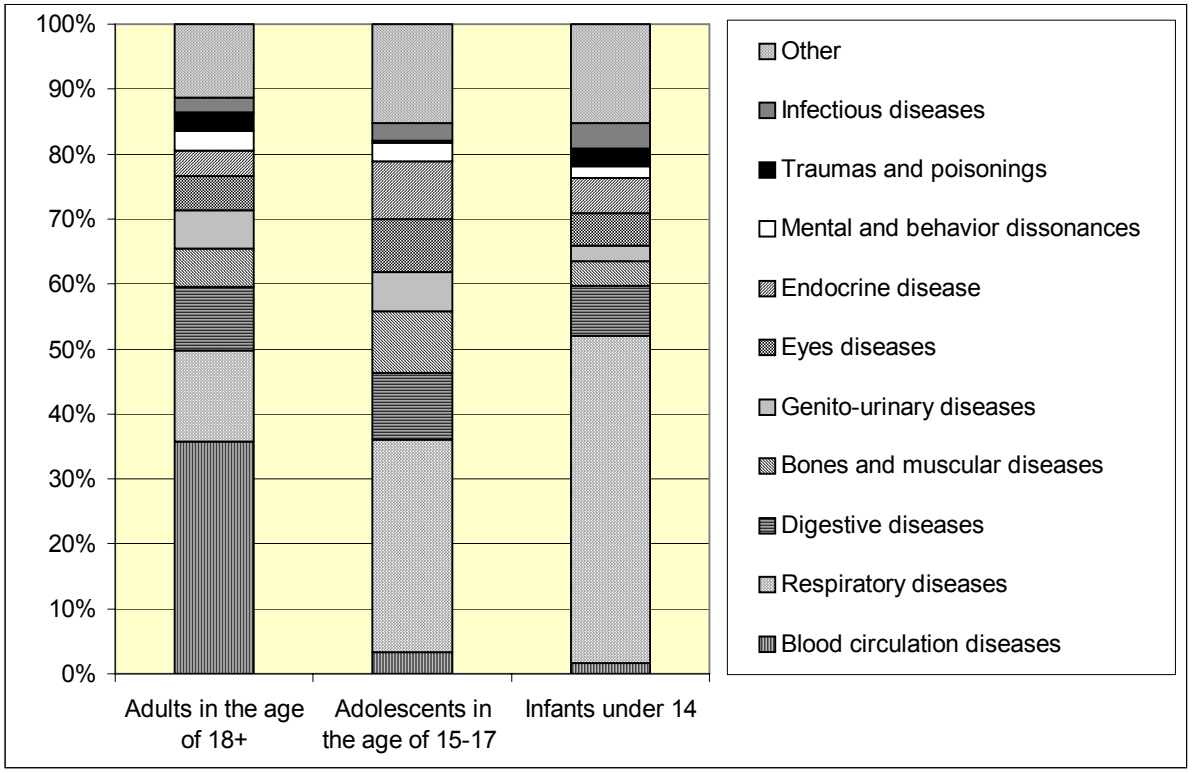

Fig. 7.1.4. Structure of diseases prevalence by their main classes among adults, adolescents and infants in Ukraine in 2004, %

Source: calculated by data of the Center of Medical Statistics of the Ministry of Health of Ukraine

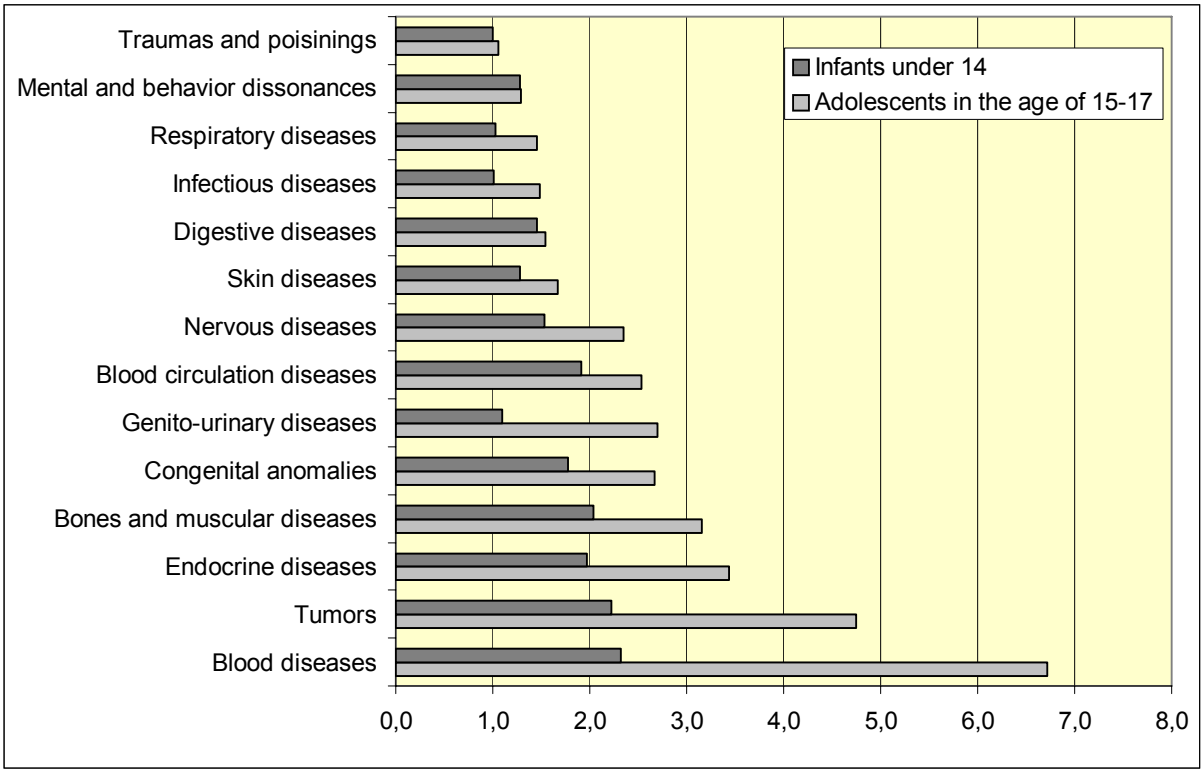

Fig. 7.1.5. Rates of prevalence of diseases growth for adolescents and infants in Ukraine in 2004 as compared to 1991, times

Source: calculated by data of the Center of Medical Statistics of the Ministry of Health of Ukraine

The analysis of dynamics of prevalence and initial diseases rates of adolescents and infants testifies to deterioration of their health. As compared to adults, adolescents and infants more often suffer of diseases of respiratory system, bones and muscular system, endocrine pathologies, diseases of eyes and their additional apparatus. As to the structure of morbidity of adolescents and infants in 2004, respiratory diseases made correspondingly 31.1 and above 50%, digestive diseases – 9.8 and 7.7%, diseases of bones and muscular system - 9 and 3.7%, endocrine diseases, disorders of digestion and metabolism – 8.5 and 5.4%, diseases of eyes and their additional apparatus – 7.8 and 5% (Fig. 7.1.4).

During 1989-2004, the growth of pathologies has been noted for many classes of diseases. Advanced growth rates of blood and endocrine systems diseases (three times among adolescents and twice among infants), tumors (in 2,5 times among adolescents and 2,2 times among infants), bones and muscular system (twice), congenital anomalies and chromosomal disorders (in 1.5 times) have become the characteristic attributes of the young generation (Fig. 7.1.5).

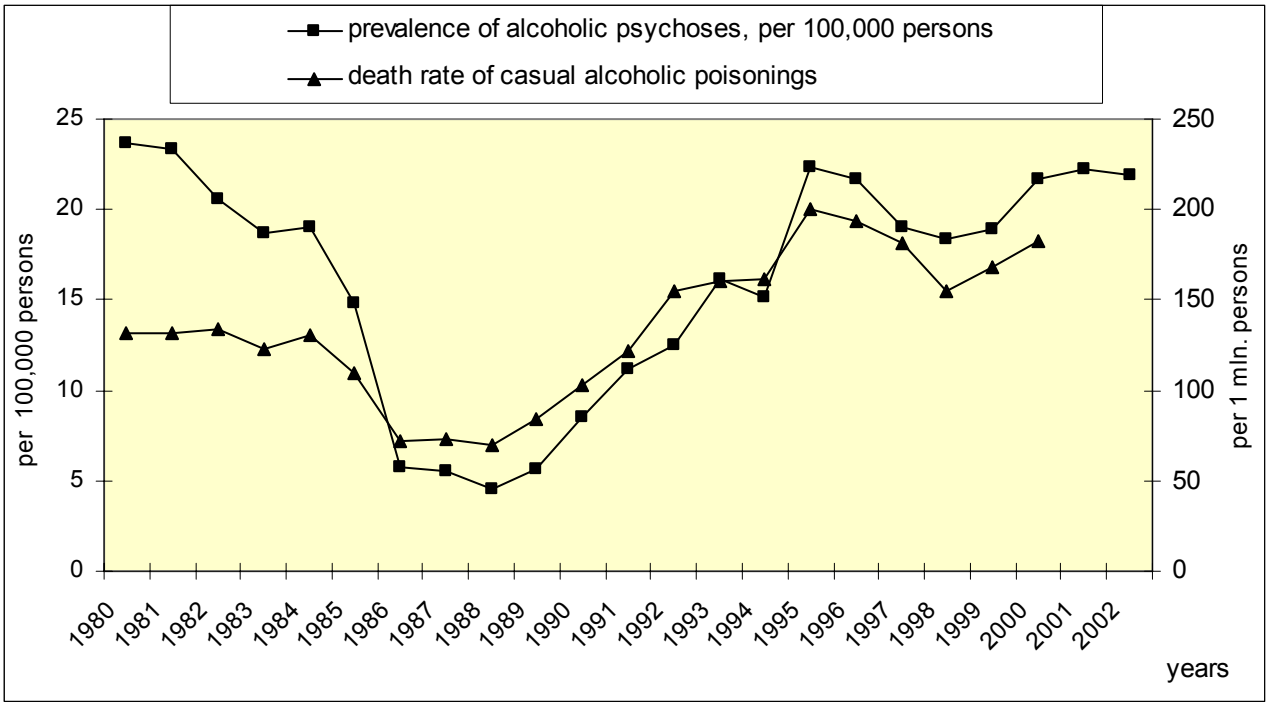

Fig. 7.1.6. Dynamics of alcoholic psychoses and standardized death rates of casual alcoholic poisonings in Ukraine during 1980-2002.
Source: data of WHO (HFA DB)

A high rate of alcoholism is characteristic for the population of Ukraine. The number of patients, suffering from chronic alcoholism and alcoholic psychoses, who have been officially registered in the Ukrainian public health institutions during last years, exceeded 700 thousand persons (according to the Center of Medical Statistics of the Ministry of Health of Ukraine as on the beginning on 2005 – 639.5 thousand persons). At the same time, by estimations of foreign experts, the prevalence of mental and behaviour dissonances, caused by alcohol use, is considerably larger: nearby 2,5 million persons in Ukraine are alcohol dependent. Though the rates of alcoholic psychoses have been marked by astable dynamics during 1990's, the increase has been observed during the last years. According to the WHO data, the rates have grown from 11.2 in 1991 up to 21.9 in 2002 (per 100,000 persons) (Fig. 7.1.6). The prominent features of the Ukrainian population morbidity are presented by rejuvenation and feminization of alcoholism. Also, high alcoholism rates are combined with more and more dangerous prevalence of narcotism among youth and, respectively, result in increase of dissonances of mentality and behaviour due to use of psychoactive substances. Demographic consequences of over-high consumption of alcohol in Ukraine include not only losses of health, but also result in numerous premature deaths, caused by factors, which are directly and indirectly related to abusing alcohol (alcoholic psychosis, alcoholic cirrhosis of liver, cardiovascular diseases, accidents, poisonings and traumas and others).

Table 7.1.2. Structure of the total diseases burden by the main DALY causes* in Ukraine and Sweden in 2002.

Ukraine			Sweden		
Causes of DALYs	**DALYs, in 1,000**	**%**	**Causes of DALYs**	**DALYs, in 1,000**	**%**
All causes, including:	11340,8	100,0	All causes, including:	977,4	100,0
Ischemic illness of heart	2067,8	18,2	Monopolar depressive frustrations	95,0	9,7

Cerebral-vascular diseases	958,4	8,5	Ischemic illness of a heart	86,1	8,8
Monopolar depressive frustrations	525,3	4,6	Cerebral-vascular diseases	52,5	5,4
HIV/AIDS	354,5	3,1	Alzheimer disease	52,3	5,3
Traumas due to self-hurting	339,3	3,0	Loss of hearing	39,1	4,0
Chronic lungs diseases	321,4	2,8	Diseases related to alcoholic dependencies	35,0	3,6
Poisonings	312,3	2,8	Chronic lungs diseases	28,6	2,9

* DALY (disability-adjusted life-years) – a unit of estimation of the total burden by diseases, defining the number of the lost years, caused by premature death and temporarily or constant disability.

Source*: The European health report 2005: public health action for healthier children and populations. – WHO, 2005.*

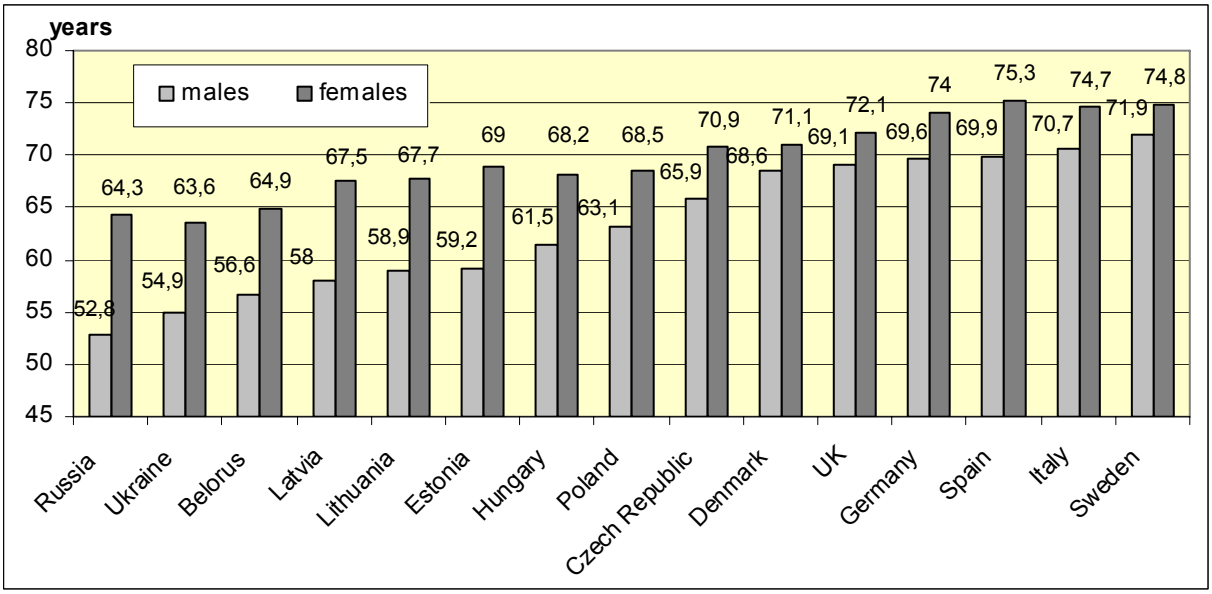

Fig. 7.1.7. Healthy life expectancy at birth (HALE*) in Ukraine and some European contries in 2002, years

* HALE (healthy life expectancy) – expected life span in conditions of health, without any illness. When calculating this indicator, not only mortality is considered, but also disability, caused by diseases.

Source: The European health report 2005: public health action for healthier children and populations. – WHO, 2005.

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The original integrated characteristic of the population health (of illness - to be more exact) is offered by the WHO as a level of the total burden of diseases, measured by indicator of DALY. It shows the number of years, which have been lost in the result of premature death or disability/invalidity caused by illnesses. Comparison of the specified rates calculated for Ukraine and Sweden (a country with one of the highest life expectancy in the European region) reveals some problems of the population health and its protection in our country (Table 7.1.2). In 2002, Ukraine has lost 11.3 million person-years of life, caused by premature death and invalidity/physical inability.

Differences in causes of losses of health in Ukraine, as compared with the developed countries, result from high relation to such risk factors as: smoking, abusing alcohol, unbalanced diet, risky sexual behaviour, harmful conditions of work, inactive way of life. Obviously, these factors can explain differences in the structure of the total burden of diseases, consisting of the raised part of losses of healthy years of life, caused by ischemic illness of heart and cerebral-vascular diseases, as well as by HIV/AIDS, poisonings and traumas. As a consequence, the average healthy life expectancy at birth (HALE) was only 54.9 years for men and 63.6 years for women in

Ukraine in 2002. The respective gaps with corresponding rates of Sweden reached 17 years for men and 11.2 years for women (Fig. 7.7).

Improvement of conditions of medical and demographic processes in Ukraine requires a wide complex of public actions, targeted on preservation of the population health and life. Though recent efforts of the state public health sector have become more active, a serious obstacle on this way is found in the weakness and low efficiency of the existing system of health services. Nowadays, there is no precise vision of reforming of medical services in Ukraine; there is also no unanimity concerning introduction of new mechanisms of financing of medicine and increase of efficiency of activity of medical area. It concerns, first of all, the ways of decentralization of financing and management of medical institutions, opportunities of introduction of medical insurance, the solution of problems of privatization of medicine.

The conditions of financing of the Ukrainian public health services do not satisfy the needs of consumers of medical services. The limited resources need to be distributed to serve more increasing number of patients. At the same time, it should be noticed, that financing of public health services in Ukraine has gradually increased during last several years; nevertheless there was no substantial improvement of quality of health services. So, one should search for the reasons of low efficiency of public health services not only in lack of funding, but also in irrational distribution of available financial resources and in absence of effective control by their use. There is a deep gap between quantitative and qualitative indicators of medical services in Ukraine. Presence of a large, sometimes unreasonably overestimated medical infrastructure (number of hospitals and clinics, use of hospital beds, hospitalization of patients and other) has not led to achievement of high quality of medical services. Finally, it has made a negative impact on the population health. Till now, the centralized financing of medical services has not answered the actual pressure on hospital establishments, while the level of wages - to the efficiency of their work. The development and strengthening of the institutional abilities of the state in public health services and preserving of a life can be reached through realization of the precise strategy of reforming of the medical sphere, targeted on improvement of quality of medical services and increase of their availability to all citizens.

At the same time, the creation of public moods, directed to the healthy way of life, social and personal motivation to preservation and strengthening of health is even more important in Ukraine. Reduction of health losses and prolonging of the healthy life expectancy are impossible without raising of the living standards and change of quality of life. They also require an environment, friendly for construction of the behaviour models, oriented on care and health protection at the individual level, without forming and education of the " will to health ", which induces to a long, healthy and productive life.

7.2. Problems of reproductive health

Reproductive and sexual health is an important compound of the general state of the population health, as its well-being defines opportunities of satisfactory and safe sexual life, ability to motherhood and paternity. Protection and support of reproductive health is an inalienable right of a person, therefore provision of a wide access of young people to qualitative services in this sphere should become one of the priority directions of the modern organization of medical services. The issue of reproductive health preservation is of particular urgency, regarding the negative present situation in Ukraine. Unsatisfactory states of health of a mother and a child, high prevalence of gynecologic diseases, growth of prevalence of sexually transmitted infections and HIV,

quite high rates of abortions and infertility testify about unsolved problems in reproductive health protection in Ukraine. The situation is becoming more complicated, as deterioration of reproductive health has turned out into an important factor of birth rate drop, which nowadays does not provide a simple population reproduction and replacement of generations.

Issues of reproductive health are closely related to intimate aspects of the young persons' life, character and motivation of their sexual behaviour, relations between sexes. Presently, the essential changes have been observed in sexual behaviour of the Ukrainian youth, resulting in more liberal public attitude to sexual relations before and out of a marriage, younger age of sexual life beginning, frequent change of sexual partners, and annual growth of illegitimate birth rate. Some surveys show, that young people, who carry out an active sexual life, have more loyal opinion on sex with casual partners, as well as illegitimate sexual relations. Sexual behaviour of youth could have risky forms, as it is often accompanied by low culture of sexual relations, as well as by insufficient level of contraception use, especially at the first sexual contact.

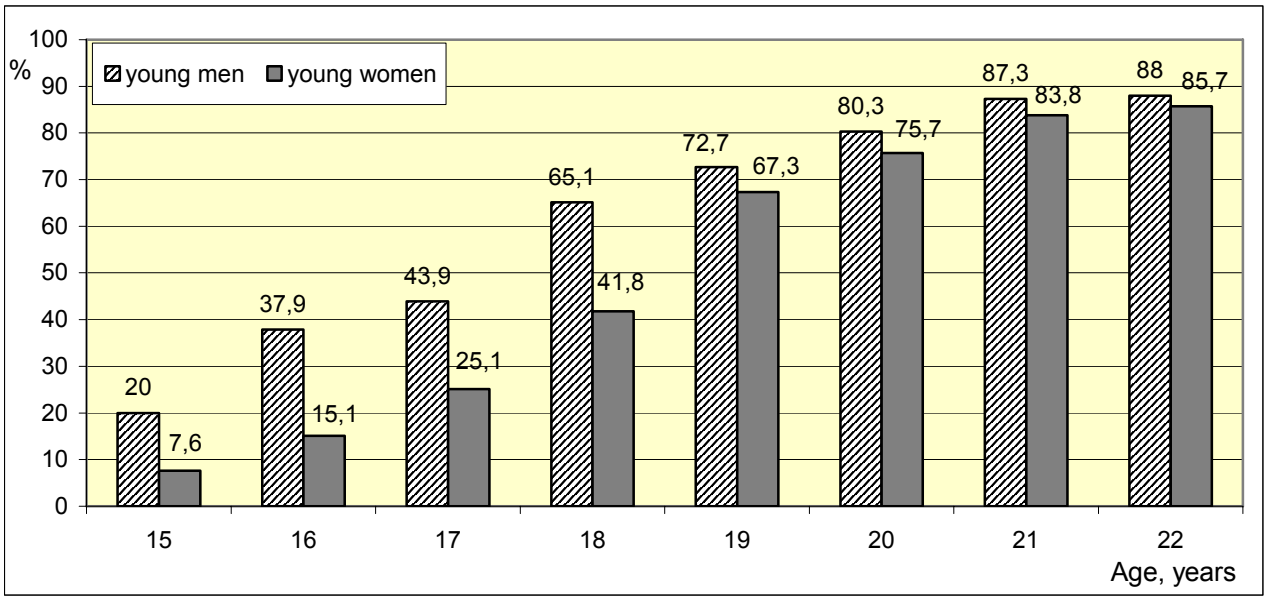


Fig. 7.2.1. A share of sexually active young men and women within the total investigated youth in the age of 15-22, %

Source: National survey on adolescents and youth in 2003, realized by the Ukrainian Institute of Social Studies [4].

The results of numerous sociological surveys confirm these trends in Ukraine. In particular, according to the results of the National survey of youth in the age of 10-22, realized by the Ukrainian Institute of Social Studies in 2003, 12% of boys and 4% of girls among pupils in the age of 10-14 have had sexual relations. A share of sexually active adolescents is quickly increasing with their age: each fifth investigated young man and 7.5% of girls in the age of 15 have had some sexual experience (Fig. 7.2.1). Regarding age of 18, two thirds of the investigated young men (65.1%) and almost 42% of girls were sexually active, while 86-88% of respondents in the age of 22 had active sexual life [4]. The tendency of younger age of the first sexual experience requires a particular attention, as the mean age of marriage and childbirth have been gradually increasing during the last years. As the age of sexual life is getting younger, a marriage and childbirth lose their "sequence" and get more prolonged in time. Earlier beginning of sexual life among youth, as compared with older generations, prevalence of sexual relations before and out of a marriage testifies to "liberalization" of attitude to sexual

relations among the youth, but it also leads to a problem of prevention of undesirable pregnancies and sexually transmitted diseases (STDs) more urgent.

Sexually transmitted diseases, undesirable pregnancy and, as a consequence – abortions, are the main factors of reproductive health deterioration, resulting in reproductive losses in Ukraine. So, prevalence of STDs not only causes direct losses of health (infertility, congenital pathologies of development and raised risk of death of newborns), but also essentially raises a susceptibility to HIV. The negative trends of prevalence of sexually transmitted diseases, is among important factors, contributing to development of epidemic of HIV/AIDS in Ukraine.

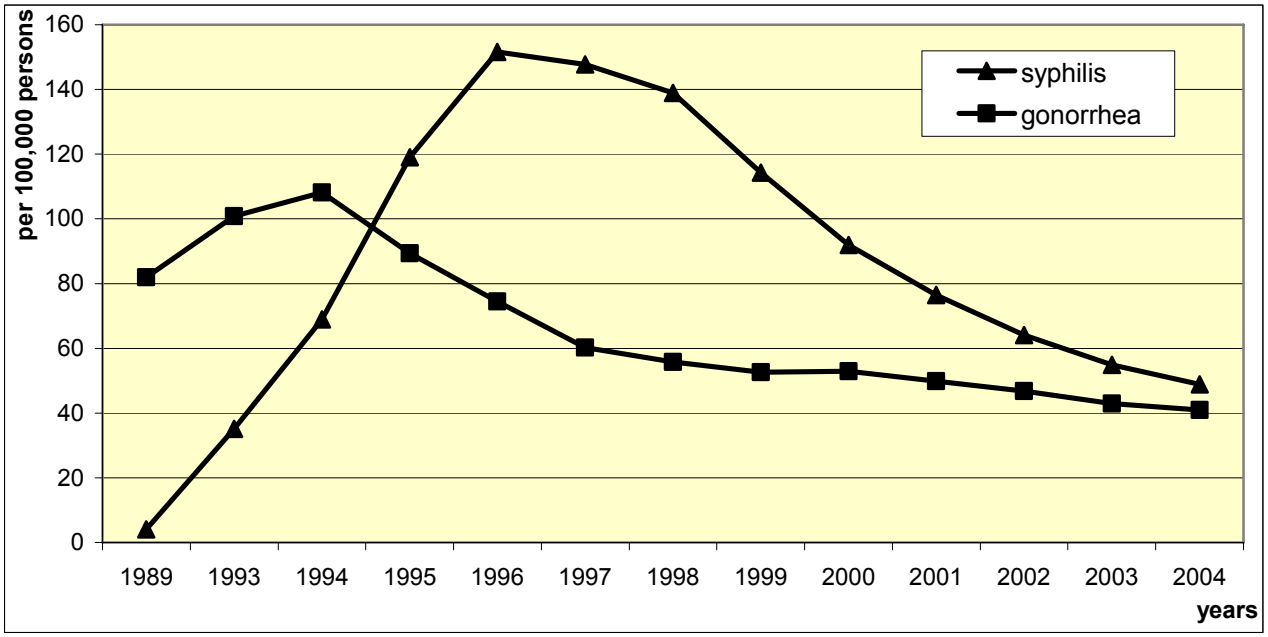


Fig. 7.2.2. Dynamics of syphilis and gonorrhea rates in Ukraine during 1989-2004 (per 100,000 persons)
Source: data of the State Statistics Committee of Ukraine

In particular, the rates of syphilis growth have been significant during the first half of 1990's. The number of patients with initially established diagnosis of syphilis has raised from 4.1 cases in 1989 up to 151.6 in 1996 (per 100,000 persons), i.e. in 37 times; the rates of gonorrhoeas - from 81.9 cases in 1989 up to 108.2 in 1994 (per 100,000 population). The peak of syphilis growth was observed in 1996, while the same for gonorrhoeas - in 1994; then the drop in their rates has been observed (Fig. 7.2.2). In 2004, there were 48.9 cases of syphilis per 100,000 persons and respectively 41.0 cases of gonorrhoeas. The rates of gonorrhoea decreasing were essentially faster, than the rates of syphilis. Though, this dynamics is quite doubtful, as there is a probable lack of statistical registration of many cases of gonorrhoea, which are not registered by the corresponding medical statistics. In turn, it can be related to an opportunity of private health services and treatment of gonorrhoea.

The rapid growth of syphilis prevalence during 1990's has made the largest impact on the youngest population groups: while in 1993 there were 51 cases of syphilis per 100,000 of adolescents in the age of 15-17, the corresponding figure was 218.7 in 1996. The prevalence of syphilis has been dropping during the last years, reaching 35.2 cases per 100,000 of population in 2004. It should be noted, that prevalence of syphilis and other STDs is much more wide-spread among young women, as compared to young men; girls make above two thirds of the patients. The raised vulnerability of girls to sexual infections can be related to some degree to their usual sexual relations with

older men, who have greater sexual experience and respectively higher probability of infections. The risk of STDs transmittance is raised by not protected sexual contacts and large number of sexual partners. Also, significant gender disparities in STDs at teenage age could prove the early prostitution among girls. According to the Ministry of Health of Ukraine, 46 of each 100,000 women get ill on syphilis in 2004, while the corresponding figure among girls in the age of 15-17 was 54 persons.

The danger of STDs prevalence among adolescents is related to their usual reluctant attitude to visiting doctors, thoughtlessly regard to treatment, listening to doubtful advices of friends. Meanwhile, the consequences of a prolonged progress of these diseases are leading to a risk of the further reproductive pathologies, including infertility, complications during pregnancy, intra-uterine infections of a germ, congenital anomalies and lacks of development in newborns. Prevalence of STDs also contributes to increase of frequency of inflammatory diseases of genitals. About 10% of girls in the age of 15-17 have these pathologies: the frequency of inflammatory diseases among teenage girls has raised from 6.9 cases in 1995 up to 15.3 cases in 2004 (per 1,000 persons) [5, 6]. Reproductive health of the future mothers is also negatively influenced by increase of somatic diseases as a whole. In the young age, girls often have a large burden of diseases, resulting in the future complications during pregnancy and childbirth. It concerns, first of all, prevalence of diabetes and congenital anomalies of blood circulation, which have notably increased during the last decade.

The issues of motherhood and paternity, possibility of satisfaction of the need for children are closely related to many problems in the sphere of reproductive and sexual health. High prevalence of diseases among pregnant women and prevalence of interruptions of pregnancy due to health problems certificate on unsolved problems in this area. Thus, a share of pregnant women with anemia has increased from 20.4% in 1993 up to 36.4% in 2004, with late toxicosis - from 7.3% up to 10.4%, with diseases of genito-urinary system - from 6.5% up to 16.5% respectively (Fig. 7.2.3). Deterioration of the pregnant women health is related to many factors: total decrease of the living standards and quality of life, insufficiency and poor quality of services on reproductive health protection, prevalence of risky sexual behaviour. Unsatisfactory conditions of somatic health of pregnant women raises the risk of interruption of pregnancy and of complicated birth of a child. Averagely, the normal births represent only about a third part of their total number (36.2% as on 2004). Their share has been decreasing due to more frequent complications by a late toxicosis (from 70 cases on 1,000 of births in 1993 up to 98.5 in 2004), diseases of blood circulation system (respectively from 116.4 up to 248.1). The problem of pregnancy interruption has got a particular urgency in Ukraine with regard to the low birth rates, as it contributes to the direct reproductive losses, mostly - of desirable children. This parameter has increased from 7.3 in 1990 up to 10.2 in 1996, mainly due to more frequent spontaneous abortions. During the last years, the level of pregnancy interruptions has been stabilized; it made 6.7 in 2004 (Fig. 7.2.4).

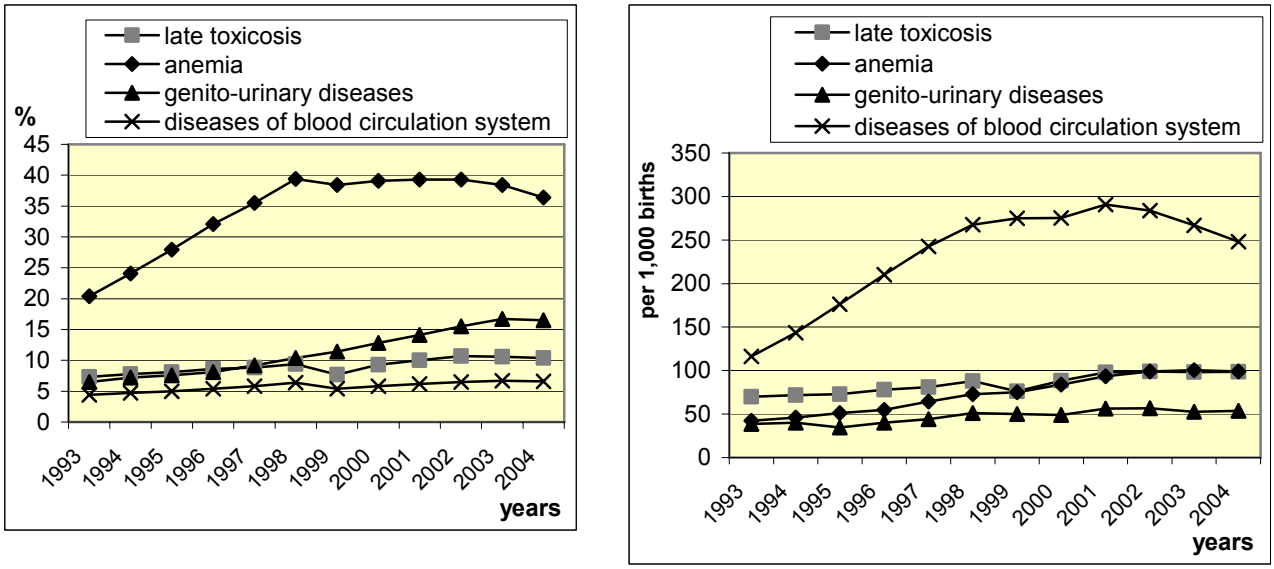


Fig. 7.2.3. Some indicators of health of pregnant women and complications at births in Ukraine in 1993-2004.
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

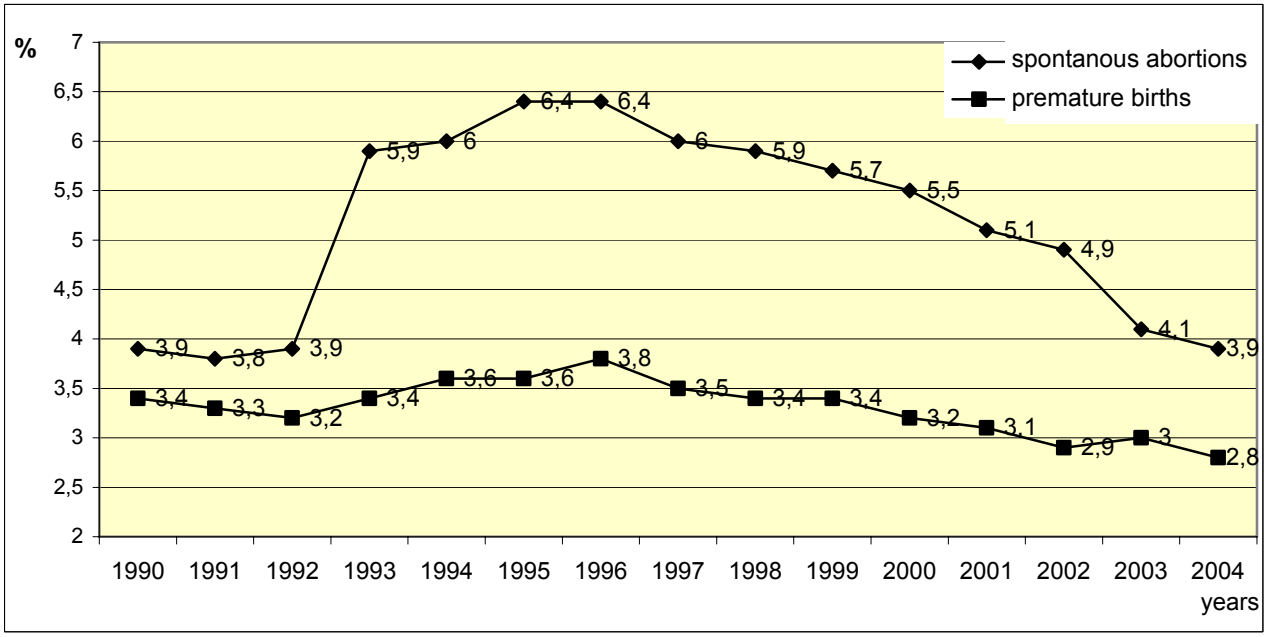


Fig. 7.2.4. Dynamics of pregnancy interruption rates in Ukraine during 1989-2004 (per 100,000 persons)
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

The number of deaths of infants under age 1 is an important indicator of the level of development of reproductive health protection. Infant mortality rate has intensively increased in Ukraine during the first half of 1990's: from 12.8 in 1990 up to 14.7 in 1995 (per 1,000 live births). The highest rates of this indicator were observed in 1993 and 1995, when almost 15 infants of each 1,000 born alive died. Starting since 1996, infant mortality rate has been decreasing; in 2004 it made 9.5 per 1,000 live births (Fig. 7.2.5). The infant mortality rate has decreased on 75% (in 1.4 times) during 1995-2004. At the same time, it is necessary to emphasize, that the official statistics of infant mortality

presents an ambiguous and inconsistent estimation. It results from lacks in registration of perinatal and neonatal losses, as estimation of perinatal and infant mortality rates is based on accounting of deaths of newborns with body weight of 1,000 grams and more. As quite high mortality of infants with body weight less than 1,000 grams is not considered, it makes an influence on perinatal and neonatal mortality rates, and thus contributes to underestimation of infant mortality.

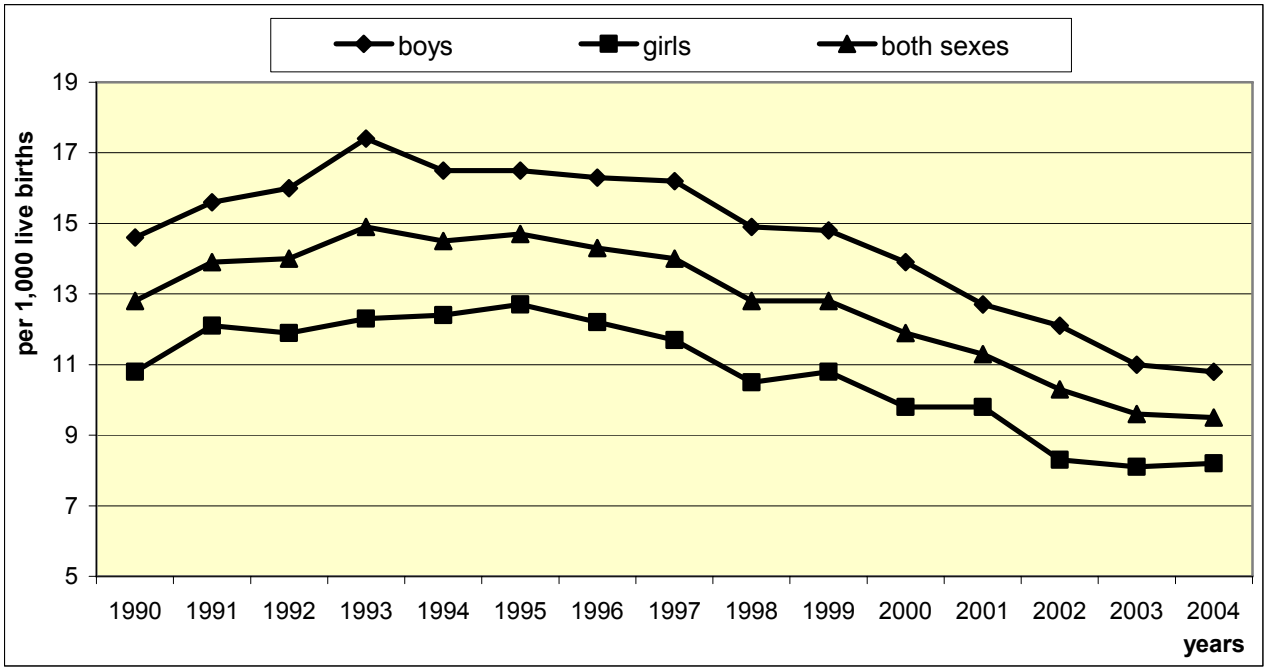


Fig. 7.2.5. Dynamics of infant mortality rate in Ukraine during 1990-2004 (per 1,000 live births)
Source: data of the State Statistics Committee of Ukraine

The analysis of infant mortality rate by causes of death shows, that the main causes are found in conditions, arising in perinatal period; respective mortality rate has been decreasing during 1990's and nowadays makes 36.8% per 1,000 newborns. The second place in the structure of infant mortality causes is occupied by congenial lacks of development and hereditary pathologies, of which 1,200 children died in 2004 (28.2 children per 10,000 newborns). Congenital and hereditary lacks of development play the leading role in forming of early physical disability of children. Presently, accidents and external actions present the third most widespread cause of death of newborns; and respective rate continues to grow. This is the extremely negative tendency with regard to the general decrease of infant mortality rate. In particular, 0.4 thousand children (8.6 per 10,000 newborns) have been lost due to these causes in 2004. High infant mortality, caused by external actions, testifies to the large unused reserves in improvement of situation with infant mortality rates in Ukraine.

Many of the Ukrainian women have no appropriate level of reproductive health due to abortions. It is known, that high frequency of reproductive pathologies in Ukraine results, first of all, from traditionally high prevalence of artificial interruption of undesirable pregnancy. According to the survey "Reproductive health of the population of Ukraine - 1999 ", about 45% of pregnancies of the Ukrainian women have come to the end with a live birth, while 7% - with spontaneous abortions and dead births, and almost 50% - with artificial abortions [7]. The survey has shown that only less than a half of the last pregnancies have been planned by women, while about 54% of pregnancies have not been planned; 38% of them have appeared undesirable, i.e. at the moment of

pregnancy a woman had already given a birth to the wished number of children. Only 5% of undesirable pregnancies have come to the end with childbirth [7].

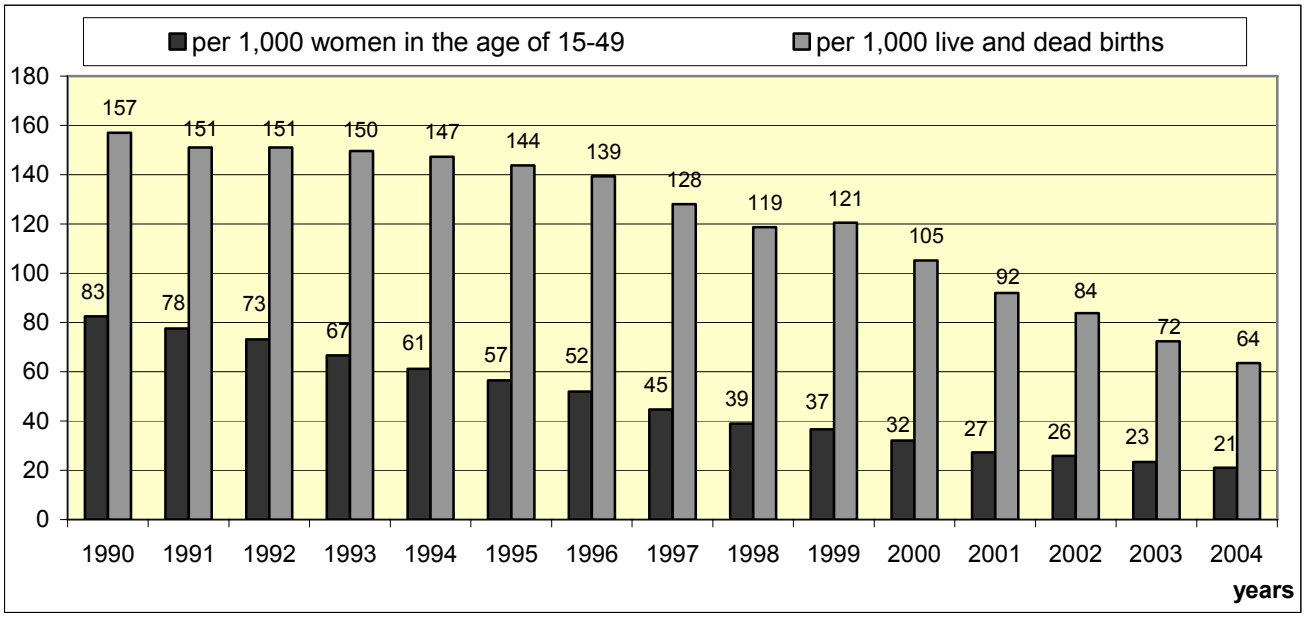


Fig. 7.2.6. Dynamics of abortion rate in Ukraine during 1990-2004.
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

As is it known, inflammatory diseases of reproductive organs often appear after abortions, leading to interruptions of pregnancy or infertility. Thus, abortions make a direct influence on realization and satisfaction of the need in children: a large part of women, who have made an abortion, deprived their future opportunities to have the desirable number of children.

The dynamics of abortions in Ukraine during the last decade was marked by a drop in their absolute and relative rates, including abortions among adolescents. In particular, the frequency of abortions has decreased from 66.7 up to 21.1 per 1,000 women of fertile age during 1993-2004, including respectively from 31 to 6 cases among girls in the age of 15-17 (Fig. 7.2.6). In 2004, teenagers' abortion rate has decreased in 5.2 times, as compared with 1993, while the corresponding rate for women in the age of 18-34 – in 2.8 times, for women in the age of 35-49 – in 3.5 times (Fig. 7.2.7). The analysis of abortion rates in the context of dynamics of pregnancies and births shows that a share of births is increasing, while a share of abortions is decreasing. Thus, a smaller share of conceptions comes to the end with abortions. While 6 pregnancies of each 10 ones came to the end with abortions in the beginning of 1990's, nowadays this figure is 4. The rates of abortions' decrease have been notably faster, than reduction of births, and, as a result, the abortion ratio has dropped during 1990-2003 in 2.5 times: from 157 up to 63.5 per 100 births. The accelerated decrease of abortions, as compared with births, testifies, that more and more women practises contraception to prevent the pregnancy.

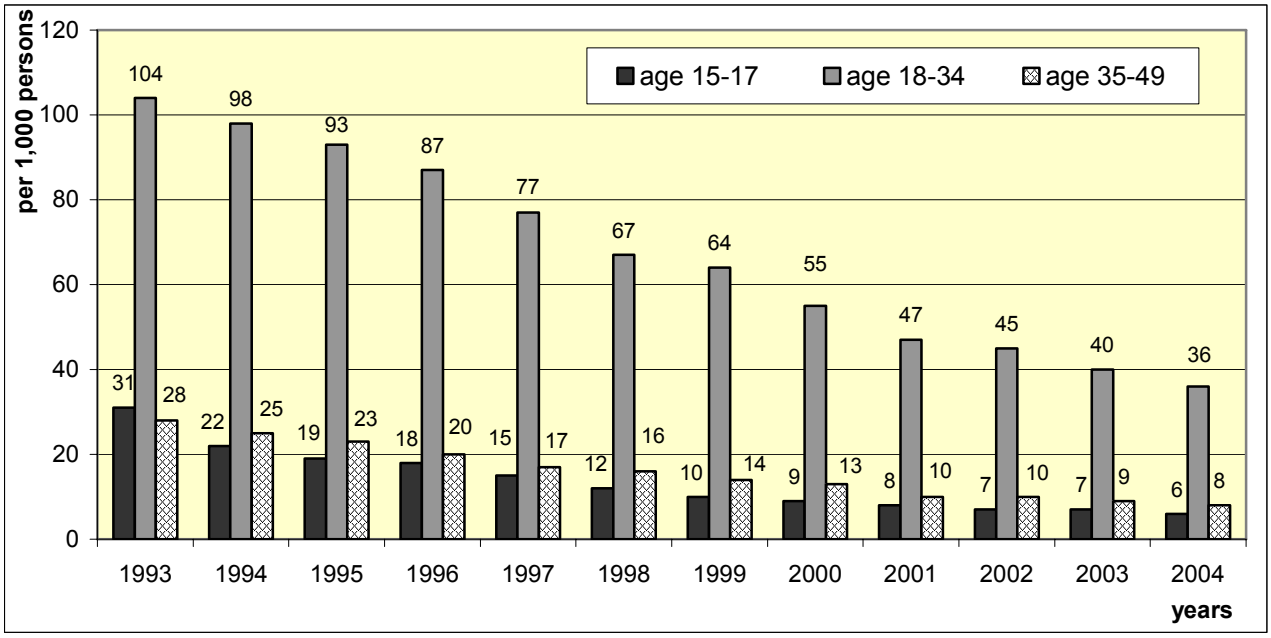


Fig. 7.2.7. Dynamics of abortion rates among women of different age groups in Ukraine during 1993-2004.
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

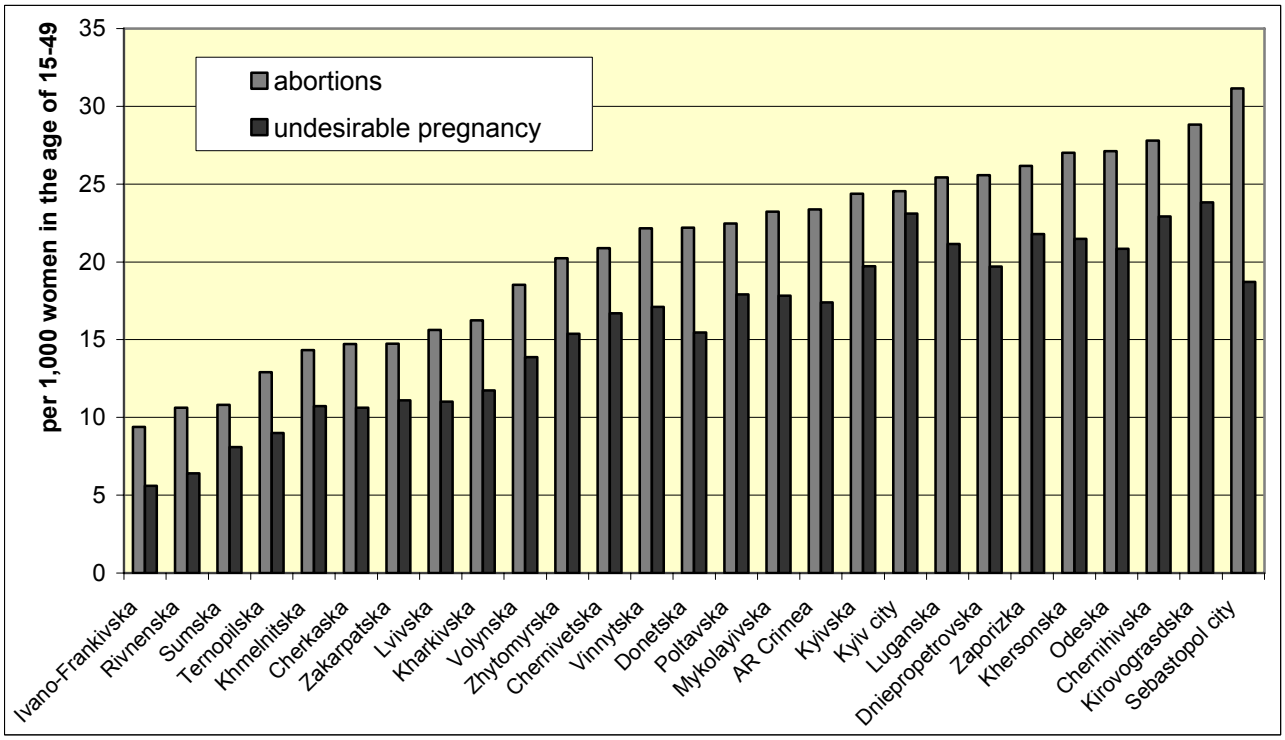


Fig. 7.2.8. Abortion and undesirable pregnancy rates in the regions of Ukraine in 2004 (per 1,000 women of fertile age)
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

The prevalence of abortions is not-uniform in Ukraine, regarding the regional aspects. High abortion rates are observed in the southern and southeastern regions, while in the western regions they are considerably lower. In particular, in 2004 the highest abortion rate was registered in Odeska, Khersonska, Dniepropetrovska,

Zaporizka, Luganska regions, as well as in Kirovogradska, Chernihivska regions and Sebastopol city (Fig. 7.2.8).

The majority of abortions are made at will of the women: a respective share was 76.2% in 2004. The artificial legal abortions made 42.8% of their total number, mini-abortions by vacuum-aspiration method – 32.9%, artificial abortions by social indications did not exceed 0.5%, while those by medical indications – 1.8%, self-willing abortions - 4,9, criminal ones – 0.02%, not specified ones – 11.2% [5].

The positive dynamics of abortions in Ukraine, on the one hand, evidences on increase of contraception use. At the same time, it is necessary to note, that abortion rates still remain quite high in Ukraine, as compared with the developed countries (Fig. 7.2.9). In particular, while there are about 15-25 abortions per 1,000 live births in Germany, France, Italy, in Ukraine there were almost 90 abortions in 2002 and 68 abortions in 2004. The traditional social and psychological moods, as well as readiness of the Ukrainian women to carry out abortions contribute to these trends.

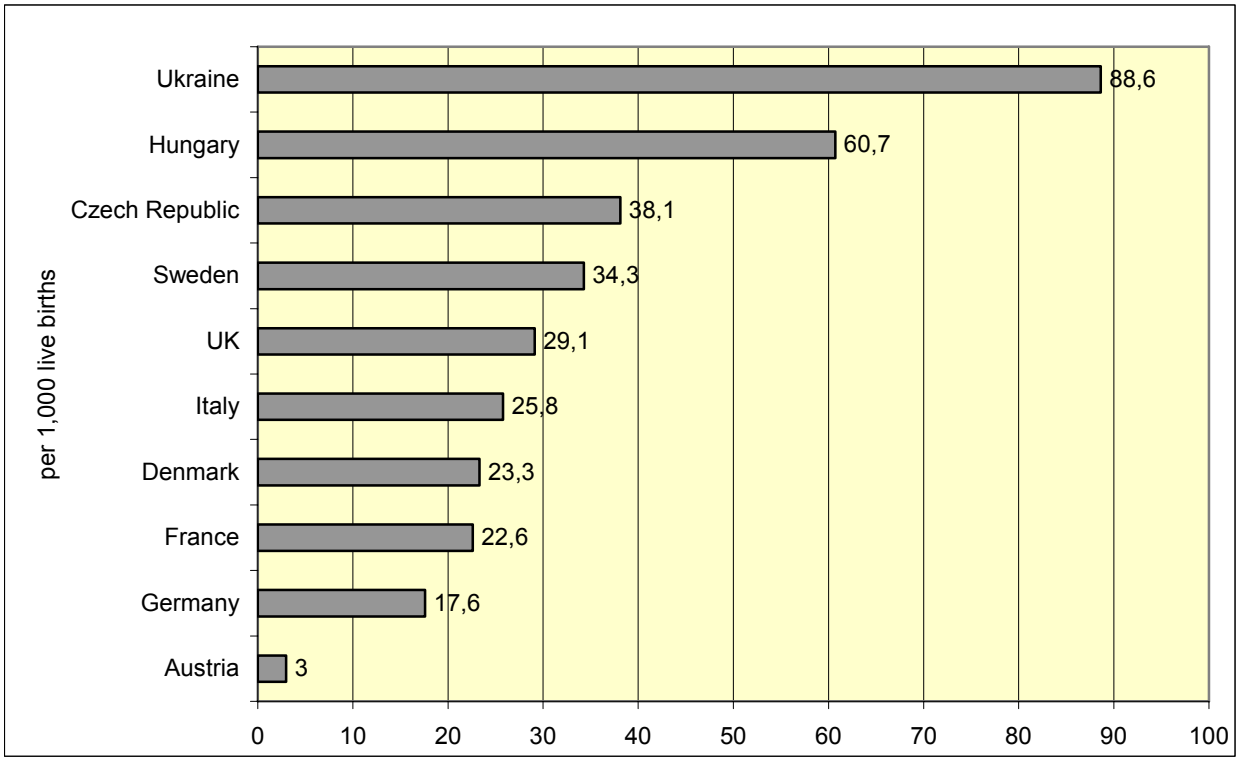


Fig. 7.2.9. Abortion rates in Ukraine and some European countries during 2000-2002*.
** France – data of 1997, Italy – 1999, Ukraine – 2002, other countries – 2000.*
Source: Recent demographic developments. Council of Europe Publishing, 2002; data of the State Statistics Committee of Ukraine.

Despite of the notable decrease of abortion rates in Ukraine, the cautions concerning unequivocal interpretation of this improvement are related to the next circumstances.

Firstly, there are certain doubts, regarding the reliability of the official statistics on abortions. Their accounting is complicated, as some abortions are done in the private female consultations or by an acquaintance, so they are not registered (especially mini-abortions, conducted by vacuum-aspiration). While a share of not registered abortions, by expert estimations, made not less than 10% in the mid 1980's, presently in it can reach 20-30% due to activity of commercial medical institutions [8].

Secondly, there are some negative changes in the structure of abortions. In particular, a share of abortions at the first pregnancy is increasing, evidencing on high

rates of undesirable or not planned pregnancies among the youngest women, resulting from insufficient contraception use. Artificial interruption of the first pregnancy puts especially huge harm to female reproductive health. A share of artificial interruption of the first pregnancy made 12.2% in the total number of abortions in Ukraine in 2004. It is necessary to note, that high abortion rates among pregnant for the first time are observed not only in regions with large prevalence of abortions, but is even higher in regions with rather low abortion rates. In 2004, a share of abortions of women, pregnant for the first time, varied from 7.5-7.9% in Luganska, Kirovogradska and Khersonska regions to 14-16% in Donetska, Dniepropetrovska, Odeska, Ivano-Frankivska, Ternopilska regions and Kiev city (Fig. 7.2.10).

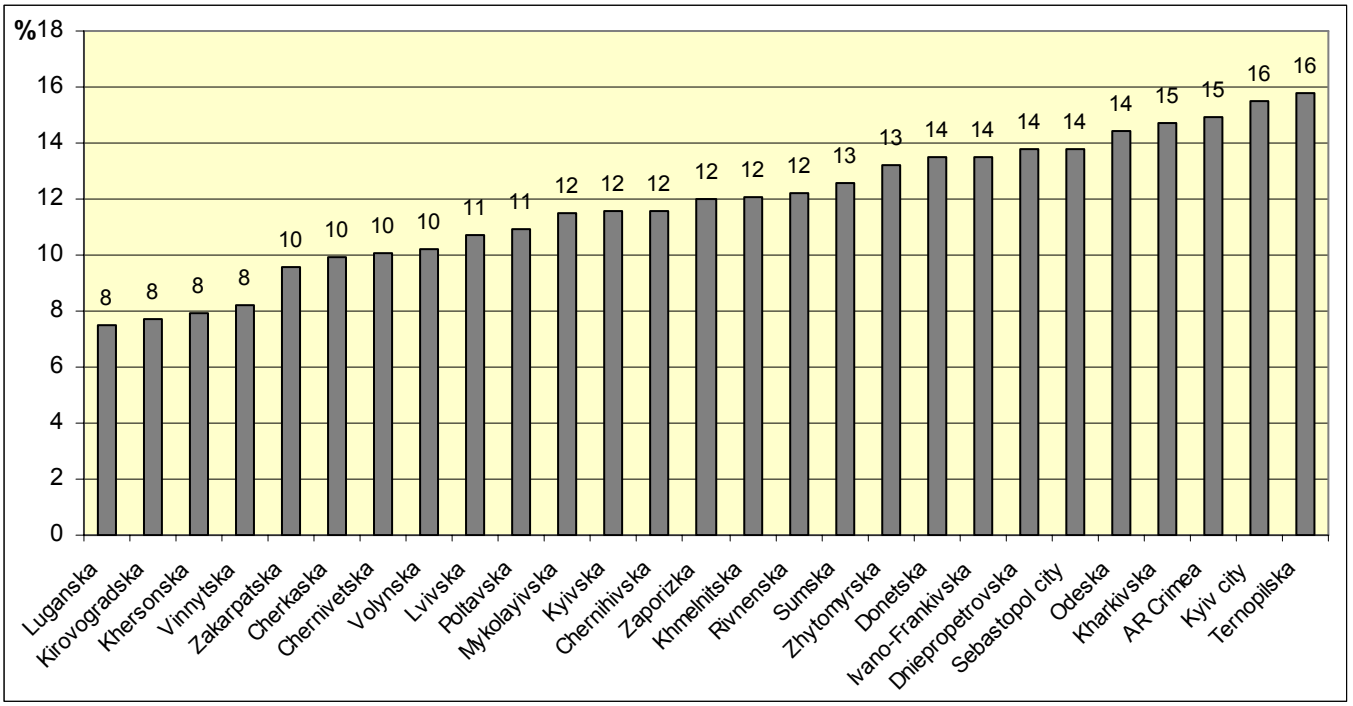


Fig. 7.2.10. Abortions among women, pregnant for the first time, in the regions of Ukraine in 2004, %
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

Thirdly, abortions among teenage girls call for particular attention, though the respective ratios have notably improved during the last years in Ukraine: there were 9 births and almost 6 abortions per 1,000 of girls in the age of 15-17 in 2004. The rates of abortions among girls in the age of 10-14 and 15-17 have decreased, nevertheless their shares remains stable in the total number of abortions: it makes 0.05% for girls in the age of 10-14 and 2.4% for girls in the age of 15-17. According to the medicians' opinion, there should not be any abortions in such early age, considering a very high risk of various complications for a life and health of young women, especially as these abortions are usually carried out during the late terms of pregnancy. Teenage girls very often make abortions under inadequate medical conditions, outside of a hospital; sometimes they try to break pregnancy by themselves. It proves that the rates of contraception use are low among adolescents, so the need in services of family planning is unsatisfied for this youngest group of women. The prevention of undesirable pregnancy in an early age is closely related to the increase of awareness of sexually active adolescents on modern methods of family planning, availability of effective contraception means, opportunity of consultation and granting of the needed help, including safe abortion.

Namely, the artificial interruption of pregnancy, especially of the first one, is a principal cause of secondary infertility. Other important causes, leading to undesirable infertility, include hormonal deviations, inflammatory diseases of reproductive organs, which considerably reduce probability of conception. According to the Ministry of Health of Ukraine data, the diagnosis of infertility has been put 44,100 persons, including 87% of women in 2004. A share of males did not exceed 13%. According to official statistics, the prevalence of infertility is low in Ukraine: there have been only 3 cases per 1,000 women and 0.3-0.4 cases per 1,000 men of fertile age during the last decade. At the same time, sociological surveys show, that undesirable infertility concerns about 10-15% of the Ukrainian families. By expert estimations, about 1 million of married couples in Ukraine experience infertility [9].

It should be also noted, that issues of reproductive health are sometimes unfairly related to exclusively «female» diseases; while public attention bypasses the problems of male reproductive health, which have been ignored for a long time. The causes can be found not in absence of such problems among the Ukrainian men (they suffer of different deviations not less, than women). Usually, young men are ashamed to these problems; the appropriate medical infrastructure is also poorly developed in Ukraine, and quality of services in the area of reproductive and sexual health of men is also low.

The rate of contraception use is an important characteristic of reproductive behavior of the population. The various studies show, that the prevalence of contraception is growing in Ukraine now. The data of Table 7.2.1 are quite representative in this context. While 67.5% of the population used some contraception methods in 1999, in 2003 this percentage was 92%. A share of those, using modern methods of contraception, has grown respectively from 37.6 to 65%. Though the majority prefers modern contraception methods, the fact, that a large part of the population (averagely 30-35%) still uses traditional low-effective methods, calls for attention. The most wide-spread methods include: use of condoms (30%), break of a sexual act (19%), and internal uterus spirals (IUS) (12%), oral contraceptives (14%).

Table 7.2.1. Rates of different contraception methods use in Ukraine in 1999 and 2003, %

Source: „Reproductive health of the population of Ukraine – 1999" [9]

According to the official data of the Ministry of Health of Ukraine, the use of hormonal contraceptives has increased from 34.3 in 1996 up to 137.8 in 2004 (per 1,000 women), while of internal uterus spirals (IUS), on the contrary, has decreased from 169 up to 145 respectively. Thus, the rate of undesirable pregnancy has noticeably decreased: while there were 45 undesirable pregnancies per 1,000 of women in the mid 1990's, the figure was only 16 in 2004. Despite of it, the rate of undesirable pregnancy remains quite high, proving an insufficient level of its preventive maintenance (Fig. 7.2.11). The highest rates of undesirable pregnancies are observed in the regions with highest prevalence of abortions. As on 2004, the rates of undesirable pregnancies represented over 20-24 cases per 1,000 of women in Kirovogradska, Odeska, Khersonska, Luganska, Zaporizka, Chernihivska regions and Kiev city.

The analysis of structure of contraception methods in Ukraine provides with the next conclusions. Firstly, a high level of condoms use is entirely justified, considering the extremely negative epidemiological situation with STDs and HIV/AIDS in the

country. The youth prefers condoms most often, as for casual relations, as for a stable partner, though in the developed countries young people, who have a stable sexual partner, usually use hormonal contraceptives. Thus, sociological surveys of young people testify, that they consider a condom not as means of STDs prevention, but mostly exclusively as a method of pregnancy prevention.

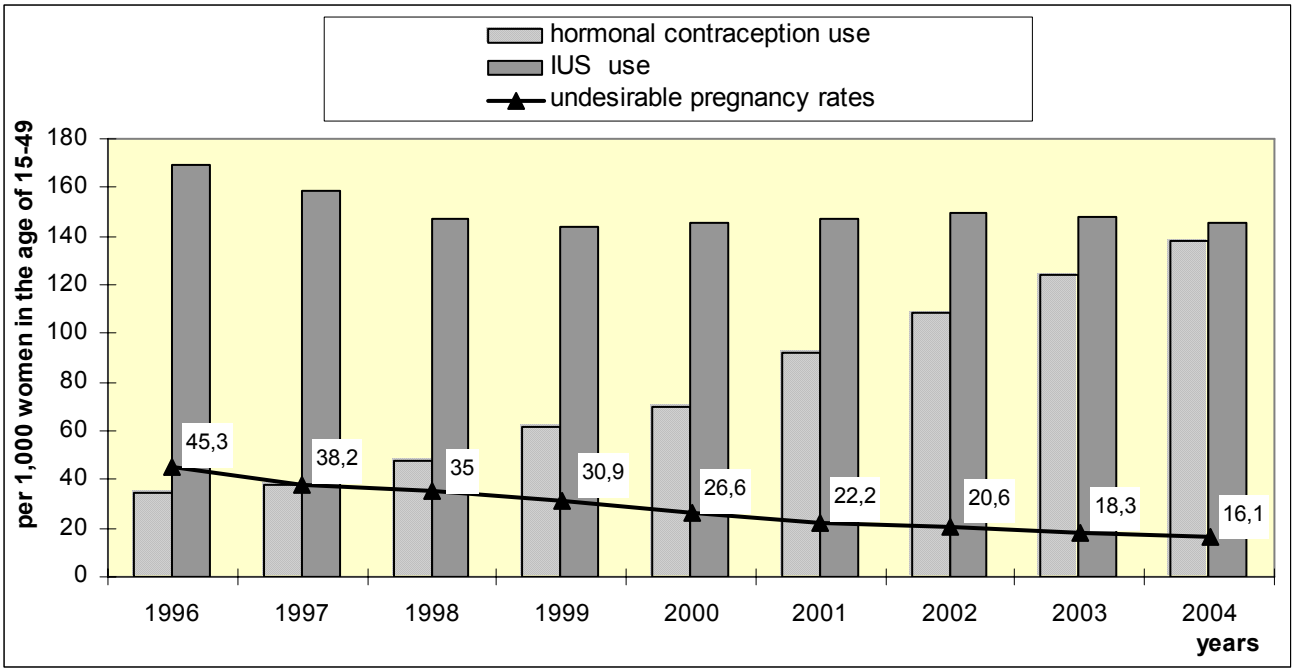


Fig. 7.2.11. Dynamics of rates of use of IUS and hormonal contraceptives and undesirable pregnancy in Ukraine during 1996-2004.
Source: data of the Center of Medical Statistics of the Ministry of Health of Ukraine

Secondly, a low use of oral contraceptives is closely related to the preconvinced attitude to hormonal preparations, prevalence of traditional methods, as well as unjustified preferences to abortions. It should be noticed, that 30-40% women of fertile age use hormonal contraceptives in the developed countries, while in Ukraine - only 14% [10]. But, as some model estimations show, even under insufficient prevalence of contraception, the change of its structure towards increase of modern reliable methods of pregnancy prevention allows to affect dynamics of abortions and reduce their rates.

Thirdly, a low level of contraception use among adolescents calls for attention. According to the National survey of youth in 2003, every tenth of total respondents in the age of 15-16 avoided any contraceptive means (11.7%), while almost 30% of them used traditional not effective methods. This part of youth represents the greatest risk group, regarding as STDs, as undesirable pregnancy and early abortions; it also proves the uncovered needs in family planning services. The medical and preventive help, regarding issues of intimate life, as well as consultancies is case of STDs, in-time diagnostics and treatment of gynecologic diseases should be targeted namely on this population group.

Thus, despite of certain successes in family planning, related to increase of contraception use, unplanned pregnancy, birth of undesirable children and abortions still remain wide-spread in Ukraine. The contraception use has been growing during the last years, but it still insufficient to become the real alternative to abortions, which still occupy the leading place among factors, influencing the reproductive health of women.

In this regard, it should be emphasized, that a well-organized system of initial prevention and accessibility of qualitative medical services is the main precondition of

improvement of reproductive health of the population in Ukraine. It should cover family planning as a subdivision of medical and gynecological service, oriented not so on regulation of fertility, as on preserving of health of future mothers and children. The service of family planning should become an active force in prevention of undesirable pregnancies and STDs transmittance. It also plays an important role in social and hygienic prevention of maternal morbidity and mortality and should contribute to raising of awareness on causes, leading to higher risk of complications before and during pregnancy and births.

At the same time, improvement of reproductive health cannot be reached only by special medical aspects of its protection. We have to admit, that an accessible information and education on probable problems of a person's sexuality and sexual behaviour still are not covered by educational establishments. High rate of STDs in combination with prevalence of illegitimate sexual relations and irrational structure of contraception, let us conclude, that growth of sexual activity among youth is not accompanied by raising of their awareness on contraception use and prevention of STDs. The situation is deteriorated by material difficulties and unstable financial position, provoking risky behaviour. Therefore, the serious efforts directed on education and forming of responsible and safe sexual behavior of the youth should be taken, aiming on preservation of reproductive health before getting married, as well as opportunities of the further sexual life, paternity and motherhood.

7.3. Socially determined diseases: HIV/AIDS and tuberculosis

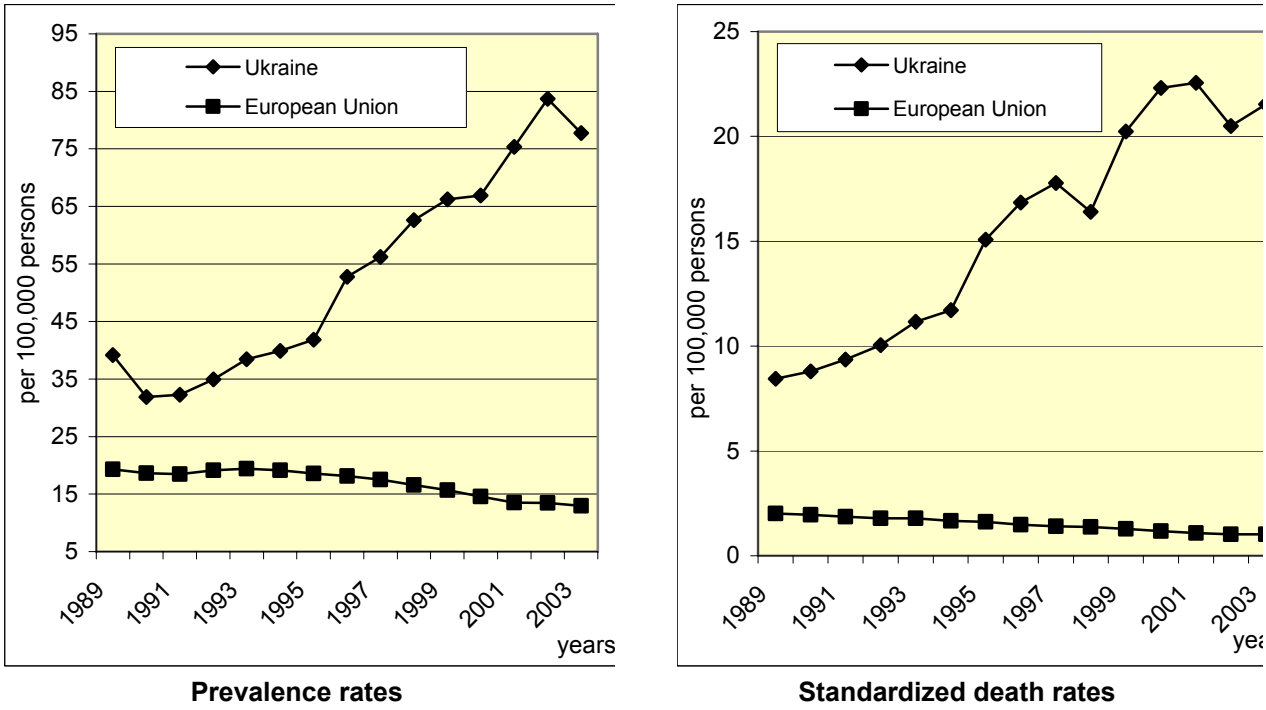
Social and economic instability in the Ukrainian society, prevalence of poverty, marked by lack of material and other social resources, decrease in availability of necessary services, drop in vital needs and possibilities of their satisfaction resulted in conditions, favorable for development of socially determined diseases. Social pathologies are getting wide-spread in Ukraine: the criminalization of public and political life is growing, prevalence of alcoholism and narcotism is increasing, prevalence of AIDS and tuberculosis is raising. The changes in social structure of the Ukrainian society largely contribute to these processes, including growth of social inequality and marginalization of a large part of the population. Undoubtedly, the highest risk to become ill and die of socially determined diseases can be experienced by the "low status" persons (homeless, migrants, refugees, alcoholics, present and former prisoners), closely related to peculiarities of their lifestyle and living conditions. Social deviations are inevitable in any society. However, Ukraine suffers from excessive prevalence of social pathologies; and their "remoteness" from the majority of the population is getting less, as they prevail not only among the narrow group of socially-marginalized population.

The given section is devoted to such components of socially determined demographic losses as morbidity and mortality, caused by tuberculosis and AIDS. These rates are not only indicators of deterioration of public health services, but also reflect conditions of the population development as a whole. Morbidity and mortality, caused by these reasons, are precautionary, i.e. they can be avoided and prevented. The corresponding demographic losses can be reduced to the minimum under condition of creation and support of environment, friendly to health, safety and well-being of the population.

Tuberculosis. In Ukraine, tuberculosis occupies the leading place among the causes of death due to infectious pathology. Its epidemiological importance has been repeatedly changing. Till the beginning of 1990's, a significant success has been reached in tuberculosis overcoming in Ukraine. A well-organized system of monitoring and prevention of infections in the former Soviet Union has largely contributed to the progress, though the rates of mortality, caused by this disease, have been lagging behind the rates of the developed countries. During 1990's, a sharp growth of tuberculosis prevalence and mortality has been observed, resulting in declaring of the epidemic of tuberculosis in Ukraine in 1995.

Nowadays, the rates of tuberculosis prevalence and mortality are shamefully high in Ukraine. This is convincingly proved by striking differences between the Ukrainian rates and corresponding indicators of the developed European countries (Fig. 7.3.1). While the rate of tuberculosis prevalence in Ukraine exceeded the corresponding rates of the EU countries in 1.7 times in 1980, the figure was 6 times as on 2003. The gap in mortality rates is even more impressive: the Ukrainians died of tuberculosis three times more often, as compared to the residents of the developed European states in 1980,

nowadays this gap reaches 20-21 times. Presently, about 10-11 thousand Ukrainians die of tuberculosis yearly, making averagely 21-23 deaths per 100,000 of the population. Simultaneously, the respective death rate makes about 1.0-1.1 per 100,000 persons in the EU countries.



Prevalence rates **Standardized death rates**

Fig. 7.3.1. Tuberculosis prevalence and mortality rates in Ukraine and EU countries during 1989-2003 (per 100,000 persons)
Source: data of the WHO (HFA DB)

There have been some characteristic features of deterioration of epidemic situation on tuberculosis in Ukraine during last decade:

- Firstly, a large increase of tuberculosis rates can be observed as among adults, as among infants and adolescents. Annually, the first diagnosis of active tuberculosis is put to about 40,000 persons, including 1,500 infants and adolescents. The frequency of active tuberculosis has raised from 34.5 in 1989 up to 81.2 in 2004 for the whole population, while among infants - from 4.6 up to 9.5 cases (per 100,000 persons). Such trends are of particular urgency, as the growth of prevalence among infants is a very negative feature, regarding the prospects of epidemic situation development in the future.

Secondly, the tuberculosis mortality rates had been steady growing till the mid 1990's in Ukraine; afterwards their growth has been slowed down. During 1989-2004, the tuberculosis death rate has trebled: from 7.8 up to 22.7 deaths per 100,000 persons. During the last few years, tuberculosis death rates have been stabilized, but the trend to a small growth has been observed in 2003-2004. The growth of the tuberculosis death rate, combined with reduction of the disease prevalence, can result from essential lack of audit of diseased persons; it also could prove low effectiveness of their treatment and increase of lethality.

While tuberculosis disease rates have grown more than twice in Ukraine, the tuberculosis prevalence rate has grown in 1.5 times[8]. In 2004, there were 106.7 thousand patients, registered in clinics with diagnosis of active tuberculosis (in 2003 – 141.4 thousand patients[9]). The analysis of dynamics of tuberculosis disease rates is complicated in Ukraine by unreliability of medical statistics, which is formed by results of registration of diseased persons at application to medical establishments; it does not reflect the real number of patients with primary diagnosis. By expert estimations, the real number could be in 1.5-2 times larger, than the officially registered one.

The raised tuberculosis death rate has caused its more important share in the structure of mortality from infections. Till the beginning of 1990s, tuberculosis has been superseded from of a range of infectious causes of death, as the corresponding death rates were dropping faster, that the total death rates from infectious diseases. In particular, at the beginning of 1980's, tuberculosis caused 40-50% of all deaths of infectious pathologies among women and 70% among men. In 2004, tuberculosis caused deaths of 75% men and 55% women, who have died of infectious diseases.

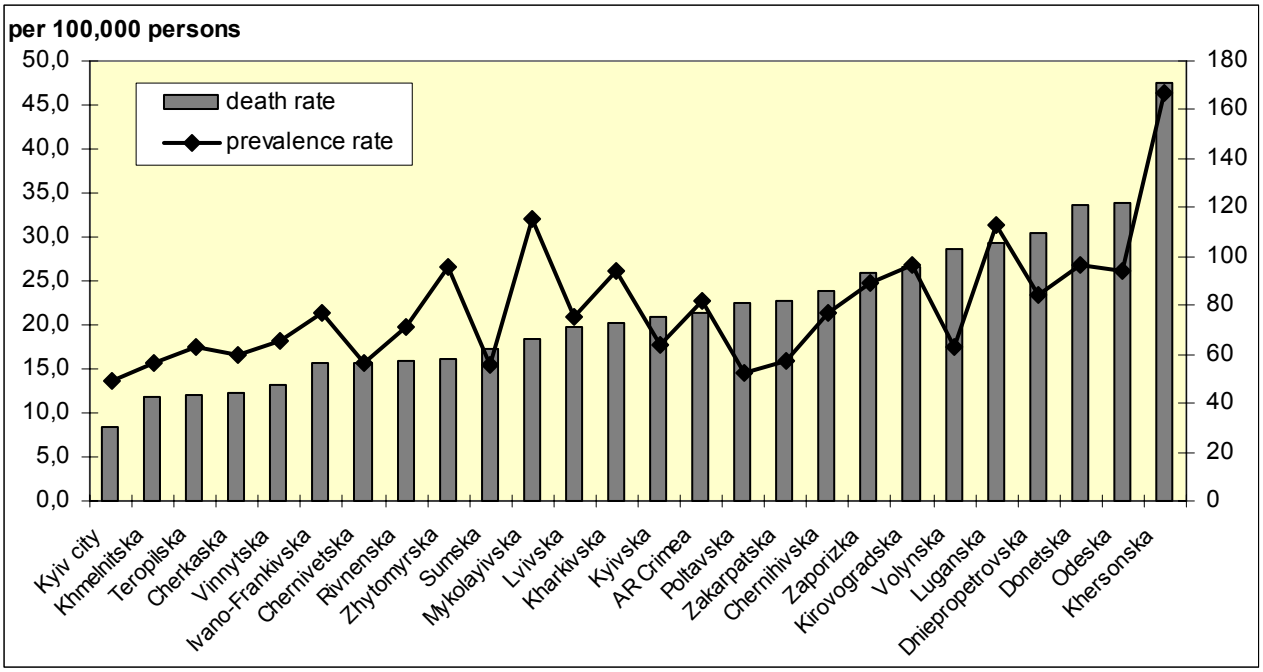


Fig. 7.3.2. Active tuberculosis death and prevalence rates in the administrative regions of Ukraine in 2001
Source: calculated by data of the State Statistics Committee of Ukraine

The epidemic situation with tuberculosis is quite non-uniform in the regional aspect. The highest tuberculosis death rates are observed in the southeastern and southern regions of Ukraine. Khersonska region has been the leader for several years; the death rate there twice exceeds the corresponding average rate in Ukraine: 47.5 against 22.7 in 2004 (per 100,000 population). The losses, related to tuberculosis are quite high in Donetska, Luganska, Dniepropetrovska and Odeska regions; in 2004, the respective rates varied from 29 up to 34 deaths per 100,000 population (Fig. 7.3.2). The lowest tuberculosis death rates are observed in the central regions: Vinnytska,

[8] Tuberculosis disease rate characterizes the present epidemic situation, while tuberculosis prevalence rate – the final effectiveness of all tuberculosis preventive and overcoming efforts, including: early diagnostics rate, timely of diagnostics, effectiveness of treatment, quality of clinical services etc.
[9] The drop in active tuberculosis prevalence is 2003-2004 is explained by a decision of the Ministry of Health of Ukraine to review the contingents of persons, who are subjects of clinical audit.

Cherkaska, Khmelnitska regions and Kiev city. The corresponding rates vary there within 8 -13 deaths per 100,000 persons, being in 1.7-2.8 times lower, than averagely in Ukraine. The situation is unstable in the western region of Ukraine, it is marked by high death rate in Volynska region, as well as by raised rates in Zakarpatska, Rivnenska, Zhytomirska regions and relatively safe situation in Ternopilska region.

The regional analysis of tuberculosis mortality growth during 1989-2004 proves the specified trends. The largest increase of mortality has been observed in the eastern part of the country, while it was less notable in some central and western regions. Regarding regions with the largest growth of mortality rates during 1989-2004, the next regions should be mentioned: Khersonska (in 4 times for men and in 8 times for women), Luganska, Dniepropetrovska, Zaporizka (in 4 times), Donetska, Poltavska, Odeska (in 3 times). A sharp deterioration of the situation in Lvivska and Volynska regions calls for attention, as the respective death rates have grown in 3-5 times among men and in 2-5 times among women, while the officially registered prevalence of tuberculosis was low during 1989-2004. Contrary, more positive situation with tuberculosis mortality is observed in Rivnenska, Chernivetska and Kirovogradska regions, as well as relatively low tuberculosis prevalence rates; but there is high tuberculosis prevalence among infants, thus it can be considered as a harbinger of further deterioration of the situation.

Table 7.3.1. Tuberculosis death rates in the administrative regions of Ukraine in 2004, per 100,000 persons

Administrative regions	Both sexes	Males	Females	Administrative regions	Both sexes	Males	Females
Khersonska	68,6	120,5	15,1	Kharkivska	28,1	47,3	8,4
Dnepropetrovska	45,7	75,2	16,0	Mykolajivska	27,9	45,7	9,8
Odeska	49,4	77,8	20,1	Zhytomirska	24,8	41,8	6,7
Donetska	48,3	82,0	14,4	Rivnenska	23,6	40,8	5,5
Luganska	41,2	70,2	11,4	Poltavska	34,0	59,8	7,4
Volynska	38,8	66,2	9,8	Chernivetska	23,1	39,5	6,1
Kirovogradska	38,4	64,0	12,1	Ivano-Frankivska	22,0	37,9	5,0
Zaporizka	36,9	65,5	8,1	Sumska	24,5	43,5	5,0
Chernihivska	36,2	64,7	5,9	Vinnytska	20,0	34,2	5,3
Zakarpatska	34,5	51,6	16,2	Cherkaska	19,3	34,3	3,9
Ukraine	33,0	55,8	9,5	Khmelnitska	15,7	29,1	1,6
AR Crimea **	30,9	52,3	9,4	Ternopilska	15,4	27,2	3,2
Kyivska	29,3	48,8	9,0				
Lvivska	28,2	49,0	5,8	Kyiv city	10,9	19,0	3,0

* regions are listed in order of increase of death rate for both sexes
** including Sebastopol city
Source: calculated by data of the State Statistics Committee of Ukraine

Sex-age structure of persons, who have died of tuberculosis, is characterized by the next regional peculiarities.

Firstly, the "lion's" share of the losses, caused by tuberculosis, covers persons of working age. In particular, they made 86.3% of the total losses in Ukraine in 2004. The tuberculosis death rates of the working age population have tripled in 1989-2993: from 9.5 up to 33.0 per 100,000 persons respectively. The regional death rates for males of

working age varied within 120.5 in Khersonska region to 19.0 in Kyiv city in 2004, while the correspondent rates for women - from 20.1 in Odeska region up to 1.6 in Ternopilska region (per 100,000 persons) (Table 7.3.1). The risk of death of tuberculosis is averagely twice lower for men of working age, living in the western and central regions, as compared with residents of the south-eastern Ukraine. Thus, males of Donetska and Dniepropetrovska regions were dying of tuberculosis in 2-3 times more often, than males in Ternopilska, Khmelnitska, Cherkasska and Vinnytska regions in 2004; while females, living in Odesska and Khersonska regions - in 5-7 times more often, than female population of Kyiv city.

Secondly, during 1980's, the peak of tuberculosis death rate has been changing within the limits of 1960-70's. During 1990's, it has moved to the younger population groups: the maximal death rates were observed among men in the age of 45-49 and women in the age of 40-44 in 2004. This proves on rejuvenation of tuberculosis mortality, as young and middle-age people suffer of tuberculosis most often.

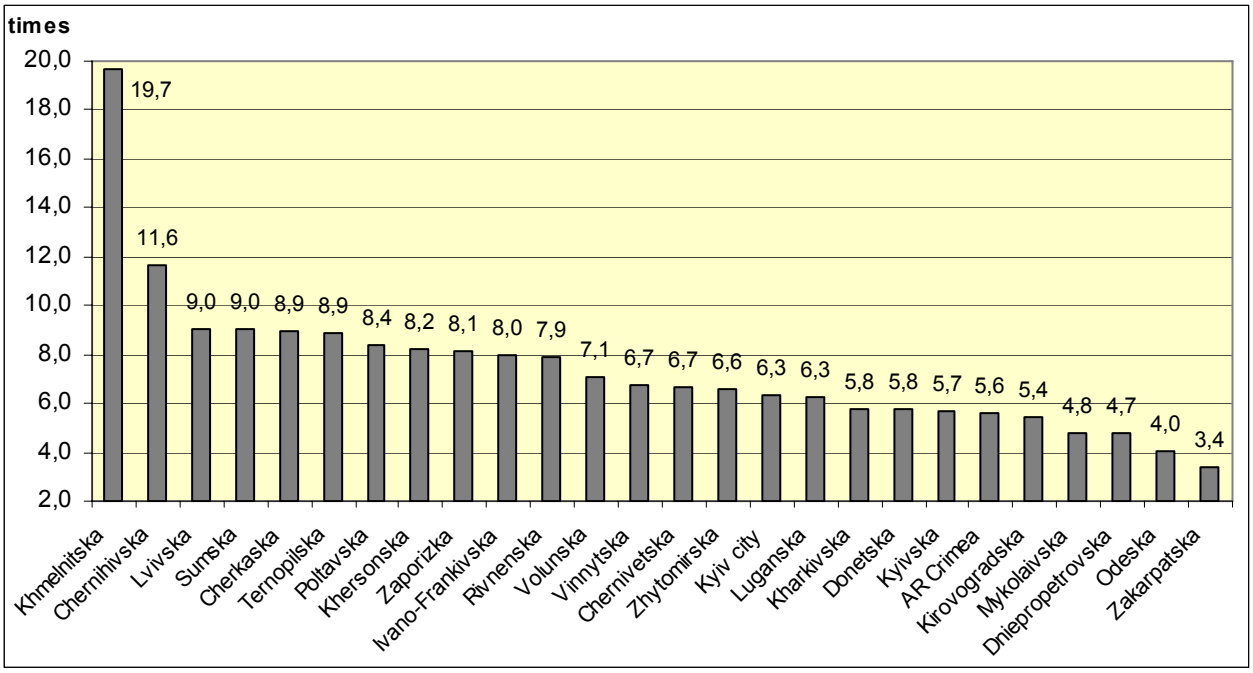


Fig. 7.3.3. Ratios of males and females in the working age, who have died of tuberculosis, in the administrative regions of Ukraine in 2004 (females = 1)
Source: calculated by data of the State Statistics Committee of Ukraine

Thirdly, there are essential gender differences in tuberculosis death rate. In particular, men represented 84.6% of all persons, who died of tuberculosis in 2004. Nowadays, there are 5-6 died males per 1 died female. Gender imbalance in death rates is larger in the regions with rather low tuberculosis death rates. While there were about 4-5 died males of working age per 1 female in Dniepropetrovska, Odeska, Mykolajivska regions in 2004, the correspondent rates in Poltavska, Cherkasska, Sumska, Lvivska, Ternopilska regions varied within 8-9 males, in Chernihivska region - 12 males and in Khmelnitska region - almost 20 males (Fig. 7.3.3). Generally, the analysis allows admitting, that there is a notable regional differentiation of demographic losses, caused by tuberculosis, and they grow towards the southeast of the country. Such regional "scissors" prove existence of important opportunities on decrease of tuberculosis death rates, firstly, among men.

The main causes of forming of the menacing epidemic situation with tuberculosis, resulting form a rapid increase of the respective prevalence and death rate in all regions of Ukraine, are:

- Deterioration of general social and economic situation in the country. As it is known, the infection of the population by tuberculosis is quite high globally; nevertheless not all infected are diseased on tuberculosis. Transition of the infection into the disease occurs in unfavourable conditions, regarding the general state of health of a person, presence of accompanying chronic pathologies, conditions of residing, quality of meals and others. Negative consequences of social and economic transformations during the last decade have created a basis for activization of the present reserves of tubercular infection in Ukraine. The drop in incomes and, as a consequence, deterioration of quantitative and qualitative characteristics of food, lagging behind the established norms, has extremely negatively affected the health of infants and adults and has raised their vulnerability to tuberculosis. On the other hand, the consequences of insufficient financing of the phthisiatrician services due to the prolonged economic crisis, have resulted in reduction of the number of tuberculosis clinics' and workplaces of doctors-phthisiatricians, unsatisfactory maintenance of medical establishments with antitubercular preparations and equipment for diagnostics, thus lowering the efficiency of tuberculosis diagnostics and treatment.

- Marginalization of a significant part of the population, limited surveys of the risk groups because of complications and limited opportunities of their covering with treatment-and-prophylactic actions. The highest risk of tuberculosisis is observed among socially-marginalized population groups (homelesses, alcoholics, drugs consumers, present and former prisoners, HIV/AIDS infected, migrants), as well as among persons with chronic diseases and weakened immunity, persons, contacting with those, ill on tuberculosis. The prevalence rate among marginal population groups at tens times exceeds the average country's rates, while the degree of revealing and efficiency of treatment of these patients is extremely insufficient. At the same time, presence of a large number of not revealed and not treated patients with bacterial secretions constantly activates and supports the reserves of tubercular infection in the country, strengthening the danger of tuberculosis decease for all population.

- Use of ineffective methods of revealing of patients with tuberculosis, unsatisfactory quality of diagnostics. As it is known, the basic methods of diagnostics of tuberculosis in Ukraine are presented by fluorography inspection of adult population (alternate years) and tuberculinodiagnostics of infants. At the same time, according to the results of many studies, averagely more than a half of tuberculosis patients in Ukraine appears by clinical symptoms, i.e. not timely, often with extremely difficult forms of illness. It allows to conclude on the low efficiency and inexpediency of mass screening: according to the experts-epidemiologists, the sampling surveys of groups of raised risk are much more efficient. The low quality of diagnosis of out-lung forms of tuberculosis is among other problems. There are reasons to suggest, that low rate of out-lung tuberculosis diseases, which have been observed furing a long time in Ukraine, is related to lack of revealing of the patients because of absence of the needed medical infrastructure and an insufficient level of education of doctors on the given pathology. The presence of significant divergences in out-lung tuberculosis desease rates among the country's regions could prove this suggestion.

- Prevalence of HIV-associated tuberculosis. Tuberculosis and AIDS are accompanying diseases, developing under condition of immunodeficite. The weakness' of the immune system, caused by HIV, considerably raises a susceptibility of an organism to tuberculosis. The HIV-infected persons suffer much more complicated consequences of tuberculosis and their treatment is more difficult, raising a danger of tuberculosis spreading for the whole population. The scales and rates of HIV/AIDS

epidemic, developed in Ukraine, allow suggesting, that HIV will be a powerful activator of tuberculosis in the near prospects, while HIV-infected persons will form an additional source of updating of the tubercular infection reserves, first of all in the southern and south-eastern regions of Ukraine.

- Law efficiency of tuberculosis treatment. The use of low effective schemes of treatment, caused by lack of medicines and incompetence of doctors, contributed to development of chronic forms of tuberculosis, increase in the number of contingents with recurrent and chronic forms of the disease in Ukraine during 1990s. These factors, to the opinion of the majority of experts, have became a principal cause of distribution of chemical resistant tuberculosis, i.e. such forms of the disease, which are proof to any antibiotics: the rates of primary chemical resistance of tuberculosis makes 20-30% in Ukraine, while the rates of secondary resistance - up to 75%[11].

The basic reserves in decrease of high tuberculosis prevalence and death rate are formed by improvement of quality phthisiatrician services, improvement of early diagnostics, increase of efficiency of treatment on the basis DOTS-Strategy of tuberculosis combating, recommended by the WHO, which suggests a refusal from the population mass screening and use of a cheaper microscopic method of revealing of patients; introduction of the short-term, mainly ambulatory, controllable treatment of patients. The urgent need in reorganization of phthisiatrician services in Ukraine, which has been aside of public health services for a long time; the material base and personnel potential in the regions require improvement as well. It is not a secret, that realization of the National program of tuberculosis combating (2002-2005) has been mainly limited by purchasing of the necessary medical preparations by the state budget funds. The financing of other important components of the program (early revealing of patients, timely and qualitative diagnostics, preventive maintenance and other) has been insufficient, as it has been carried out from the local budgets according to the residual principle. The system of control and monitoring of the antituberculosis efforts efficiency are not organized, as it has been declared at the regional level.

In this regard, it should be noted, that the situation with provision of regions with antituberculosis medicines has been improved by centralized purchasing of medicine for treatment of primarily revealed patients, started in 2000. The recent agreement between Ukraine and Global Fund on combating AIDS, malaria and tuberculosis on providing of a grant to purchase the needed medicines and equipment is also optimistic. Simultaneously, till now there is no perfect mechanism of regional distribution of medicines, vaccines and other equipment. Particularly, the lack of the needed medicines has been observed in some regions due to absence of the strict criteria of determining of the needed assistance in 2002-2004, while other regions have been oversupplied. To make the real impact on epidemic situation in the regions, not only national list of persons, suffering from the raised risk of tuberculosis, should be formed, but also the respective regional lists. This will provide the possibility to realize monitoring of persons with raised risk of infecting, as presence of large contingents, not covered by diagnostics, contribute to uncontrolled and latent prevalence of tuberculosis. Also, forming of such lists would make it possible to plan purchasing of antituberculosis medicines and distribute them rationally, in accordance to the regions' real needs.

HIV/AIDS. HIV/AIDS epidemic forms an inevitable component of the new demographic reality in Ukraine presently, it prevents human development, as it notably limit the rights of infants and adults on healthy and productive life, on achieving of adequate living standards and accessibility of different resources. According to the Ukrainian center of AIDS prevention and combating of the Ministry of Health of Ukraine, during the period from 1987 till November, 1st of 2005 there were 85.9 thousand of officially registered HIV-infected persons (including 10.5 thousand children); 12.2

thousand diseased on AIDS, while 7.1 thousand have died of AIDS. At the same time, according to estimations of the national experts and UNAIDS experts, the total number of HIV-infected persons could reach 300,000 persons in Ukraine (1.3% of the population in the age of 15-49). More than two thirds of HIV-infected Ukrainians are made of young people in the age till 30.

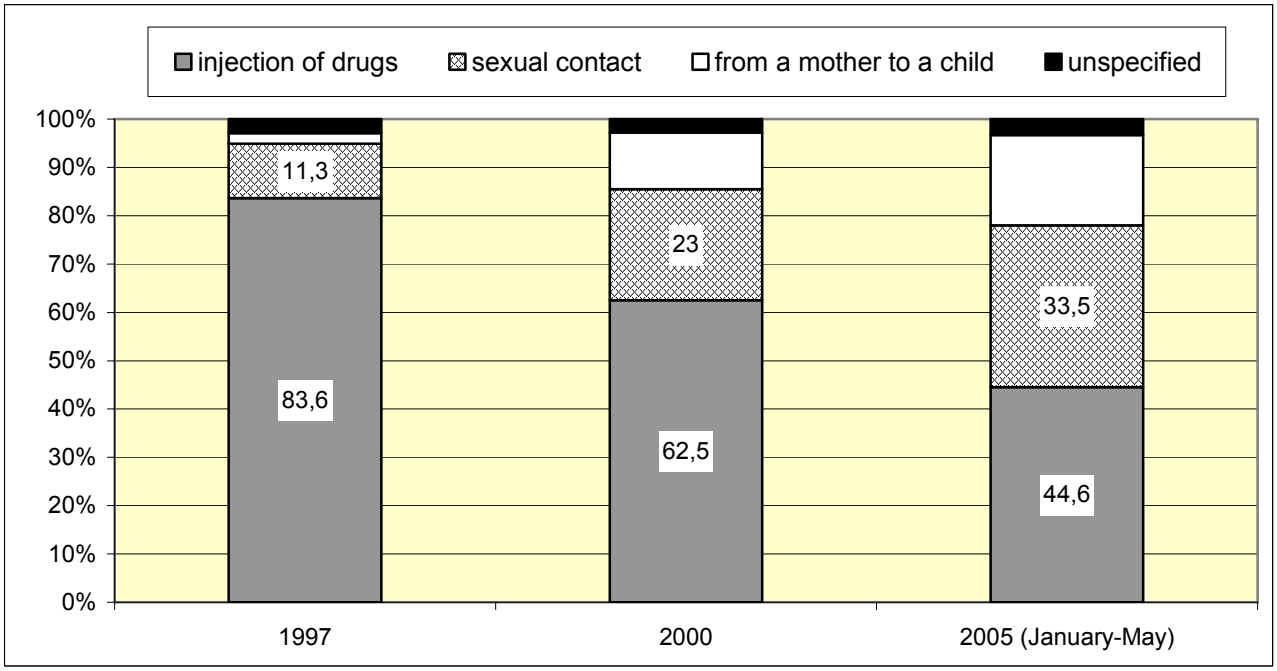


Fig. 7.3.4. Structure of ways of HIV transmittance in Ukraine in 1997, 2000 and 2005 (January-May), %

Source: data of the Ukrainian Centre of AIDS prevention and combating of the Ministry of Health of Ukraine

The experts relate causes of an explosion-like development of HIV/AIDS epidemic in Ukraine with increase of injection drugs consumers, peculiarities of injection drugs consumption, and a large delay of the preventive activity commencement among high-risk population groups. At the same time, the last surveys give the basis to admit, that HIV is gradually outputting the borders of the main risk groups and starting spreading among the whole population. The tendency to reduction of a share of injection drugs use in the structure of ways of HIV transmittance proves it (from 84% in 1997 through 46% in 2004 and up to 45% in the first half of 2005). Simultaneously, the growth of sexually transmitted HIV is observed, as well as transmittance of HIV from a mother to a child (Fig. 7.3.4). In 2004, the largest number of new cases of HIV was registered – 12.5 thousand cases, being on 25% higher than the respective rate of 2003. Dynamics of HIV prevalence in 2000-2004 let us admit, that the second wave of HIV/AIDS epidemic has started in Ukraine, caused by HIV transmittance by sexual contacts among population, relatively safe in terms of infection risk.

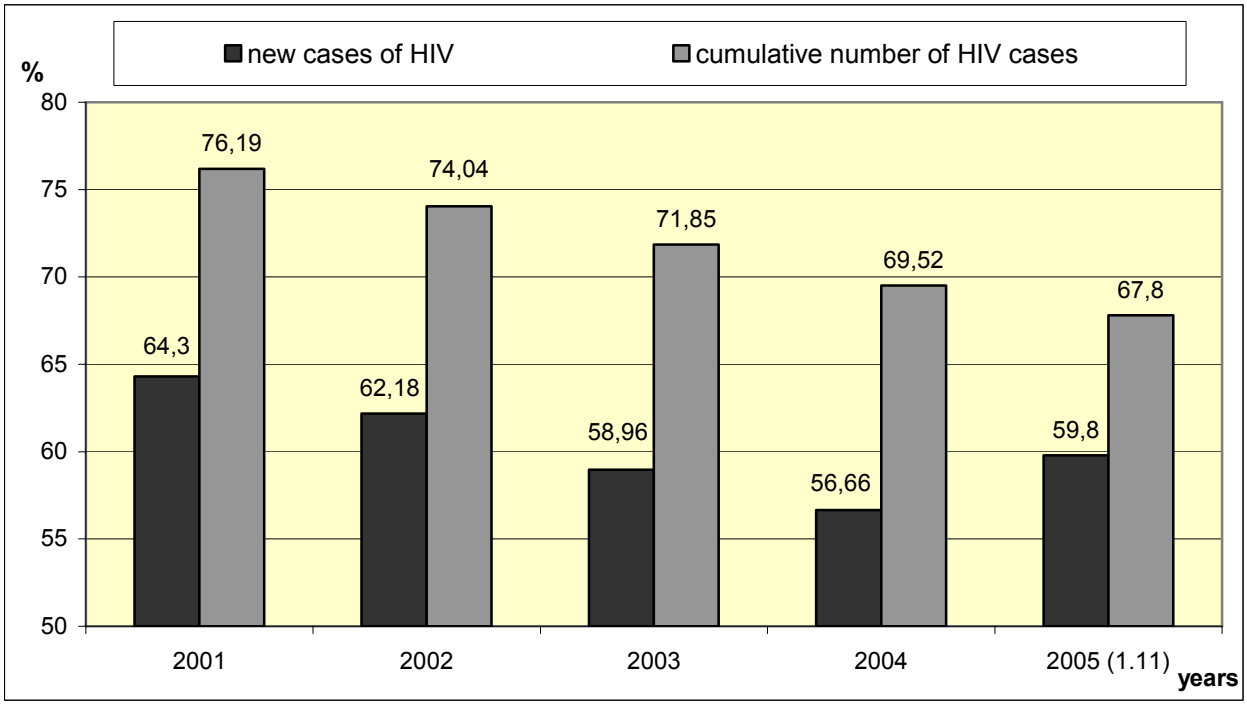


Fig. 7.3.5. Dynamics of percentage of injection drugs consumption among new HIV cases and cumulative number of HIV-infected during 2001-2005*, %

Source: data of the Ukrainian Center of AIDS prevention and combating of the Ministry of Health of Ukraine

* - as on 1.11.2005.

Despite of changes in ways of HIV-infection, consumers of injection drugs still make the majority in the total (cumulative) number of HIV-infected in Ukraine: as on November 1, 2005, their share was 67.8% (Fig. 7.3.5)[10]. The narcotism has become the main contributor to HIV/AIDS epidemic in Ukraine. According to the data of the All-Ukrainian narcological association, the number of registered consumers of drugs was about 85 thousand persons at the beginning of 2005 or 179.2 persons per 100,000 of the population. According to the data of the Ministry of Internal Affaires of Ukraine, the law enforcement bodies have registered about 124.8 thousand persons, who consume narcotic substances at the beginning of 2005. At the same time, there are reasons to suggest that the official statistics is not complete, and so unreliable; it reflects not the real scales of narcotism in Ukraine, but mostly the activity and quality of work of the law enforcement bodies and accessibility of the respective medical services. The real number of consumers of drugs is more numerous in Ukraine. In particular, according to estimation of the national experts, the number of consumers of injection drugs (CIDs) varied within 324-424.8 thousand persons in 2005 [12]. As CIDs made about 80-85% of the total drugs dependent persons in Ukraine (according to the expert estimations), it can be suggested that the total number of consumers of drugs is even larger.

[10] These data are important, as a share of injection drugs consumers within the total number of HIV-infected does not exceed 10% in the Western European countries (contrary to Ukraine), while a share of young people under 30 is only 30%.

According to patrol epidemiological surveys, the prevalence of HIV rates is averagely 37% among consumers of injection drugs in Ukraine. The present high risk of HIV infection has led to direct association of injection drugs with HIV/AIDS, while consumers of injective drugs form basic potential of distribution of HIV-infection in the Ukrainian society.

The most intense epidemic situation with HUV/AIDS is observed in the southern and southeast regions, while the western and central areas are considerably less affected (Fig. 7.3.6, 7.3.7). The epidemiological analysis reveals, that a share of consumers of injection drugs within HIV-infected in regions with highest HIV prevalence rates has dropped during the last years; contrary, it is gradually increasing at territories with low and average rates of HIV prevalence. So, we can conclude that the reserves of the epidemic among drugs dependent persons has been relatively exhausted in the south and southeast of the country, while there are negative projection trends of its development in the western and central regions

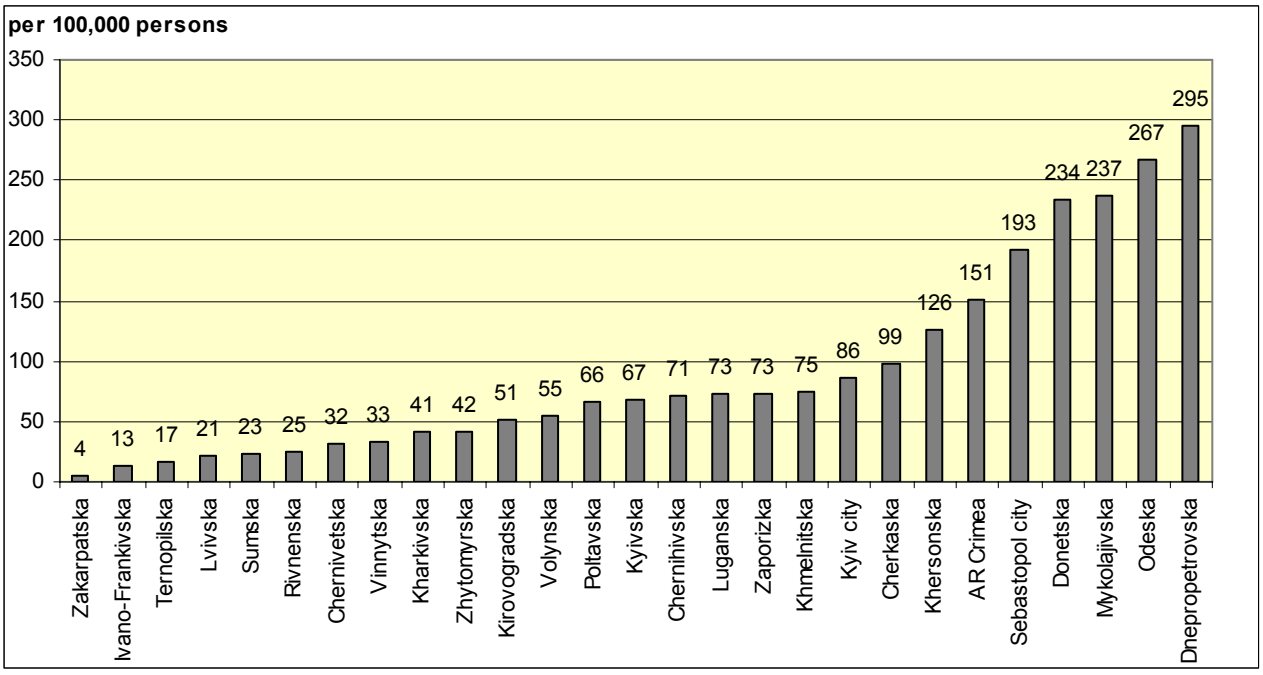


Fig. 7.3.6. Rates of the officially registered HIV prevalence in the administrative regions of Ukraine at the beginning of 2005 (per 100,000 persons)
Source: data of the State Statistics Committee of Ukraine

The intensity and duration of the epidemic of HIV/AIDS consequences depend on its demographic and economic conditions. Ukraine experience increased risk of HIV prevalence because of the complicated demographic situation (mostly due to unsatisfactory state of the population health) and uncertainty of its economic prospects. These factors undoubtedly strengthen a susceptibility to this dangerous disease, especially under conditions of low living standards of the population and social tensions in the society.

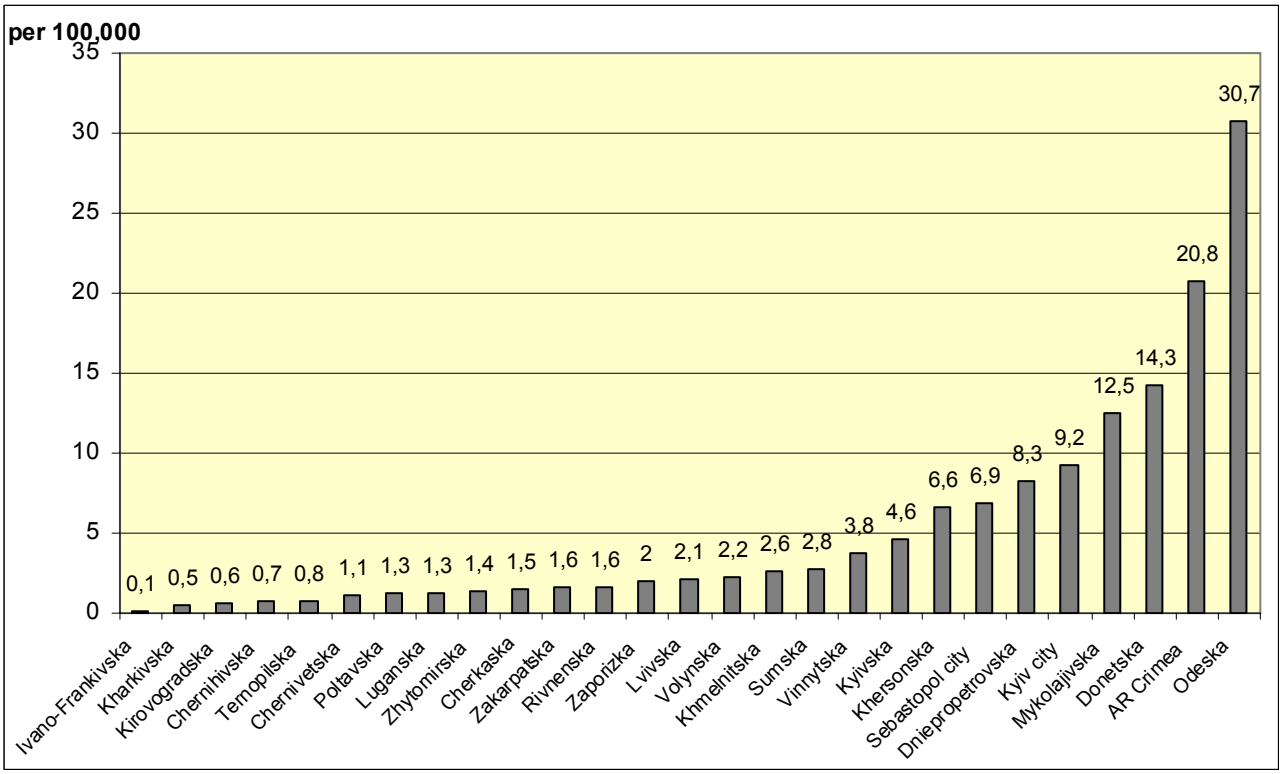


Fig. **7.3.7.Rates of the officially registered AIDS prevalence in the administrative regions of Ukraine at the beginning of 2005 (per 100,000 persons)**
Source: data of the State Statistics Committee of Ukraine

Secondly, under conditions of depopulation, which has been taking place Ukraine, improvement of the population health and growth of the average life expectancy could play a role of the compensating factor, resisting to the quantitative loss of the population, caused by a decrease in fertility. But, the prevalence of HIV/AIDS will prevent this possibility and break the normal demographic processes in the future.

The consequences of the epidemic of HIV/AIDS in Ukraine include the losses of the wide socially-demographic meaning. To estimate them, the projection of the epidemic development during 1994-2014 was developed by an interbranch group of experts under supervision of the Ministry of Health of Ukraine and World Bank in 2005 by modules DemProj and AIM of Spectrum software program [15]. According to the research, the largest demographic consequences of the epidemic will concern the population health, as well as morbidity and death rates. As the results show, the number of HIV-infected persons could reach its maximum in 2009 (640.7 thousand persons) by the medium projection scenario. As to 2014, this number could reach from 478.5 thousand (by high projection) to 820.4 thousand persons (by low projection). The prevalence of HIV means increase of premature deaths, prevalence of disability, raise of HIV-associated diseases (especially of tuberculosis), reduction of the average life expectancy.

The main consequence of HIV/AIDS epidemic is presented by an aggravation and deepening of the present negative demographic trends in Ukraine, which will make a negative impact on demographic and economic prospects of the country's development. At the same time, it is necessary to recognize, that, despite of development of numerous state concepts and programs, absence of the complex approach and interbranch coordination of activity of different bodies and structures makes a serioues obstacle in HIV/AIDS prevention in Ukraine, including such problems as unsolved questions of management, monitoring and estimation of the decisions, pretentiousness of many decisions and programs, as they are not supported by adequate financial resources. To minimize negative impacts and consequences of the epidemic, there is a need in development and realization of the complex interdepartmental strategy of the epidemic counteraction in the context of the main principles of the Strategy, approved by the United Nations and WHO. It should suggest::

- to change the state priorities from criminal prosecution of consumers of drugs to minimization of negative social consequences of narcotics use, to preventive maintenance of narcotic dependency and HIV-infection. As the prevalence of drugs consumption still remains the major factor of HIV infection, the effective policy on prevention of narcotism is among the main preconditions of HIV/AIDS epidemic slowing down. To achieve the changes, the national legislation on consumers of narcotics should be decriminalized: the prevalence of power and repressive approaches and strict law-enforcement control in Ukraine are targeted not on narcotics dealers, but on the consumers of drugs. That results in increase of CIDs marginalization and makes it more difficult to assist them as for the state health services, and for non-governmental organizations, which are engaged into information and educational activity. Secondly, the present state policy on prevention of narcotism requires a strict coordination, as well as the policy on HIV/AIDS prevention. Till now, their funding and responsibilities are divided and poorly coordinated in Ukraine;
- to make treatment of narcotism more available, including providing of replaceable supporting therapies. There is neither effective system of narcotism treatment in Ukraine, nor effective mechanism of its realization, providing preventive maintenance, treatment and resocialization of consumers of drugs. The replaceable supporting therapy remains unavailable, but the experts prove that it would have positive effects regarding reduction of HIV and other infections transmittance, decrease of criminality, related to illegal purchase of narcotic preparations. At the same time, the opponents of methadone programs approve, that their realization is equivalent to approving of use of illegal narcotic substances. Granting of replaceable therapy to persons in need, is formally authorized by the Ministry of Health of Ukraine, while it is actually forbidden and is carried out only in the form of pilot projects in some cities[11]. But, regarding all pro and contra replaceable therapy, we can assume that unsolved questions, related to a possibility of treatment of narcotics dependent persons form an important obstacle in counteraction to HIV/AIDS epidemic;
- to expand the availability of antiretrovirus treatment. The international experience testifies that ARV-therapy enables to reduce the death rates, caused by AIDS. In this regard, it is necessary to note, that opportunities of AIDS treatment in Ukraine have largely increased since 2005, owing to the grant of the Global fund of AIDS and tuberculosis combating: nowadays, about 3 thousand patients receive antiretrovirus treatment and their number would increase in the further. At the same time, a share of HIV-infected consumers of drugs in the structure of those, receiving the

[11]Presently, only about 100 consumers of injection drugs receive replaceable supporting therapy in Ukraine.

treatment, is small. It can be explained, as to achieve the efficient treatment, the medicines should be taken regularly, as well as regular medical control and supervision are needed. But, it is difficult to reach, as narcotists usually have no interest in treatment. Also, the treatment of narcotists it is not supplemented with replaceable therapy, which is an important compound of ART.

– to provide social support and availability of social services for HIV-infected and AIDS diseased persons. The active involvement and support of non-governmental organizations with purpose of realization of the new social approaches on prevention of injection narcotism of HIV expansion require particular attention, as well as creation of conditions for social integration of narcotics dependent and HIV-infected. In this regard, it should be emphasized that expansion of ARV therapy availability does not mean slowing down of the epidemic. It is important, to introduce ARV-therapy with parallel development of prevention programs. The international experience shows, that activation of education activity among narcotics consumers and programs of syringes exchange provide a notable impact on behavior of drugs consumers, resulting in decrease of their vulnerability to HIV. The rate of coverage of injection drugs consumers by preventive programs is insufficient in Ukraine; according to the estimation of the Ukrainian Institute of Social Studies, it makes about 15% in cities [13]. Simultaneously, by expert estimations, this rate should be no less than 60% to achieve notable changes.

And, finally, there is no systematic information policy of the state, directed on raising of the population awareness on HIV/AIDS problems and forming of the tolerant attitude to people, living with HIV, overcoming of discrimination and stigmatizing of HIV-positive persons. As the epidemic is coming to the general stage and is spreading for the whole society now, the preventive efforts not only among the risk groups should be taken, but also for the wide population groups. The efforts on the epidemic overcoming require decentralization and resources support at the regional level, particularly in the regions with the most intensive epidemic situation. It concerns as information-consultative, as financial provision of activities of regional programs on issues of HIV/AIDS prevention (including those funding from the local budgets), forming of positive attitude of the regional and local authorities, cooperation and partnership with non-governmental organizations. Realization of this strategy at the national and regional levels should become the milestone of the present policy on HIV/AIDS combating.

7.4. General characteristic of mortality and life expectancy in Ukraine

General trends. The problems of mortality are among the most urgent ones of all demographic problems of the present Ukraine. They have been formed not today, as their roots are hidden in the events of at least a half century ago, when a deep gap in the trends of mortality and life expectancy of the population of the USSR and economically developed countries start to be gradually observed.

Until the middle 1960's, the processes of mortality have been developing rather synchronically in the USSR and economically developed countries, while the decrease of mortality has been taking place mostly due to the state sanitary-hygienic policy – disinfecting of drinking water, prophylactic injections of the main infectious diseases, successes of medicine etc. Infant mortality and mortality of children under 16 also have been decreasing with fast rates, as well as maternal mortality; the effective work on overcoming of the infectious diseases, resulting from the inappropriate living standards has been realized (in the first turn – of tuberculosis). As a result, the losses of the so-called exogenic mortality (mstyl resulting from the mostly external factors) have been notably minimized. Thus, the Ukrainian mortality rates and the corresponding rates of the developed countries were practically the same at that time.

But, later the prophylactic of diseases has experienced principal changes. While prevention of the infectious and parasitic diseases has been reached mostly by effective mass actions, which practically do not require individual actions (disinfection of drinking water, injections, efficient antiepidemic work of medical workers, expansion of refrigerators, aseptics and antiseptics, some revolutionary discoveries in medicine, resulting in the principal changes of the numerous diseases development), successes in overcoming of diseases of endogenic origin are possible under condition of simultaneous target public and individual efforts. The means of self-protective behavior of the population are of the priority importance, as well as expansion of healthy way of life, suggesting a change of orientations, forming of clever attitude to a personal life, health and children's lives. But, the domination of public over the private in the ideology of the soviet society during this period has lead to the lagging development of the society. Also, the state attention to prophylactic medicine should be considered.

The first negative features of mortality development have been observed in the first half of 1960's. But, the growth of mortality rates in elder and after-working age groups have not called for the appropriate attention. Also, one could expect that this short-term growth will not exceed the usual fluctuations. But, starting since the end of 1960's, the total growth of mortality has taken place, covering the whole population of Ukraine in the age elder than 20.

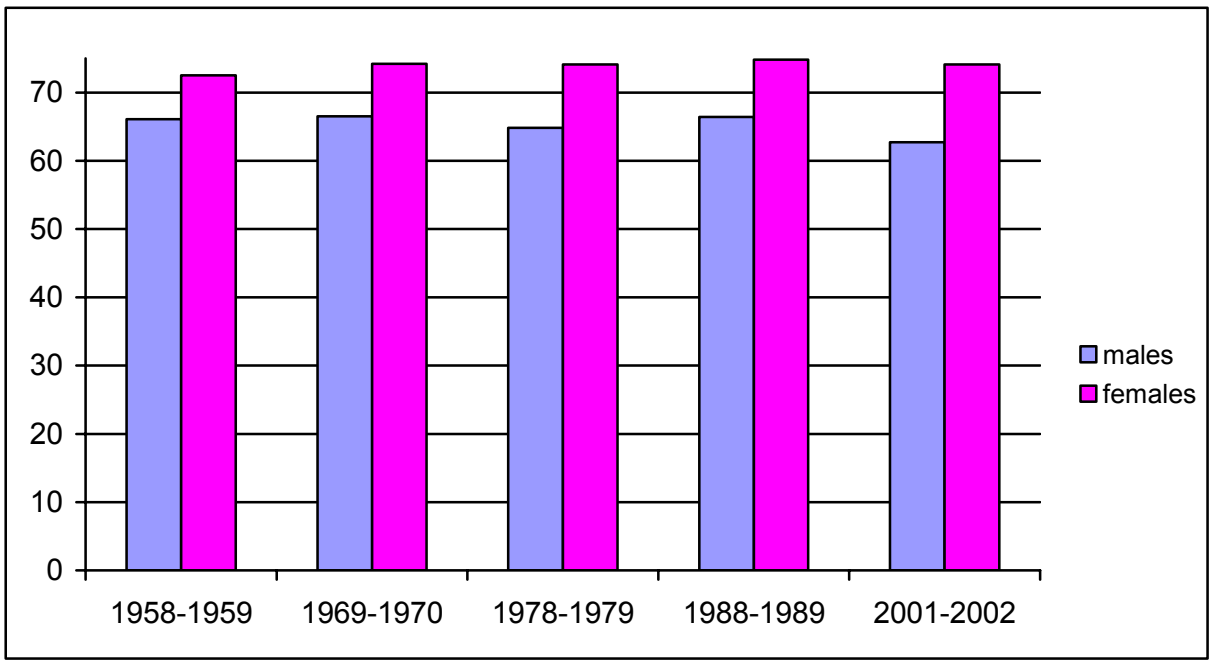


Fig.7.4.1. The average life expectancy at birth by sex in Ukraine in the years of the Population Censuses, years

Practically, we have faced rather strange display of mortality trends in Ukraine – contrary to the corresponding trends in the overwhelming majority of the European countries, they have "wave-like" character, which almost completely is defined by mortality of males of the working age.

Thus, a short-term growth of life expectancy has been observed in the middle 1980's, which probably resulted from the intensive counteraction to alcohol abuse and decrease in mortality of males, caused by accidents, poisonings and traumas; but, this rate has decreased in the end of the decade again, and the decrease was more notable among men. Before the Independence, the average life expectancy of the Ukrainian males was on 5-7 years shorter than in the developed European countries. The total transformational crisis of the last decade of the XXth century, which has ruined the traditional way of life in Ukraine, has also critically deteriorated the situation. But, despite of the wide-spread thesis, the trends of the population life expectancy do not reflect the changes of economic situation and living standards; a long decrease of mortality among females and males has been observed namely during the deepest economic crisis (1995-1999), while the period of economic growth (2000-2004) is been accompanied by rather negative trends and decrease of the average life expectancy.

Generally, mortality regime has been formed under impact of as positive factors (achievements of prophylactics medicine, growth of educational level of the population, control over the quality of drinking water, and main food products, urbanization), as of negative factors (extensive use of labour force at technologically imperfect productions, environmental pollution, insufficient awareness of the population of importance of self-protective ("vital") behaviour in provision of health, disadvantages in medical services, low living standards and deep social-economic crisis of 1990's). But, the largest impact on increase of the average life expectancy has been provided by decrease of infant mortality and of mortality of the working-age population during the last 50 years, resulting from achievements of preventive medicine in overcoming of infectious and wide use of antibiotics in treatment of infectious and inflammatory diseases.

Since the Ukrainian Independence, there are three stages in the “wave-like” trends of mortality: the first one (accelerated growth of mortality) has been observed during 1991-1995; the second one (decrease of mortality) – during the deepest economic crisis of 1996-1998; the third one (a new growth of mortality among the population of the middle and elder ages) has been observed since 1999 till presently; in 2005 a new very negative trend appeared – increase of infant mortality.

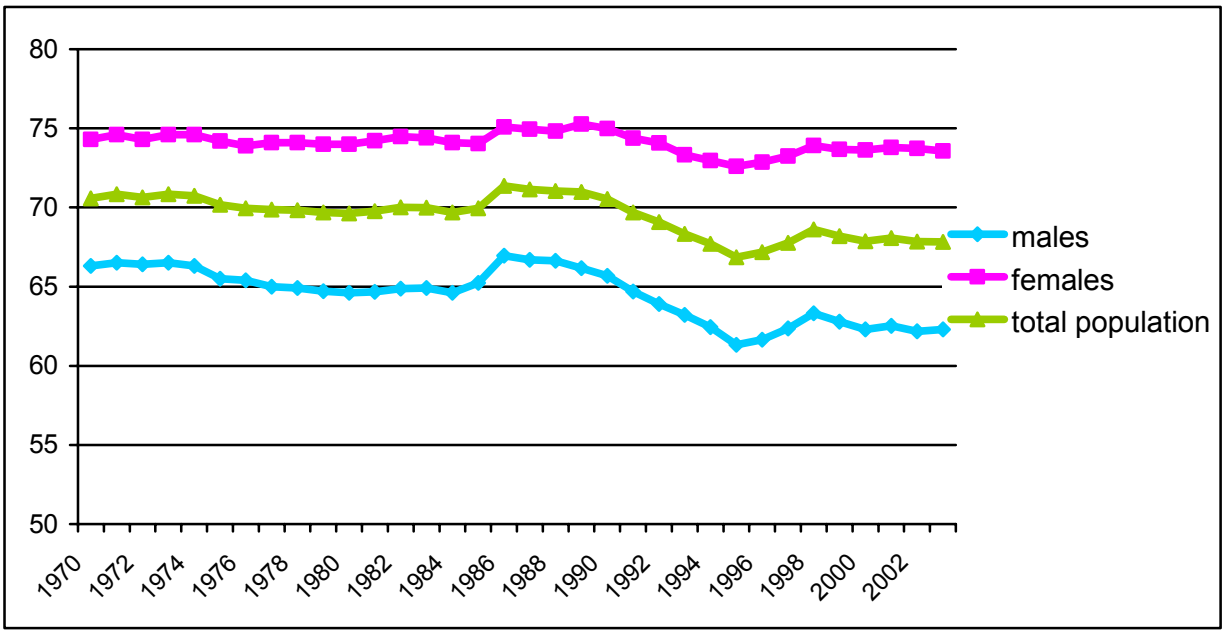


Fig.7.4.2. The average life expectancy at birth, years

To show the principal differences of the new trends of the population mortality in Ukraine, as compared with the developed world countries, we use the rates of the CIS countries, Poland and EU as a whole.

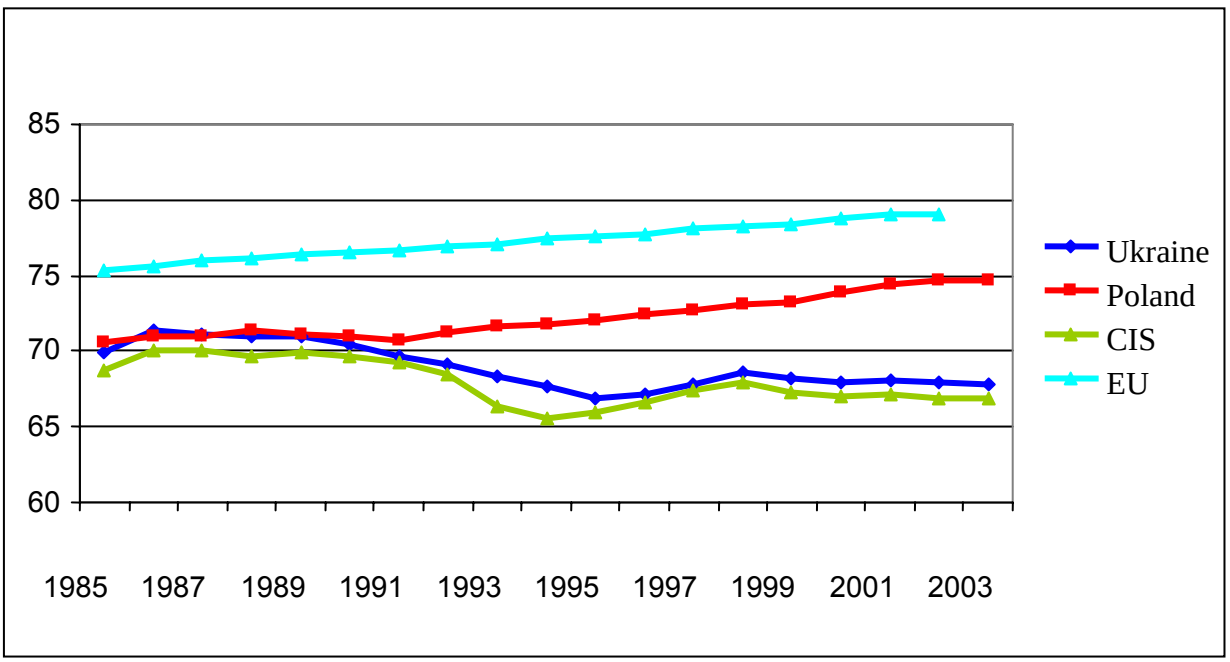


Fig. 7.4.3. The average life expectancy at birth, years

The graphs of the average life expectancy of the population of Ukraine and CIS countries are very similar. But, one can observe less dramatic decrease of this indicator in Ukraine in the first half of 1990's. At the same time, notable differences in the trends of life expectancy between Ukrainians and Poles are observed. While the difference was about 0.5 year before 1990's (regarding the average life expectancy at birth), it has gradually started to grow and it exceeded 8 years for men and 6 years for women in 2003.

The new trends of mortality in Ukraine and in economically developed countries are related in the same way. As a result, the Ukrainian lag behind has not been shortened, but even increased. Regarding the average life expectancy, Ukraine lags behind 27 European countries with the lowest mortality rates (so-called region Europe-A)[12] on 11.2 years, behind 25 countries of Europe with higher mortality rates (region Europe-B+C)[13] – on 6.6 years, behind Switzerland (with the highest life expectancy in Europe) – on 13.1 years.

[12] According to the WHO, region Europe-A consists of the European countries with the lowest mortality rates among infants and adults: Austria, Andorra, Belgium, UK, Greece, Denmark, Ireland, Iceland, Spain, Italy, Cyprus, Luxemburg, Malta, Monaco, The Netherlands, Germany, Norway, Portugal, San Marino, Slovenia, Finland, France, Croatia, Czech Republic, Switzerland, Sweden – The World Health Report 2004. Changing History. – Geneva, WHO,2004 (http://www.who.int/whr/2004/en)

[13] Region Europe-B consists of 16 countries with low rates of infant and adult mortality: Azerbaijan, Albania, Bulgaria, Bosnia and Herzegovina, Armenia, Georgia, Kyrgyzstan, Macedonia, Poland, Romania, Serbia and Montenegro, Slovak Republic, Tajikistan, Turkey, Turkmenistan; region Europe-C consists of 9 countries with low rates of infant mortality and high rates of adult mortality: Belarus, Estonia, Kazakhstan, Latvia, Lithuania, Moldova, Russia, Hungary, Ukraine – The World Health Report 2004. Changing History. – Geneva, WHO,2004 (http://www.who.int/whr/2004/en)

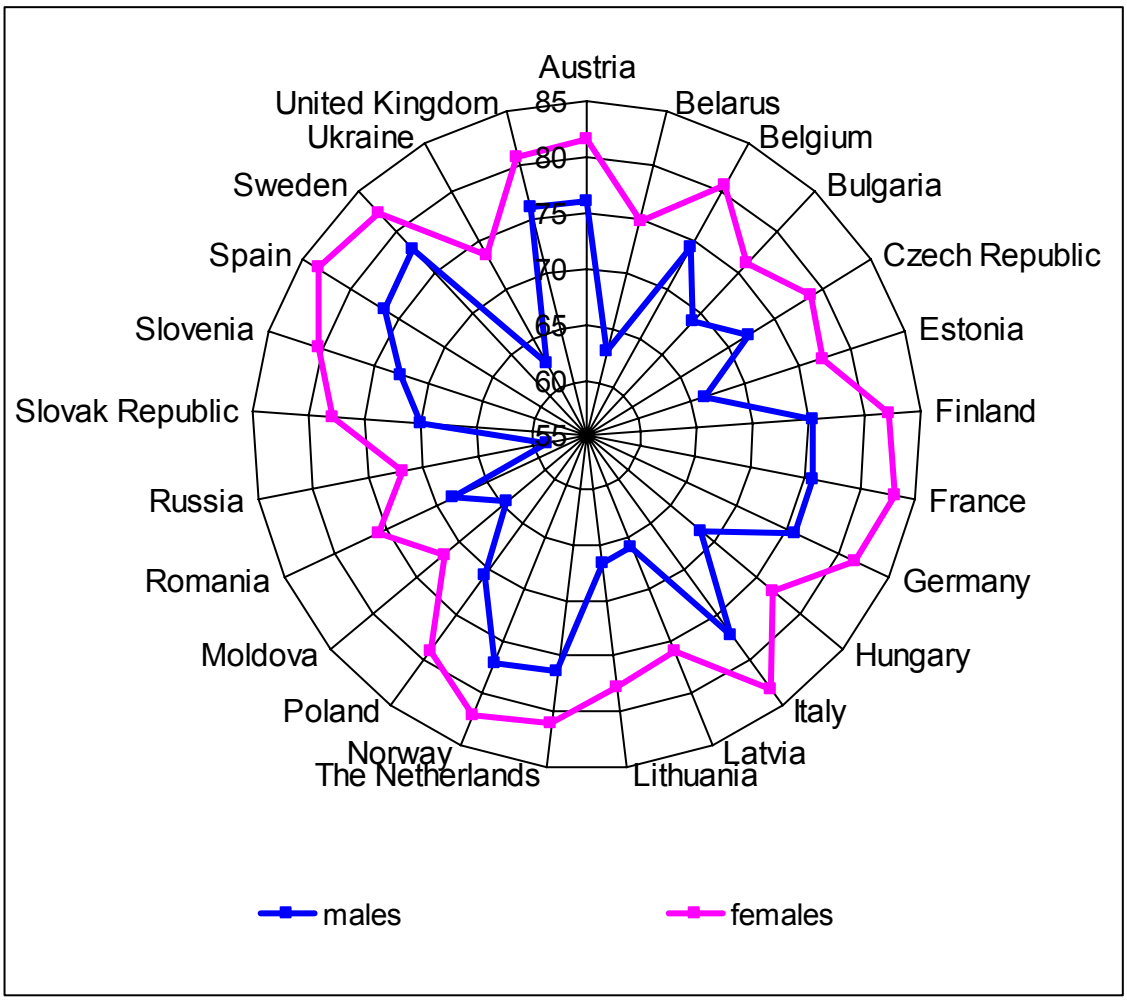


Fig. 7.4.4. The average life expectancy at birth, years

According to the World Health Organization, Ukraine belongs to a group of countries with the highest mortality rates in Europe – region Europe-C; moreover, it is the last one even among these 9 countries. This is a gap, which is very difficult to overcome: the purposeful efforts of the whole society are needed during decades.

According to the WHO, under conditions of mortality of 2003, the average life expectancy at birth was 67.8 years in Ukraine[14], exceeding only the corresponding rates of Russian Federation (64.9) and CIS countries as a whole (66.9). The shifts, which have been taking place during 2004-2005, resulted in deterioration of a ratio with economically developed countries.

Gender differentiation of mortality. The Ukrainian mortality rates are much higher than the European ones, regarding as females, as males. But, Ukraine experiences larger losses in the result of premature deaths of males: while the average female life expectancy at birth is on 8.4 years lower than in region Europe-A, the average male life expectancy is lower on 13.7 years (as compared with region Europe-B+C, the difference is 0.03 and 2.1 years respectively).

Gender gap in the average life expectancy is also much higher than the corresponding European rates; moreover, the growth of this gap is a particularly Ukrainian phenomenon.

[14] According to the State Statistics Committee of Ukraine – 68.2 years.

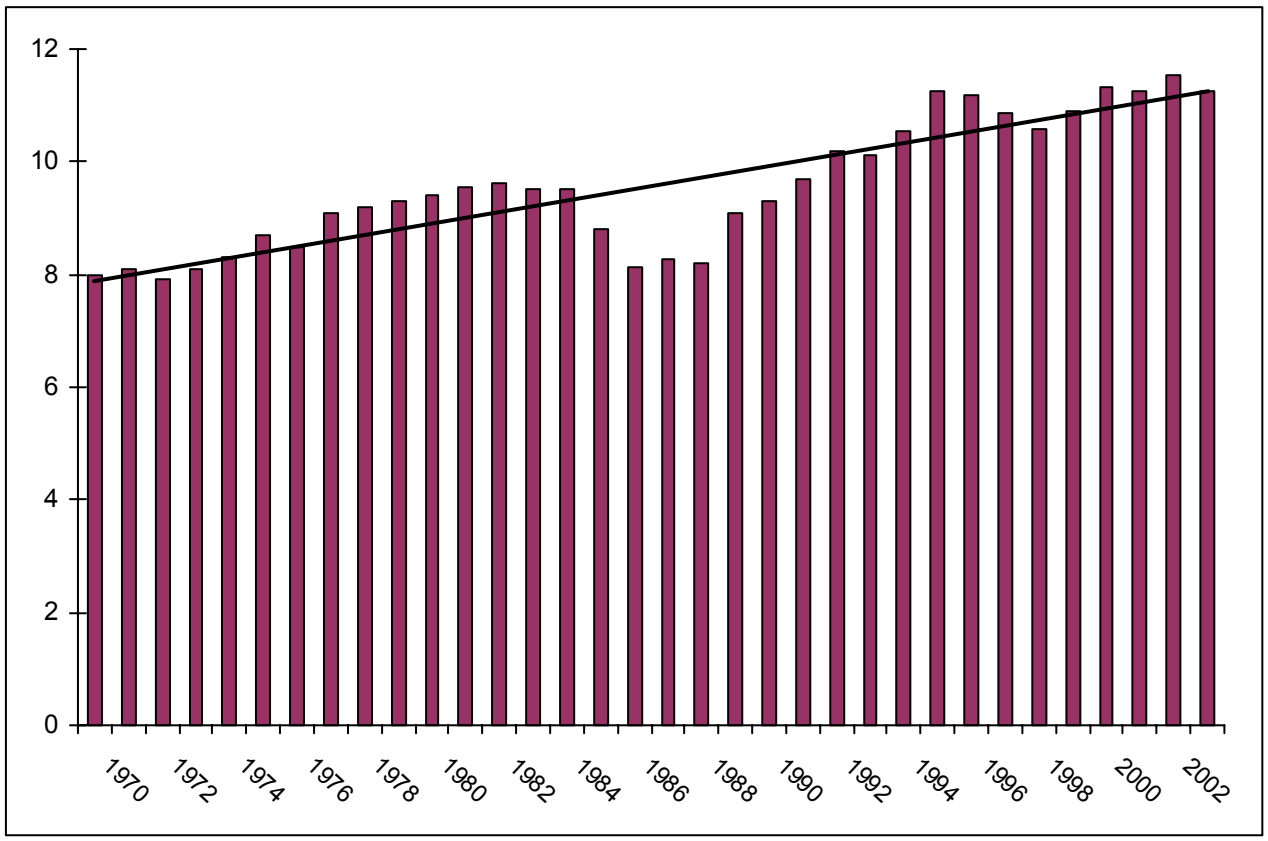


Fig. 7.4.5. The difference in the life expectancy of females and males, years

On the European background of rather high over-mortality of males, the Ukrainian gender gap in life expectancy at birth – 11.3 years[15] – is approximately similar to the CIS standards (11.0 years) and those of the majority of other European countries, which belonged to the USSR earlier (in Russia – 13.2 years, in Belarus – 12.0 years, in Lithuania – 11.3 years, in Estonia – 11.0 years, in Latvia – 10.2 years), but it is much higher than in the economically developed countries (in Iceland – 3.8 years, in Denmark and Sweden – 4.4 years, in UK – 4.6 years, in Greece – 4.8 years). Averagely, gender gap in life expectancy in region Europe-A makes 6 years, while in region Europe-B+C – 9.2 years.

The main contribution to forming of this gap is provided by over-high mortality of males in the most active age – 20-54 years, when males die averagely in 3.5 times more often than females of the same age.

Increased mortality rates of boys in the age under 1 provides 2% of the total gap in the average life expectancy at birth, while males mortality rates in the age of 1-14 – correspondingly 1%, in the age of 15-44 – 34%, in the age of 45-64 – 44% and in the age over 65 – 19%.

Before beginning of the active economic activity, as well as after its finishing, indices of over-high mortality are much lower, while the Ukrainian gender gap in mortality in the age over 65 is similar to gaps in all economically developed countries. As to the eldest

[15] According to the State Statistics Committee of Ukraine – 11.5 years.

age groups (over 75), though female life expectancy is higher than male one, a gap (1.7 years) is much smaller than, for instance, in Austria (2.3 years) or in Canada (2.7 years).

Table 7.4.1. Gender gap in the average life expectancy at reaching some age in 2003 (years)

	age 0	15	45	65
Ukraine	**11,2 (11,5)***	**11,1 (11,3)***	**8,1(8,4)***	**3,6 (3,9)***
Europe-A	6,0	5,9	5,1	3,7
Europe-B+C	9,2	9,9	7,4	3,6
CIS	11,0	10,8	7,9	3,7
Poland	8,4	8,3	6,9	4,1
Hungary	8,4	8,3	7,2	3,9
Czech Republic	6,6	6,5	5,6	3,4

Source: Calculated by HFA Database. 2005
** according to the State Statistics Committee of Ukraine.*

The results of the analysis of dynamics of gender differences in mortality of the population of Ukraine evidence on gradual replacement of a period of the highest mortality of males from the age of 20-34 in 1990 to the age of 35-49 in 2004. Actually, this is the same generation, which has become older on 14 years.

Fig. 7.4.6. Indices of over-high mortality of males, %

Thus, over-high mortality of males results from their larger employment in occupations with harmful and dangerous conditions of work, as well as from differentiation of a way of life, which is observed at this age. It concerns alcohol abuse and smoking in the first

turn. Also, higher preferences to suicides among the Ukrainian males should be considered.

High rates of employment in occupations with harmful and dangerous conditions of work, including mining, metallurgy and agriculture, are more wide-spread among males (raised traumatism in agriculture is common mostly for mechanizators, who are mostly represented by males).

Table 7.4.2. Number of employees, working in the conditions, which do not respond to sanitary-hygienic norms (as on December 31, 2004)

	Females, thousand persons	Males, thousand persons	Males to females ratio, %
Total	397,9	1 210,9	304,4
Agriculture	28,8	65,0	226,2
Mining industries	57,1	306,7	537,5
including coal, charcoal and peat	39,0	218,8	561,6
Processing industries	228,3	474,9	207,9
including:			
production of coke, oil products	8,9	24,9	281,1
chemical industries	26,7	37,6	140,8
production of rubber and plastic goods	5,7	10,7	188,2
metallurgy and metal procession	62,8	174,3	277,6
Production and distribution of electricity, gas and water	42,7	119,1	279,2
Construction	10,0	79,6	796,0
Transport and communications	31,1	165,5	532,2

**Calculated by data of the State Statistics Committee of Ukraine.*

Presently, 58% of males and 14% of females in the age over 15 are smoking in Ukraine; moreover prevalence of smoking among males is much higher than the analogues of all European countries, with exception of Albania, Belarus and Lithuania.

Table 7.4.3. Prevalence of regular smoking among population in the age over 15 in some European countries, 2000, %

	Males	Females	Gender ratio of regular smoking prevalence, %
Albania	60	18	333,3
Belgium	36	26	138,5
Belarus	54	7	771,4
UK	29	25	116,0
Estonia	44	20	220,0
Italy	32	17	188,2
Lithuania	52	16	325,0
Moldova	40	2	2000,0
The Netherlands	36	29	124,1

Germany	40	32	125,0
Norway	31	31	100,0
Poland	42	23	182,6
Romania	32	10	320,0
Hungary	41	26	157,7
Ukraine	**58**	**14**	**414,3**
Finland	27	20	135,0
France	33	21	157,1
Sweden	17	21	81,0
Czech Republic	36	22	163,6

**Calculated by data: HFA Database. 2005*

According to the data of the national surveys on the living standards of households in Ukraine, an average Ukrainian smokes averagely 1,140 cigarettes a year (the figure for smoking Ukrainians is 5,087 cigarettes a year).

According to the international statistics, averagely a Ukrainian smoke 1,027 cigarettes yearly; that is notably smaller than in the majority of the European countries: on 579 cigarettes less than in region Europe-A, on 694 cigarettes less than in region Europe-B+C, on 742 cigarettes less than in the CIS countries. As compared to Poles, Ukrainians smoke on 907 cigarettes less, while as compared to Hungarians – on 1124 less, to Czechs – on 464 cigarettes less. In the first turn, the doubts on the quality of information, provided to the international structures, appear – smoking is considered as one of the most important determinants of the population mortality, whereas the Ukrainian life expectancy is notably shorter than in the mentioned regions, with exception of the CIS countries. Surely, the quality of cigarettes also should be considered – expansion of illegal tobacco products is probably important.

Comparison of the rates of smoking prevalence among different sex-age groups evidences, that smoking is most popular among males in the age of 26-50 (more than 60% of the corresponding population are smoking). As to females, smoking is popular among young and middle-aged groups (18-40), being particularly dangerous in the context of reproductive activity.

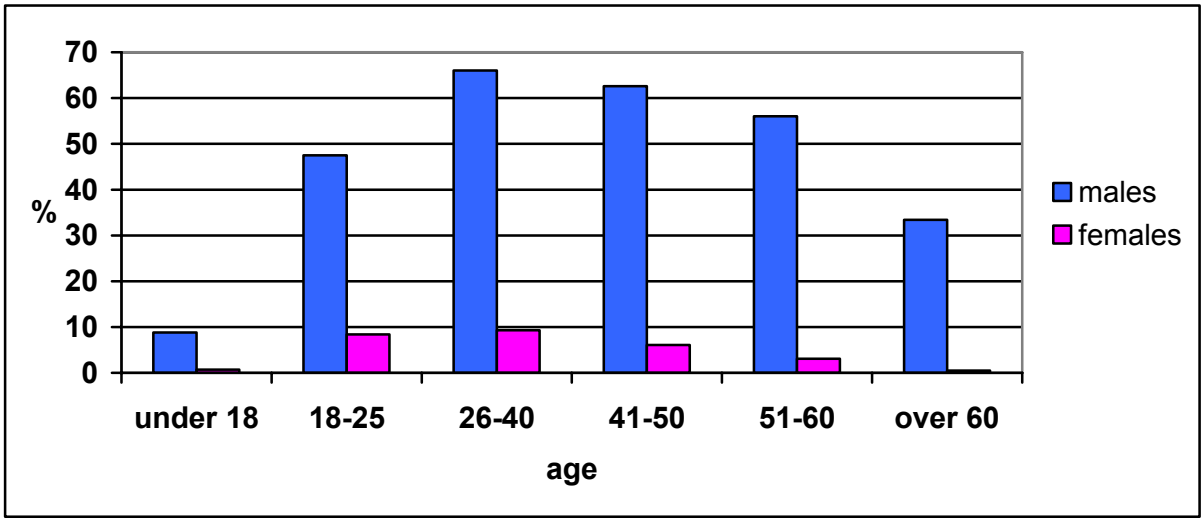


Fig. 7.4.7. Shares of smokers among males and females of different age, %

Unfortunately, information of consumption of alcohol is practically unavailable because of prevalence of home-produced alcohol products, in particular in the countryside and in small towns.

According to the official data, an average Ukrainian consumes 4 liters of the pure alcohol yearly, that is on 5 liters less as compared to region Europe-A, on 1.5 liters less as compared to region Europe-B+C, on 2 liters less as compared to the CIS countries. The Ukrainian yearly consumption of pure alcohol is also higher than in Poland, Hungary and Czech Republic – correspondingly on 3, 8 and 10 liters per persons more. Unfortunately, there are few reasons to rely on the provided data, as some sociological surveys and expert estimations prove a high rate of alcoholism. Indirect characteristic of alcoholism prevalence is found in a high - and increasing – mortality of reasons, related to alcohol. Thus, while death rate, caused by these reasons, was 12,6 per 100,000 persons in 1990, it was 27,3 in 1995, 25,8 in 2000 and 34,9 in 2004. In 2004, 16,567 persons have died of reasons, related to alcohol; i.e. 2.2% of the total number of lethal cases.

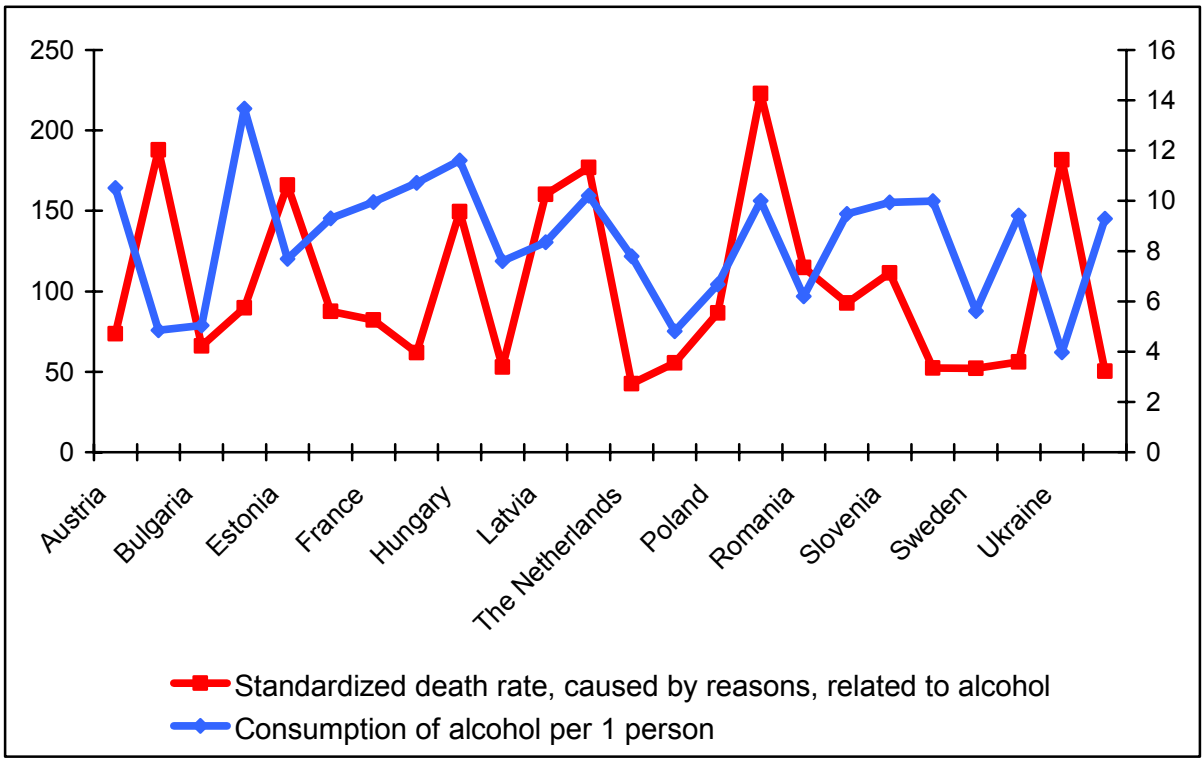


Fig. 7.4.8. Interrelation between alcohol abuse and death rates, caused by reasons, related to alcoholism in some European countries.

The results of analysis of international data on dependency between consumption of alcohol and death rates, caused by reasons, related to alcohol, prove rather strong correlation.

The trends of mortality of suicides are very positive, as the number of lethal suicides has decreased on 22.8% during the last decade (as compared to 1995). The decrease of mortality, caused by suicides, among males has been more notable, regarding the total scales (2.6 thousand deaths, while the corresponding rate among females was 0.8 thousand). Averagely, the total number of suicide deaths was almost 11.3 thousand cases in 2004, i.e. about 1.5% of total deaths.

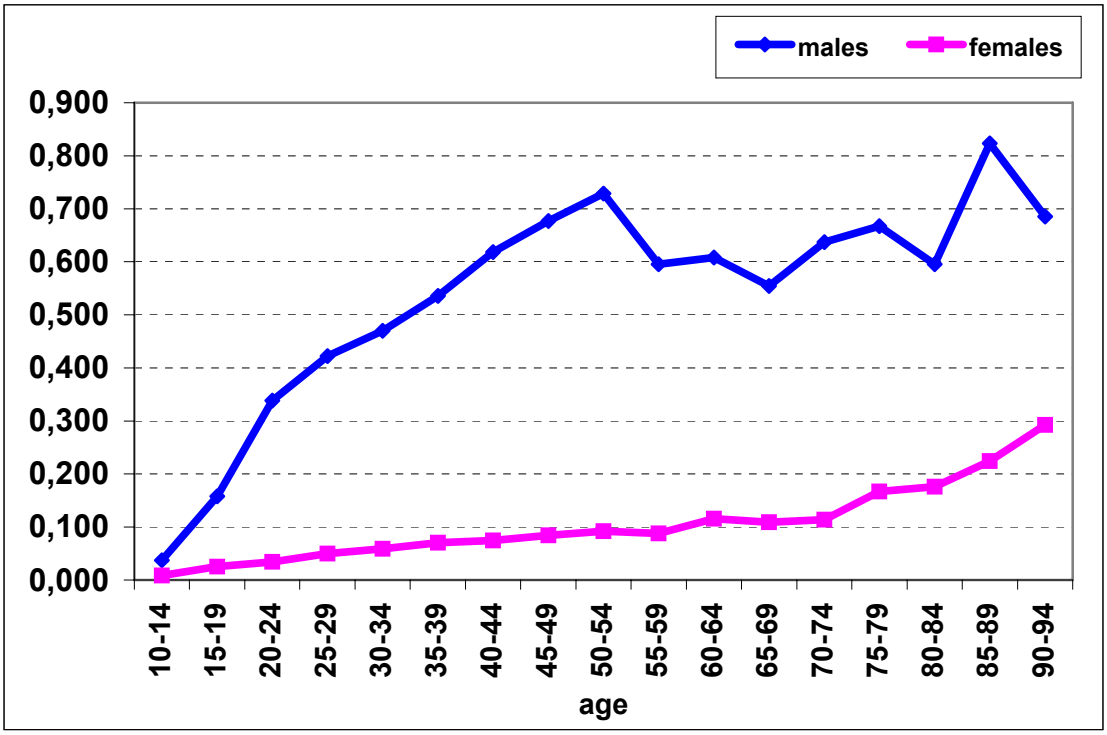


Fig. 7.4.9. Differentiation of mortality, caused by suicides, by sex and age, 2004, ‰.

Road and transport incidents are important determinants of over-high mortality of males. The standardized death rate was 15.6 cases per 100,000 persons in 2003, including 25.3 cases among males and 7.1 cases among females. And, though these rates are only on 10-30% higher than the European analogues, it should be noted, that males die in road and transport incidents in 3.7 times more often than females in Ukraine.

Lethal suicides rate is much higher among males in all age groups, but the largest gap in observed in the working-age groups. Regarding females, the maximum rates are observed among the eldest females. As to males, there is an increase of suicides in the pre-pension age, while some decrease can be noticed after reaching of pension age, another increase of suicides is observed after reaching 85.

As a result, a death risk makes 37% only in the working age (for females – 8%); it practically has not been changed during the last quarter of the century.

Age peculiarities of mortality regime. Different orientation of mortality vectors in different age intervals is accumulated by indicators of the average life expectancy at reaching some age and their comparison with European standards.

Table 7.4.4. The average life expectancy at reaching some age in 2003 (years)

	0 years old		15		45		65
	males	females	males	females	males	females	males
Ukraine	**62,3**	**73,6**	**48,4**	**59,5**	**23,3**	**31,4**	**11,6**
Europe-A	75,9	81,9	61,5	67,4	33,1	38,2	16,5
Europe-B+C	64,4	73,6	50,1	60,0	24,4	31,8	12,0
CIS countries	61,6	72,6	48,0	58,9	23,1	30,9	11,5
Poland	70,5	78,9	62,6	67,6	34,1	38,4	16,8

Hungary	68,4	76,6	54,1	62,4	26,3	33,5	13,1
Czech Republic	72,1	78,7	57,6	64,1	29,3	34,8	13,9
Ukraine – Europe-A	-13,7	-8,4	-13,1	-7,9	-9,8	-6,8	-4,9
Ukraine – Europe-B+C	-2,1	-0,0	-1,7	-0,5	-1,1	-0,4	-0,5
Ukraine – CIS countries	0,7	1,0	0,4	0,7	0,2	0,5	0,1
Ukraine – Poland	-8,2	-5,4	-7,9	-5,1	-5,2	-4,0	-2,4
Ukraine – Hungary	-6,1	-3,2	-5,7	-2,9	-3,0	-2,1	-1,5
Ukraine – Czech Republic	-9,8	-5,1	-9,2	-4,6	-6,0	-3,4	-2,3

** Calculated by data: HFA Database. 2005*

A striking difference in the average life expectancy at birth becomes more-less appropriate (in particular, as compared to the transition countries) after the end of active economic activity (at reaching 65).

Infant death rate is among the main indicators of the population mortality, which rather correctly and quickly react on changes of sanitary-hygienic situation, living standards and medical services, quality of nutrition, etc.

Unfortunately, after rather positive infant death rates in Central and Eastern Europe before 1990's, the situation has been changed contrary. Instead of the notable advantages by this feature, Ukraine started to concede to the majority of neighbors. After very negative trends of the first half of 1990's, a stable decrease of infant death rates has been observed during the last decade. But, despite of it, these rates are in 2-3 times higher than the analogues of the economically developed countries, calling for particular attention on a background of a very low fertility.

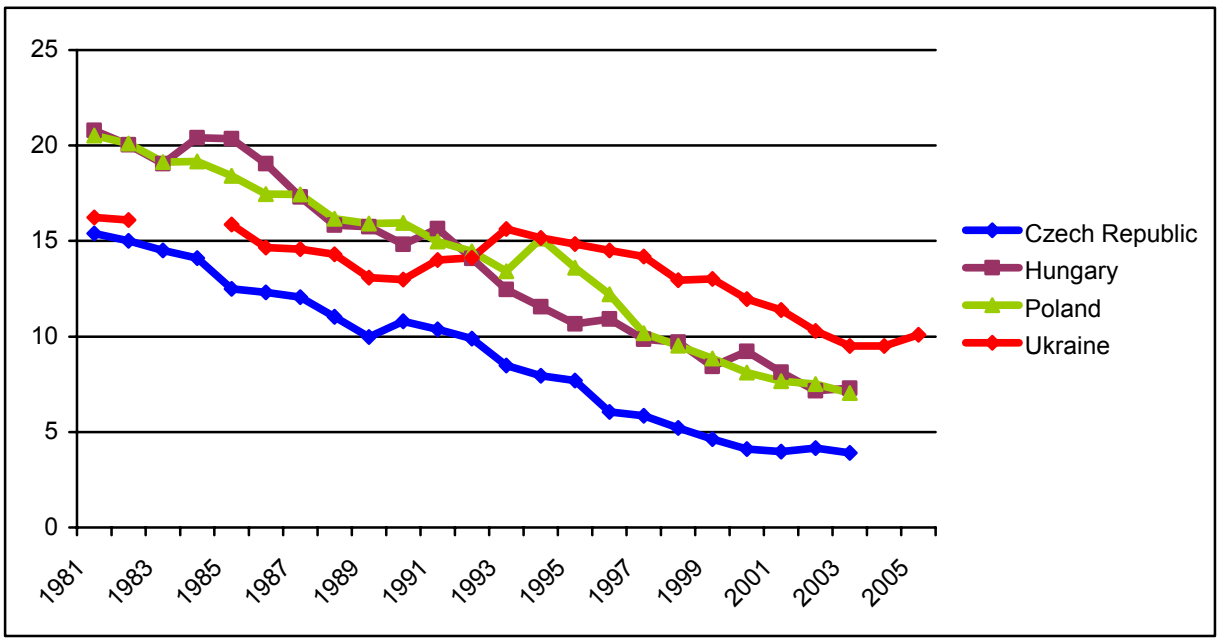


Fig. 7.4.10. Infant death rates, per 1,000 live births.

According to the data of 2004, a probability of death in the age under 1 was 10.8‰ for boys and 8.2‰ for girls. To compare: averagely in region Europe-A the corresponding figures were 5.1 and 4.1‰, in region Europe-B+C – 14.4 and 11.2‰.

Unfortunately, a new wave of growth of a probability of death in the age under 1 was observed in 2005 and, thus, the lag behind European countries is increasing.

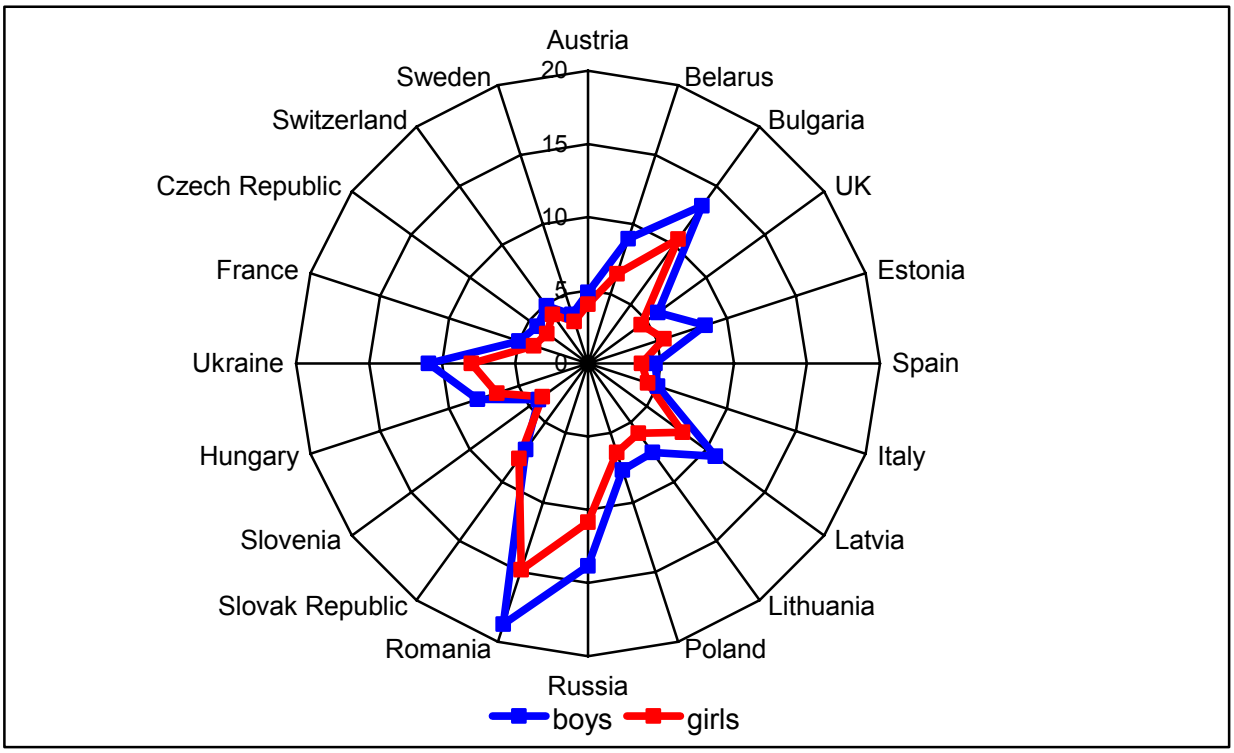


Fig. 7.4.11. Infant death rates, per 1,000 live births in some European countries.

But, it should be emphasized that despite of a wide-spread thesis on determining importance of infant death rates in the low life expectancy of the population of Ukraine,

the decrease of this rate to the present European rate will not lead to a notable increase of the average life expectancy at birth. Even reaching of the level of Switzerland (in 2002 – 4.85‰ among boys and 4.14‰ among girls – the lowest rate in Europe) would result in increase of the male life expectancy on 0.37 years, while of the females – on 0.30 years. The real difference is 16.08 years among males and 9.70 years among females.

Table 7.4.5. Infant death rates in the age under 5 be sexes, per 1,000 live births

	2000	2001	2002	2003	2004
Both sexes	16,0	14,4	13,6	12,9	12,4
Boys	18,3	16,3	16,1	14,7	14,0
Girls	13,6	12,5	11,0	11,0	10,7

**Calculated by data of the State Statistics Committee of Ukraine.*

Infant death rates in the age under 5 are used as additional indices to infant death rates. It results from the successes of the present medicine, which often is able to "prolong" the lethal end for a year or two, but it not always is able to cure a child finally. The general improvement of caring of infants is also important. Correspondingly, international organizations use comparison of probabilities of death for children not under 1, but under 5, to characterize the quality of medical services and general development of humanitarian medicine. Ukraine has rather positive trends, regarding this indicator, but a lag behind the developed countries is also notable.

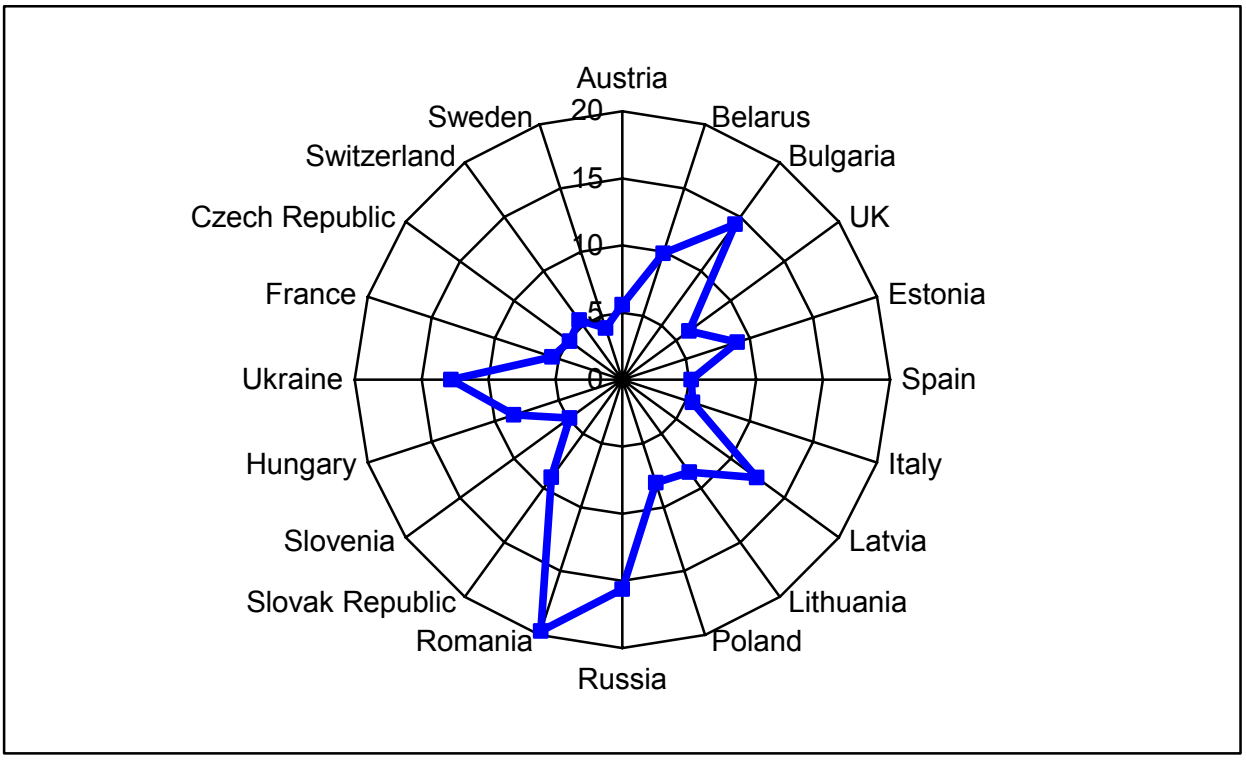


Fig. 7.4.12. Probability to die in the age under 5, per 1,000 of live births.

The main determinants of this lag are found in over-high death rates, caused by accidents, poisonings and traumas, which cause deaths of the Ukrainian infants in 6-7 times more often, as compared to infants in Switzerland, in 3-4 times more often, as compared with Czech, Hungarian and Polish infants. The increase of death rates is very large, though the total number of died infants is not very numerous.

Generally, death rates of infants and adolescents in the age under 15 are rather similar to the corresponding rates in region Europe-B+C, but they are much higher than the same rates in region Europe-A.

Table 7.4.6. Standardized death rates of infants under 5, caused by accidents, murders and other external factors (according to the European standard) in 2003

per 100,000 persons

	Both sexes	Boys	Girls
Switzerland	6,15	7,79	4,41
Sweden	3,27	4,25	2,24
Czech Republic	10,08	10,24	9,9
Poland	9,77	11,41	8,04
Belarus	33,09	38,79	27,03
Estonia	37,62	45,97	28,96
Kazakhstan	48,11	52,56	43,44
Latvia	41,68	39,7	43,73
Lithuania	26,57	32,22	20,56
Moldova	57,52	72,79	41,2
Russia	42,06	47,99	35,83
Hungary	10,1	9,85	10,37
Ukraine	**38,55**	**44,54**	**32,2**
Region Europe	18,96	21,64	16,13
Europe-A	7,53	8,79	6,19
Europe-B+C	34,54	39,11	29,72
CIS countries	40,72	46,06	35,07
Ukraine/Europe-A	512,0	506,7	520,2
Ukraine/Europe-B+C	111,6	113,9	108,3
Ukraine/CIS	94,7	96,7	91,8
Ukraine/Switzerland	626,8	571,8	730,2
Ukraine/Czech Republic	382,4	435,0	325,3
Ukraine/Poland	394,6	390,4	400,5
Ukraine/Hungary	381,7	452,2	310,5

** Calculated by data: HFA Database. 2005*

The largest losses of the population are observed in the age of 15-59. A probability of death in the this age is 393‰ for males and 145‰ for females in Ukraine, while in Poland these rates make correspondingly 204 and 82‰, in Hungary - 259 and 110‰, in Czech Republic – 163 and 72‰ [15].

The calculations of probabilities to live rather long periods of life in the countries of region Europe-A (Switzerland and Czech Republic), region Europe-B (Poland) and all 9 countries of region Europe-C are presented in Table 7.4.6. The presented data prove that 978 boys and 984 girls of each 1,000 live births live to the age 15 in Ukraine. At the same time, the corresponding rates of Switzerland – a country with the lowest death

rates in Europe - are 992 and 994 infants. Thus, Ukraine loses additionally 14 “male” and 10 “female” years of life at this 15-years interval of life. International comparisons show the next picture of losses: as to males - on 15 lost lives more, as compared to Czech Republic and on 49 lives less than in Kazakhstan; as to females - on 10 lost lives more than in Czech Republic and on 34 lives less than in Kazakhstan.

Table 7.4.7. Probabilities to live the complete period of life by sexes for different ages in 2001, ‰

Country	Males				Females			
	0-14	15-39	40-59	15-59	0-14	15-39	40-59	15-59
Switzerland	992	978	926	905	994	990	957	947
Czech Republic	993	973	855	832	995	990	937	927
Poland	989	962	816	785	951	988	926	915
Belarus	982	904	698	632	987	974	889	866
Estonia	985	933	738	688	987	982	906	889
Kazakhstan	929	888	704	625	950	949	833	791
Latvia	982	928	742	688	986	978	904	884
Lithuania	987	937	779	730	989	983	920	904
Moldova	971	938	738	692	979	977	869	849
Russia	972	868	646	560	980	964	873	841
Hungary	987	960	756	725	990	984	896	882
Ukraine	**978**	**904**	**690**	**624**	**984**	**971**	**885**	**856**

** Calculated by data: HFA Database. 2005*

Another large interval – 30 years – takes much more lives: as compared to Switzerland, additionally 74 males and 19 females. When comparing to other selected countries, the next figures are obtained for males: on 69 lives more than in Czech Republic and on 37 lives less than in Russia; for females: on 19 lives more than in Czech Republic and on 22 less than in Kazakhstan. Regarding twice longer length of this period, these losses can be considered as quite comparative with losses of infants and adolescents. But, Ukraine is loosing much more in the next 20 years of life – in the age from 40 to 60, as compared to any country of Europe, with exception of Russia – 310 males and 115 females. As compared to Switzerland, these losses are larger on 236 and 71 lives correspondingly, as compared to Czech Republic – on 165 and 52 lives. Thus, namely this period determines the largest part of the population losses in Ukraine, caused by over-high mortality.

Table 7.4.8. Calculations of the lost lives during the specified intervals in Ukraine, as compared to other countries in 2001, per 1,000 persons

Country	Males				Females			
	0-14	15-39	40-59	15-59	0-14	15-39	40-59	15-59
Switzerland	+15	+73	+236	+282	+11	+19	+71	+88
Czech Republic	+15	+69	+165	+208	+10	+19	+52	+67
Poland	+11	+57	+127	+161	+7	+17	+41	+55
Belarus	+4	0	+9	+8	+3	+3	+4	+6
Estonia	+8	+29	+48	+64	+4	+11	+21	+30
Kazakhstan	-49	-16	14	1	-34	-22	-52	-69
Latvia	+4	+23	+52	+64	+2	+7	+19	+24

Lithuania	+9	+33	+89	+106	+5	+11	+35	+44
Moldova	-7	+34	+48	+68	-5	+6	-16	-11
Russia	-5	-37	-44	-64	-4	-7	-12	-18
Hungary	+9	+55	+66	+102	+6	+13	+10	+22

** Calculated by data: HFA Database. 2005*

Averagely, 26.9% of the Ukrainians die in the age under 65 in Ukraine; a higher rate is observed only in Russia Federation (29%), while it is lower than 20% in the majority of other countries with transition economies. One can conclude that over-high premature mortality is a high social price, which is paid by the Ukrainian society for the low efficiency of economic reforms, poor quality of food products, insufficient living standards, limited access to qualified medical assistance, imperfect preventive work, absence of the population self-orientation on healthy way of life.

Due to different reasons, every sixth household has no access to qualitative medical services and products (16.2% of the country's population), though 92% of the population believe that they need them[16]; correspondingly, less than 40% of the population estimate their health as good one. The stagnation of these indicators during the whole period of observation (since 2000) reflects as objective imperfectness of health protection system, as unsatisfied needs of the population.

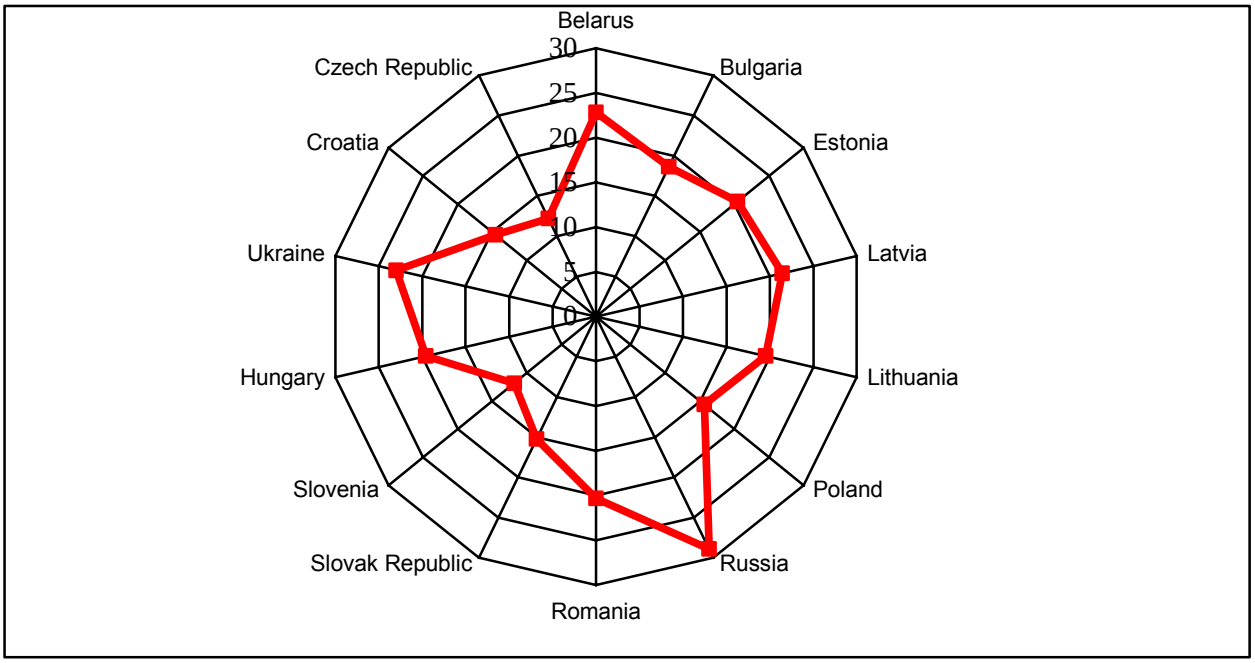


Fig. 7.4.13. Probability to die in the age under 65, %

Nutrition

Obviously, the quality of the nutrition ration is an important feature of a way of life, making a direct impact on the health and parameters of the mortality regime. Despite of the generally low living standards, energetic caloricity of the nutrition ration of the population of Ukraine averagely respond to the European standards. But, high caloricity is provided by consumption of products with high content of fats, mostly of animal origin. As a result, a fifth part of the population of Ukraine and almost each sixth women have

[16] According to the data of the Survey on the population living standards of 10,092 households for 9 months of 2004.

excessive weight – the corresponding shares are 20.1 and 26.4% among the persons in the age of 50-60. This, no doubts, is reflected on the health, in particular on raised prevalence of vascular diseases.

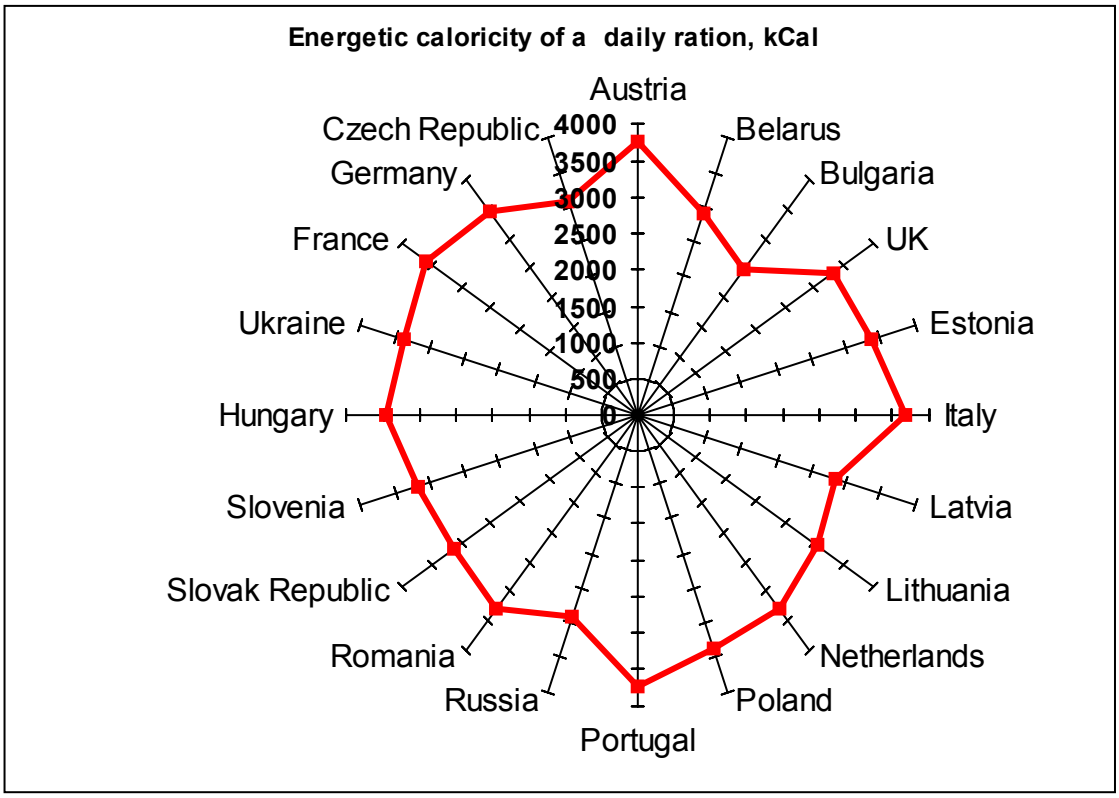


Fig.7.4.14. Energetic value of a daily ration in some countries of Europe.

The quality of the nutrition ration, in particular, consumption of vegetables, fruits and fish is obviously insufficient among the population. For instance, while the population of the EU countries averagely consume 227 kg of fruits and vegetables yearly, in Ukraine – almost on a third part less (in 2002 – 137 kg, in 2003 – 149 kg)[17].

[17] Source: HFA Database. 2005

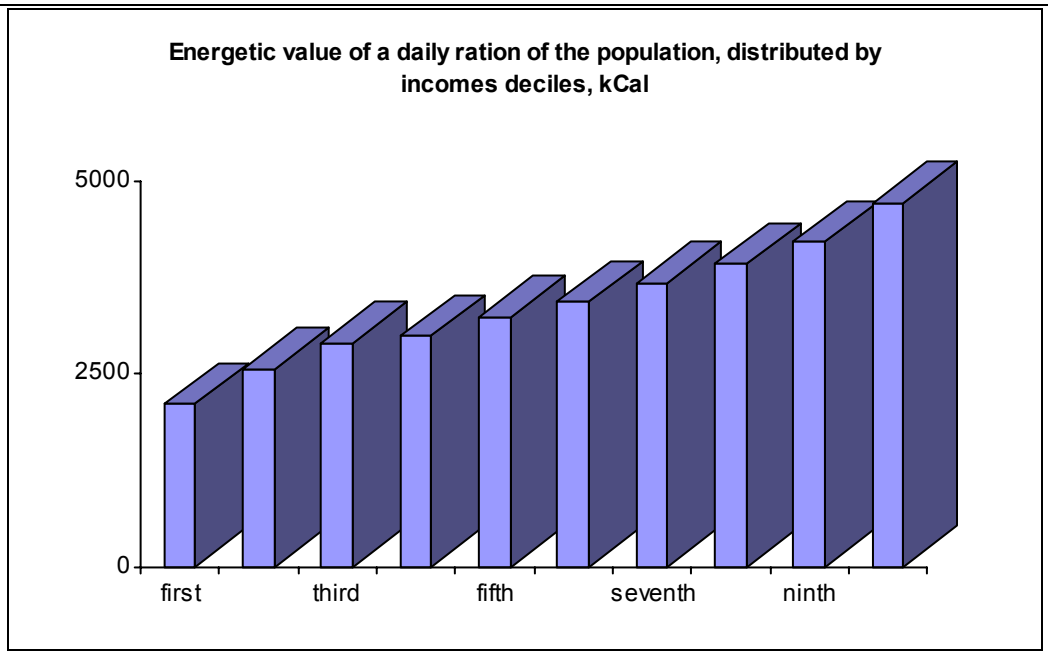


Fig. 7.4.15. Energetic value of a daily ration of the population, distributed by incomes deciles.

Particular problems with the quality of the ration are common for socially disadvantages groups of the population, including families with many children and households, suffering of the chronic poverty. They do not only consume insufficient quantities of milk products, vegetables, fruits, meat and fish – the energetic value of a daily ration of 10% of the poorest citizens do not exceed 2100 kCal, defined as the poverty line by the WHO.

7.5. Causes of mortality of the population of Ukraine.

General structural shifts. The main determinant of the over-high demographic losses is high mortality, caused by accidents, murders, suicides and other external factors. According to the data of 2004, these exogenic causes, which take lives almost exclusively in young and middle age, caused 10.5% of all deaths in Ukraine.

Table 7.5.1. Characteristics of mortality by the main causes

Causes of death	Number of deaths				Average age of died persons, years			
	1986	1991	1996	2004	1986	1991	1996	2004
Infectious and parasitic diseases	6322	6419	10535	15136	43,9	46,5	45,2	43,7
tuberculosis	4037	4524	8233	10787	53,6	52,0	48,1	46,3
Tumors	90654	105135	99153	92118	62,2	62,9	62,6	63,9
of a stomach	15604	15990	13364	10866	64,1	64,7	64,0	65,1
of lungs, tracheas, bronchi	18858	22725	19781	16345	62,6	63,4	63,5	64,9
of breasts	6023	7054	7663	7891	60,1	60,9	61,0	62,5
of female genitalia	8204	8601	8309	7507	63,0	63,6	62,9	62,7

Blood circulation system diseases	346652	349270	446824	473746	74,6	73,2	73,0	73,5
ischemic illness of heart	217494	190508	272885	311101	75,4	73,1	73,4	73,9
Cerebral-vascular diseases	102542	114027	122561	103735	74,3	73,9	73,0	73,8
Respiratory diseases	40562	38745	43991	28486	67,9	68,1	66,9	65,2
Accidents, murders, suicides and other external factors	41787	60989	80352	71329	44,0	44,6	45,3	47,5
suicides	9472	10743	15258	11259	50,1	49,3	48,5	48,3
Total	525977	560558	680855	680815	69,1	67,5	67,4	68,5

Obviously, the majority of lethal cases (62.2%) are caused by diseases of blood circulation system; their contribution is growing with the population ageing and decrease of mortality, caused by another factors. But, deaths, caused by heart and vascular diseases appear in Ukraine much earlier, than in the developed countries. It results from absence of traditions of systematic prophylactic surveys, irresponsible attitude to own life of a large part of the country's population, inappropriate state of health protection system.

Mortality, caused by respiratory diseases, observed among the population of not only elder, but even young age, is unacceptably high. Usually, it is considered that lethal cases of respiratory diseases result from environmental pollution and unavailable qualitative medical services.

Also, very high death rates, caused by infectious and parasitic diseases, result from imperfect medical-hygienic situation in the country. The number of persons, who have died of these causes, is growing with fast rates; moreover, the deaths are observed more soon. The trends of tuberculosis mortality are extremely dangerous, as in 2004 this disease caused 10.8 thousand deaths, the mean age of died persons was 46.3.

Generally, high death rates, caused by infectious and parasitic diseases, are in three times higher than the standards of region Europe -A, more than in 4 times – of Poland, more than in six times – of Hungary, almost in 10 times – of Czech Republic.

The results of the comparative analysis of tuberculosis mortality are even worse. The corresponding standardized death rate in Ukraine is in 29 times higher than in region Europe-A, in 9.3 times than in Poland, in 8.9 times than in Hungary, in 31.7 times than in Czech Republic.

Table 7.5.2. The changes in the number and mean age of persons, who have dies, by the main death causes

Death causes	Difference in the number of died in 2004 as compared to		Difference in the mean age of died in 2004, as compared to	
	1986	1991	1986	1991
Infectious and parasitic diseases	8814	8718	-0,2	-2,8
tuberculosis	6750	6263	-7,3	-5,7
Tumors	1464	-13017	1,7	1,0

of a stomach	-4738	-5124	1,0	0,4
of lungs, tracheas, bronchi	-2513	-6380	2,3	1,5
of breasts	1868	837	2,4	1,6
of female genitalia	-697	-1094	-0,3	-0,9
Blood circulation system diseases	127094	124476	-1,1	0,3
ischemic illness of heart	93607	120592	-1,5	0,8
cerebral-vascular diseases	1193	-10292	-0,5	-0,1
Respiratory diseases	-12076	-10259	-2,7	-2,9
Accidents, murders, suicides and other external factors	29542	10340	3,5	2,9
suicides	1787	516	-1,8	-1,0
Total	154838	120258	-0,6	1,0

As compared to 1986, the average age of died persons has decreased on 0.6 year in Ukraine, mostly due to negative structural shifts – accelerated growth of impact of those causes, which cause death mainly in the young age (infectious and parasitic diseases, in particular of tuberculosis, accidents, poisonings and traumas). When comparing with 1991, a different picture is observed – the average age of died persons has grown on 1 year, mostly due to “ageing” of mortality of the majority of the main causes, while an impact of the structural shifts has been the minimal.

A ratio of different death causes in the total process of mortality makes a large impact on forming of the average life expectancy, its regional variation and terms, as the numbers of lethal cases by separate causes are characterized usually by different age of their appearance. Thus, the higher is a share of died of infectious and parasitic diseases (they are mostly represented by children), the lower is the average age of died of all causes under equal other conditions; thus the average life expectancy is shorter. In Ukraine, the determining contribution into mortality dynamics has been provided namely by the structural shifts during the last years.

Table 7.5.3. Characteristics of mortality by the main death causes under elimination of sex-age structure impact

	Death rates, standardized by the European standards, per 100,000 persons					Ratio of the Ukrainian death rate with analogues in			
	EU	Poland	Hungary	Ukraine	Czech Republic	EU	Poland	Hungary	Czech Republic
Infectious and parasitic diseases									
1981	70,0	55,4	73,9	95,9	79,6	137,0	173,0	129,8	120,5
1986	62,7	60,2	66,0	77,2	69,1	123,1	128,1	117,0	111,7
1991	53,7	42,9	53,6	68,6	46,7	127,6	159,8	127,8	146,9
1996	54,8	38,4	50,2	78,6	39,7	143,5	204,5	156,5	197,9
2001	46,1	38,9	33,6	59,5	37,9	129,0	153,1	177,2	156,9
2	4	37,6	36,0	56,7	38,2	120,7	150,6	157,3	1

002	6,9								48,2
2003	47,6	41,5	41,4	53,7	42,4	112,8	129,5	129,6	126,8
Tumors									
1981	240,4	196,4	241,5	154,2	243,4	76,9	78,5	63,9	63,4
1986	204,4	207,5	253,4	170,0	254,9	83,2	81,9	67,1	66,7
1991	204,8	213,8	270,2	188,5	257,1	92,1	88,2	69,8	73,3
1996	196,6	213,8	278,0	176,8	243,4	90,0	82,7	63,6	72,6
2001	187,6	216,5	265,6	169,0	234,1	90,1	78,1	63,6	72,2
2002	186,6	216,7	262,3	166,9	233,8	89,5	77,0	63,6	71,4
2003	186,3	214,7	263,8	164,3	234,2	88,2	76,5	62,3	70,1
Blood circulation diseases									
1981	427,9	531,8	683,2	707,9	658,8	165,4	133,1	103,6	107,5
1986	407,8	598,4	665,0	666,4	673,9	163,4	111,4	100,2	98,9
1991	370,4	609,4	635,5	611,5	615,7	165,1	100,4	96,2	99,3
1996	322,5	524,6	587,4	774,6	529,7	240,2	147,6	131,9	146,2
001	274,5	431,5	503,8	777,2	459,8	283,1	180,1	154,3	169,0
002	270,7	413,9	503,9	799,7	456,0	295,5	193,2	158,7	175,4
003	270,3	416,7	508,3	819,7	461,9	303,3	196,7	161,3	177,5
Respiratory diseases									
981	70,0	55,4	73,9	95,9	79,6	137,0	173,0	129,8	120,5
986	62,7	60,2	66,0	77,2	69,1	123,1	128,1	117,0	111,7
991	53,7	42,9	53,6	68,6	46,7	127,6	159,8	127,8	146,9
996	54,8	38,4	50,2	78,6	39,7	143,5	204,5	156,5	197,9
001	46,1	38,9	33,6	59,5	37,9	129,0	153,1	177,2	156,9
002	46,9	37,6	36,0	56,7	38,2	120,7	150,6	157,3	148,2
003	47,6	41,5	41,4	53,7	42,4	112,8	129,5	129,6	126,8
Accidents, murders, suicides and other external factors									
981	60,7	72,3	116,2	107,5	85,7	177,2	148,7	92,6	125,4

986	57,8	75,7	118,1	81,9	84,2	141,8	108,2	69,4	97,3
991	57,2	86,8	117,2	118,7	82,2	207,6	136,8	101,3	144,3
996	49,0	72,4	95,0	158,2	70,1	322,9	218,5	166,6	225,8
001	44,2	63,4	80,7	150,0	60,9	339,5	236,6	186,0	246,5
002	43,8	64,2	81,6	153,5	60,5	350,0	239,1	188,0	253,7
003	43,6	62,4	80,0	146,0	64,2	335,0	233,8	182,5	227,4

** Calculated by: HFA Database. 2005*

Probabilities of death by different causes are not rather independent variables, as the total probability of death of all causes for a person is equal to 1, i.e. a probability that all stationary population, considered under development of life table, will die of the sum of all causes, is also equal to 1. In practice that means that successes of medicine and sanitary-hygienic culture of the society, leading to decrease of death risk of the majority of exogenic reasons, is always accompanied by the corresponding increase of shares of deaths of endogenic and quasi-endogenic etiology. In reality, there are no strict linear trends, resulting from different levels of inertness of endogenic and quasi-endogenic reasons, unequal length of latent period between an action of a pathogenic factor and a disease, between disease and death and, finally, with cumulative character of action of the majority of endogenic reasons. Generally, diseases of mostly endogenic etiology result in less notable, but also less controversial changes in the population life expectancy: the stable growth of a share of these deaths is been observed, while their impact on the average life expectancy is also increasing. Mortality of exogenic causes more largely depends on an impact of civilization progress.

As compared to all European countries – as developed ones, as those with transition economy – Ukraine has lost its positions by death rates. It can be proved by the calculations of ratios of the standardized death rates of some causes in Ukraine and in other European countries, including EU as a whole. Improvement of these ratios is observed by respiratory diseases and infectious and parasitic diseases. But, death rates, caused by these reasons, notably exceed the European analogues.

Infant mortality causes. The total decrease of infant mortality in Ukraine reflects its reduction practically of all main reasons. Unfortunately, an exception is made by accidents, poisonings and traumas – those death causes, which could be easily avoided under condition of the appropriate care. But, only during the last 3 years, death rates, caused by these reasons have grown on 13.2%, including on 27.1% among girls. The largest contribution into forming of this very negative trend is provided by increase of deaths, caused by accidental mechanic smothering; this reason causes 58.3% of all accidental deaths in Ukraine presently, resulting in deaths of 5 infants per 1,000 of births.

Table 7.5.4. Infant mortality by the main death causes, Ukraine

number of deaths per 10,000 live births

	1991	1995	2000	2004
Total deaths	139,0	146,8	119,4	94,9
including by classes of diseases				
states of perinatal period	52,8	48,4	46,3	36,8

congenital anomalies	38,6	42,6	34,7	28,2
accidents, poisonings and traumas	7,8	9,1	8,7	8,6
respiratory diseases	15,4	14,5	7,8	4,0
infectious and parasitic diseases	8,8	11,2	6,0	4,3
diseases of nervous system and sensual organs	4,5	5,6	3,0	3,0

Almost 70% of all infant deaths result from state, occurring in the perinatal period and congenital anomalies. In turn, a large part of them result from the internal uterus hypoxia and asphyxia, congenital and aspiratory pneumonia and other respiratory states.

But, despite of rather positive trends of the last decade, the structure of infant mortality by death causes notably differs of the structures not only of region Europe-A, but also of region Europe-B+C. Obviously, mortality of external causes is the main determinant of these difference, as these reasons cause infant deaths in several times more often, as compared to Poland, Hungary and Czech Republic. The largest gap is observed in death rates, caused by infectious and parasitic diseases, accidents, poisonings and traumas.

Table 7.5.5. Infant mortality by the main death causes in 2003

	Number of deaths per 100,000 live births				Ratio of the Ukrainian death rates and the corresponding rates in		
	Poland	Hungary	Ukraine	Czech Republic	Poland	Hungary	Czech Republic
Total deaths	704,0	729,0	950,0	390,0	134,9	130,3	243,6
including by classes of diseases	346,5	442,6	392,9	206,9	113,4	88,8	189,9
states of perinatal period	224,6	164,9	277,0	98,6	123,3	168,0	280,9
congenital anomalies	18,0	21,3	81,8	20,4	454,4	384,0	401,0
accidents, poisonings and traumas	21,2	30,9	51,0	20,4	240,6	165,0	250,0
respiratory diseases	27,5	5,3	41,9	5,4	152,4	790,6	775,9

Calculated by data: HFA-M Database. 2005

Mortality, caused by tumors. The situation with mortality, caused by tumors, is very specific on the European background. This is rather only one important class of diseases, which causes mortality with lower rates, as compared to the developed countries, as well as to transition countries. This situation can result as from really lower death rates, as of poorly developed diagnostics of death causes within the former USSR (that is more probable, as ratios of death rates of cancer in Ukraine and the CIS show. Probably, some oncology diseases are mistakenly considered as deaths of blood circulation diseases, in the first turn – of ischemic illness of a heart. Contrary to the wide-spread thesis on a rapid growth of tumors in the result of the Chornobyl disaster, the situation has not changed in comparison with the European standards (for instance,

it has even improved in comparison with Poland and Hungary); the dynamics of the rates in Ukraine proves it.

Table 7.5.6. The standardized death rates, caused by the main tumors

per 100,000 persons

Countries	1985	1990	1995	2000	2001	2002	2003
All tumors							
EU	203,79	204,13	198,91	189,44	187,56	186,55	186,31
CIS	172,41	184,01	178,48	169,41	165,68	163,92	162,3
Poland	206,13	212,82	215,41	215,92	216,46	216,67	214,73
Hungary	244,68	266,68	276,19	268,16	265,58	262,26	263,81
Ukraine	164,29	184,4	182,66	173,18	169,04	168,4	165,7
Czech Republic	248,44	258,59	252,19	237,83	234,07	233,75	234,22
Ukraine/EU	0,806	0,903	0,918	0,914	0,901	0,895	0,882
Ukraine/CIS	0,953	1,002	1,023	1,022	1,020	1,018	1,012
Ukraine/Poland	0,797	0,866	0,848	0,802	0,781	0,770	0,765
Ukraine/Hungary	0,671	0,691	0,661	0,646	0,636	0,636	0,623
Ukraine/Czech Republic	0,003	0,003	0,004	0,004	0,004	0,004	0,004
Tumors of respiratory system							
EU	41,26	41,9	41,54	39,58	39,23	39,12	38,99
CIS	34,36	38,9	36,46	32,15	30,83	30,31	29,35
Poland	46,27	51,44	53,12	51,72	52,49	53,22	51,96
Hungary	50,75	61,15	64,99	64,96	64,84	64,92	66,49
Ukraine	34,18	40,82	37,77	33,37	31,72	35,7	34,3
Czech Republic	53,91	55,48	52,63	48,91	47,55	46,14	45,27
Ukraine/EU	0,828	0,974	0,909	0,843	0,809	0,785	0,757
Ukraine/CIS	0,995	1,049	1,036	1,038	1,029	1,013	1,005
Ukraine/Poland	0,739	0,794	0,711	0,645	0,604	0,577	0,568
Ukraine/Hungary	0,673	0,668	0,581	0,514	0,489	0,473	0,444
Ukraine/Czech Republic	0,634	0,736	0,718	0,682	0,667	0,665	0,652
Breasts cancer							
EU	29,56	30,11	29,67	26,94	26,66	26,31	26,23
CIS							
Poland	21,06	22,59	22,94	21,46	21,46	21,36	21,48
Hungary	31,32	32,22	32,68	32,48	31,57	30,64	31,22
Ukraine	18,29	21,08	24,2	24,99	24,22	24,87	24,67
Czech Republic	29,06	30,84	31,84	27,85	27,52	27,51	27,12
Ukraine/EU	0,619	0,700	0,816	0,928	0,908	0,945	0,941
Ukraine/CIS							
Ukraine/Poland	0,868	0,933	1,055	1,164	1,129	1,164	1,149
Ukraine/Hungary	0,584	0,654	0,741	0,769	0,767	0,812	0,790
Ukraine/Czech Republic	0,629	0,684	0,760	0,897	0,880	0,904	0,910
Cancer of cervix of the uterus							
EU	4,76	4,42	3,88	3,45	3,3	3,26	3,21
CIS	7,61	7,02	6,87	6,63	6,66	6,59	6,64
Poland	11,32	10,35	9,77	9,26	8,26	8,41	8,22
Hungary	10,3	9,56	8,36	7,25	8,2	7,98	7,16

Ukraine	7,99	7,95	7,83	7,66	7,48	7,57	7,37
Czech Republic	8,91	6,83	7,26	5,8	6,28	6,12	6,05
Ukraine/EU	1,679	1,799	2,018	2,220	2,267	2,322	2,296
Ukraine/CIS	1,050	1,132	1,140	1,155	1,123	1,149	1,110
Ukraine/Poland	0,706	0,768	0,801	0,827	0,906	0,900	0,897
Ukraine/Hungary	0,776	0,832	0,937	1,057	0,912	0,949	1,029
Ukraine/Czech Republic	0,706	0,768	0,801	0,827	0,906	0,900	0,897

**Calculated by data: HFA Database. 2005*

Mortality of blood circulation diseases. But, a lag in deaths, caused by diseases of blood circulation system, has grown. While death rates, caused by blood circulation diseases, exceeded the European rates on 79.5% in 1985, in 2003 this gap has grown more than in 3 times. It occurs in the result of a notable increase of death rates in Ukraine on a background of their sharp decrease in the EU countries. The results of a comparison with Eastern-European countries are not so striking, but they also reflect a relative deterioration of the situation in Ukraine. A slight improvement can be observed only in comparison with the CIS countries.

A prominent feature of mortality of blood circulation diseases is found in indices of over-high mortality of males, which are rather corresponding to the European standards: The Ukrainian males die of all causes of this class, as well as of ischemic illness of a heart in 1.6 times more often than females, while of cerebral-vascular diseases – in 1.4 times more often. But, we should also emphasize that as females, as males die of all diseases of blood circulation system in Ukraine in several times more often, than residents of the European countries.

Table 7.5.7. The standardized death rates, caused by blood circulation diseases

per 100,000 persons

Countries	**1985**	**1990**	**1995**	**2000**	**2001**	**2002**	**2003**
All diseases of blood circulation system							
EU	418,7	373,6	331,8	281,7	274,5	270,65	270,3
CIS	708,9	628,9	777,0	773,4	772,8	797,19	821,4
Poland	611,4	589,2	532,2	444,0	431,5	413,9	416,7
Hungary	681,0	643,9	592,0	521,0	503,8	503,9	508,3
Ukraine	751,5	589,0	780,2	790,7	777,2	799,7	819,6
Czech Republic	676,9	645,0	559,6	462,5	459,8	456,0	461,9
Ukraine/EU	1,795	1,576	2,351	2,806	2,831	2,955	3,033
Ukraine/CIS	1,060	0,937	1,004	1,022	1,006	1,003	0,998
Ukraine/Poland	1,229	1,000	1,466	1,781	1,801	1,932	1,967
Ukraine/Hungary	1,104	0,915	1,318	1,518	1,543	1,587	1,613
Ukraine/Czech Republic	1,110	0,913	1,394	1,709	1,690	1,754	1,775
Ischemic illness of a heart							
EU	153,4	142,1	129,4	111,9	108,1	105,9	105,8
CIS	405,1	330,6	411,92	409,9	407,5	420,7	433,8
Poland	106,7	121,0	107,1	141,0	133,5	125,8	124,9
Hungary	237,6	239,7	248,7	226,9	225,5	221,7	232,7
Ukraine	492,8	317,1	465,8	505,5	499,3	517,0	530,9
Czech Republic	313,5	311,0	259,9	187,0	184,2	179,2	176,1

Ukraine/EU	3,213	2,232	3,599	4,519	4,619	4,880	5,020
Ukraine/CIS	1,217	0,959	1,131	1,233	1,225	1,229	1,224
Ukraine/Poland	4,617	2,622	4,350	3,585	3,741	4,111	4,249
Ukraine/Hungary	2,074	1,323	1,872	2,228	2,215	2,332	2,282
Ukraine/Czech Republic	1,572	1,020	1,792	2,702	2,711	2,885	3,015
Cerebral-vascular diseases							
EU	107,8	93,0	80,6	69,9	68,6	67,6	66,9
CIS	232,7	213,7	251,7	245,4	246,5	245,0	250,8
Poland	76,6	73,1	78,8	103,6	103,0	98,6	95,5
Hungary	197,9	177,2	158,6	141,7	138,7	135,6	134,6
Ukraine	209,7	191,2	229,1	197,6	190,0	184,6	183,6
Czech Republic	224,0	202,8	151,7	136,1	133,4	130,5	132,4
Ukraine/EU	1,945	2,055	2,842	2,826	2,769	2,731	2,746
Ukraine/CIS	0,901	0,894	0,910	0,805	0,771	0,753	0,732
Ukraine/Poland	2,761	2,616	2,905	1,907	1,845	1,872	1,923
Ukraine/Hungary	1,060	1,079	1,444	1,394	1,370	1,361	1,364
Ukraine/Czech Republic	0,936	0,943	1,509	1,452	1,425	1,414	1,387

**Calculated by data: HFA Database. 2005*

The most dramatic trends of mortality of these causes are observed regarding ischemic illness of a heart; the corresponding death rates are traditionally high in Ukraine. Unfortunately, these deaths rates have been growing during the last decades, while in Czech Republic it has decreased almost twice. According to the data of 2003, death rates of the mentioned causes were in 5 times higher than in the EU countries.

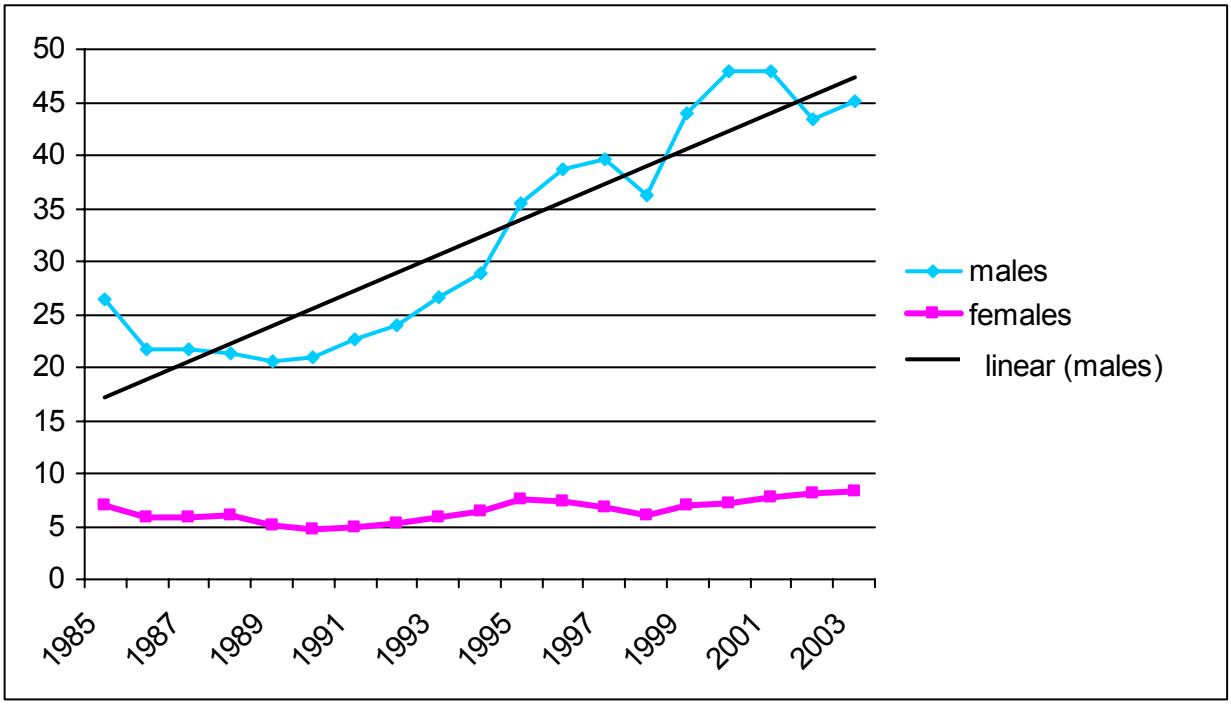


Fig. 7.5.1. Standardized death rates, caused by infectious and parasitic diseases, per 100,000 persons

Mortality of the infectious and parasitic diseases. Mortality, caused by these reasons, has grown with the fastest rates among males, resulting in the total dynamics of the indicator. Obviously, this trend is an evidence of imperfect system of the population health protection, but we should consider that female mortality has not practically changed in 18 years.

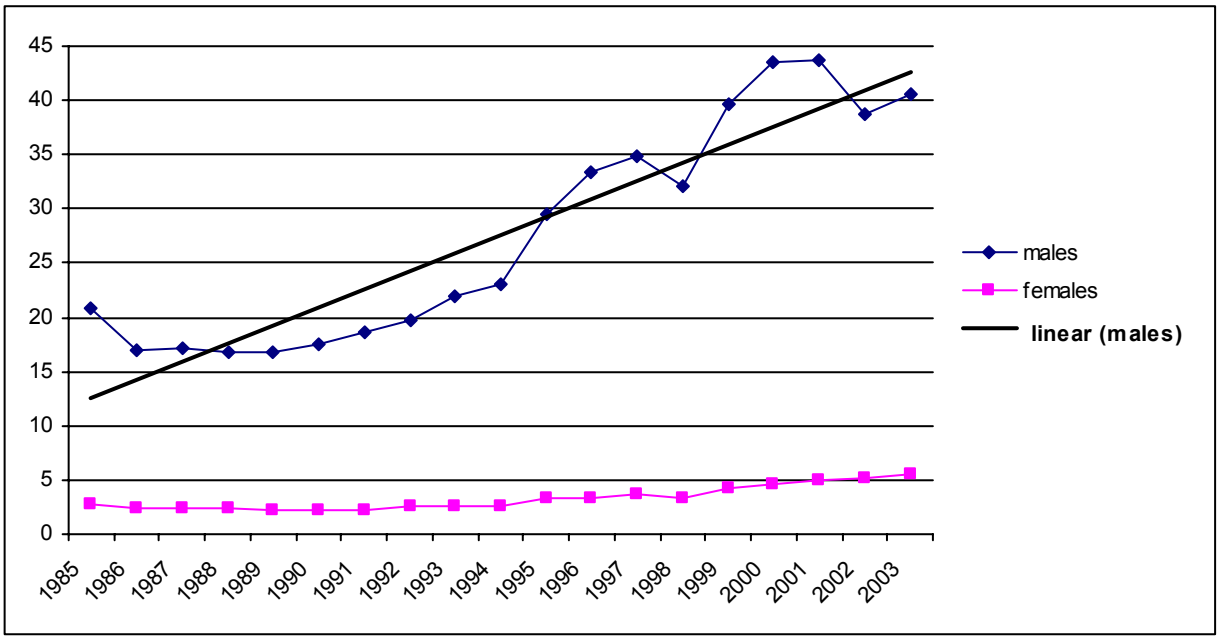


Fig. 7.5.2. Standardized death rates, caused by tuberculosis, per 100,000 persons

Tuberculosis is an important component of infectious and parasitic diseases. Unfortunately, death rates of this cause (which is entirely social one) started to grow among males since the beginning of 1990's. Though, some positive shifts have been observed during the last years, it is difficult to estimate the term of this mortality reduction. But, there is not such trend among females, although there is some increase of tuberculosis mortality.

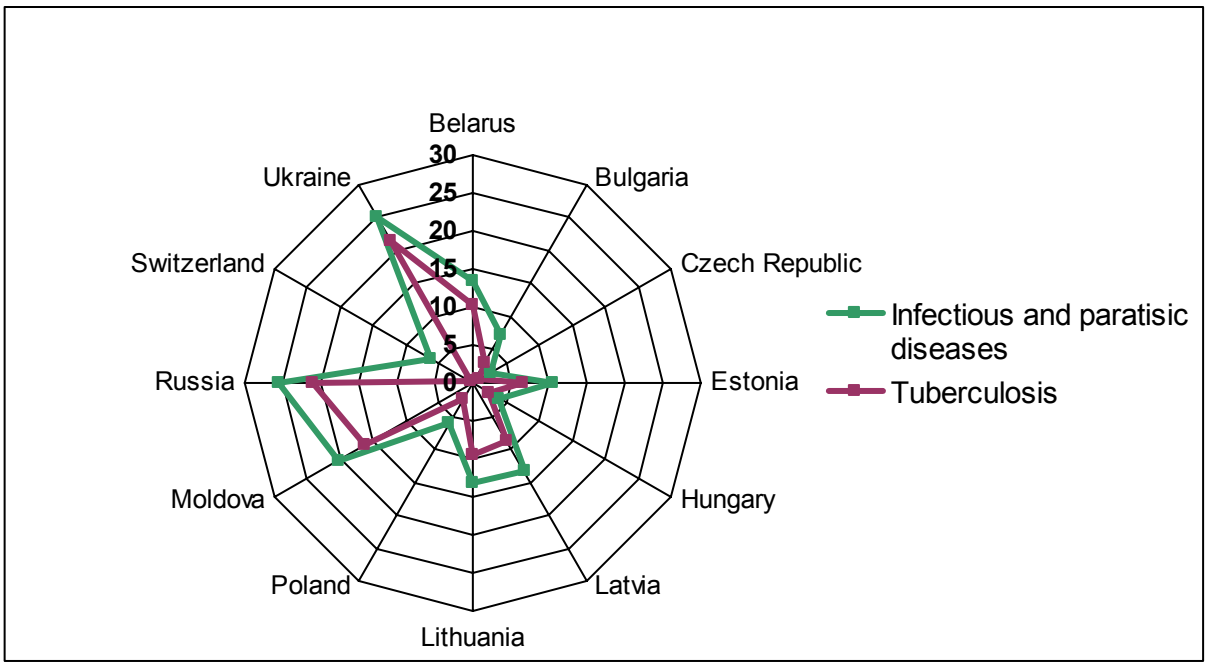


Fig. 7.5.3. Standardized death rates, caused by infectious and parasitic diseases, per 100,000 persons

The results of the analysis as of the Ukrainian mortality trends, as of international variation, show that tuberculosis plays a determining role in mortality, caused by infectious and parasitic diseases, which is wide-spread mostly among males in Ukraine.

Presently, the Ukrainian tuberculosis death rates are in 30 (!) times higher than the corresponding rates in region Europe-A, on 34% than in region Europe-B+C, in 9 times than in Poland and Hungary, in 32 times than in Czech Republic. Recognizing of tuberculosis epidemic in Ukraine, unfortunately, have not lead to desirable results in its prophylactics, diagnostics and treatment. The specific character of this disease requires public actions, as a person has very limited possibilities of counteraction to this disease. Also, the average age of persons, who have died of tuberculosis, is decreasing; it has dropped on 1.8 years only during 1996-2004.

Mortality, caused by accidents, murders, suicides and other external factors. The main negative feature of mortality, caused by external factors, is found in very young age of persons, who die of these reasons. In particular, according to the data of 2004, the average age of persons, who have died of these reasons, was 47.5 in Ukraine (in 1986 – 43.5). Persons, who are completely healthy, with large vital resources are dying.

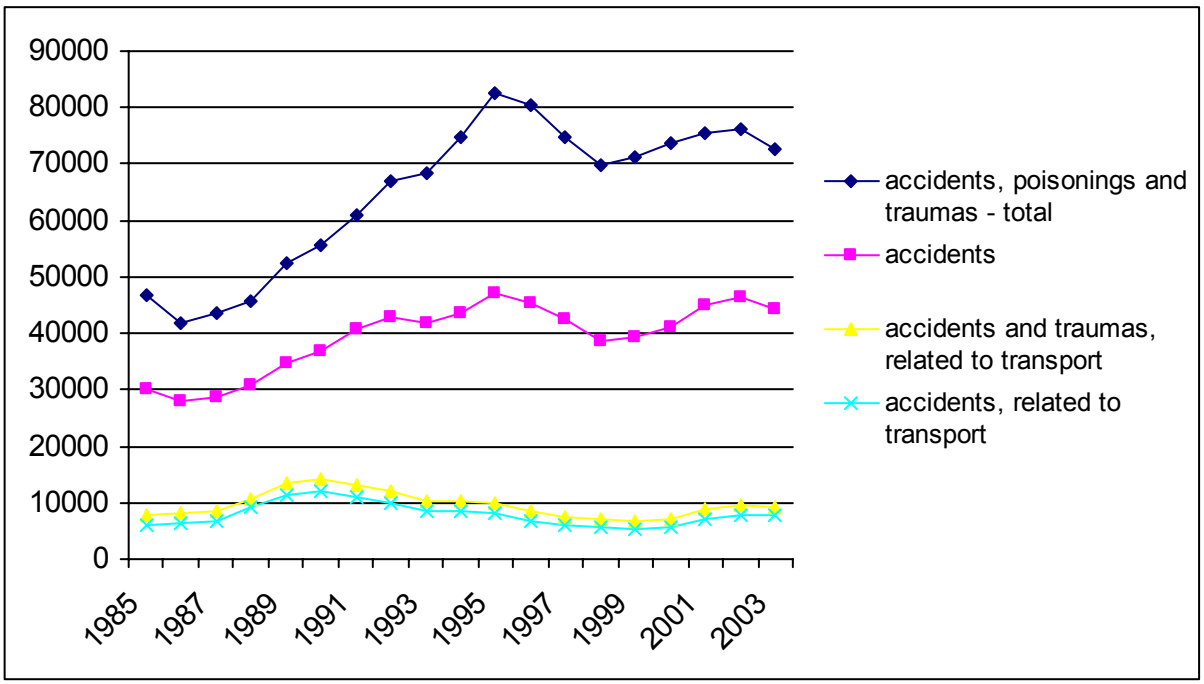


Fig. 7.5.4. Number of persons, who have died of accidents, poisonings and traumas

The number of persons, who have died of these reasons, started to gradually decrease after a stable growth during 1985-1997. The main contribution into forming of this trend is provided by mortality of accidents.

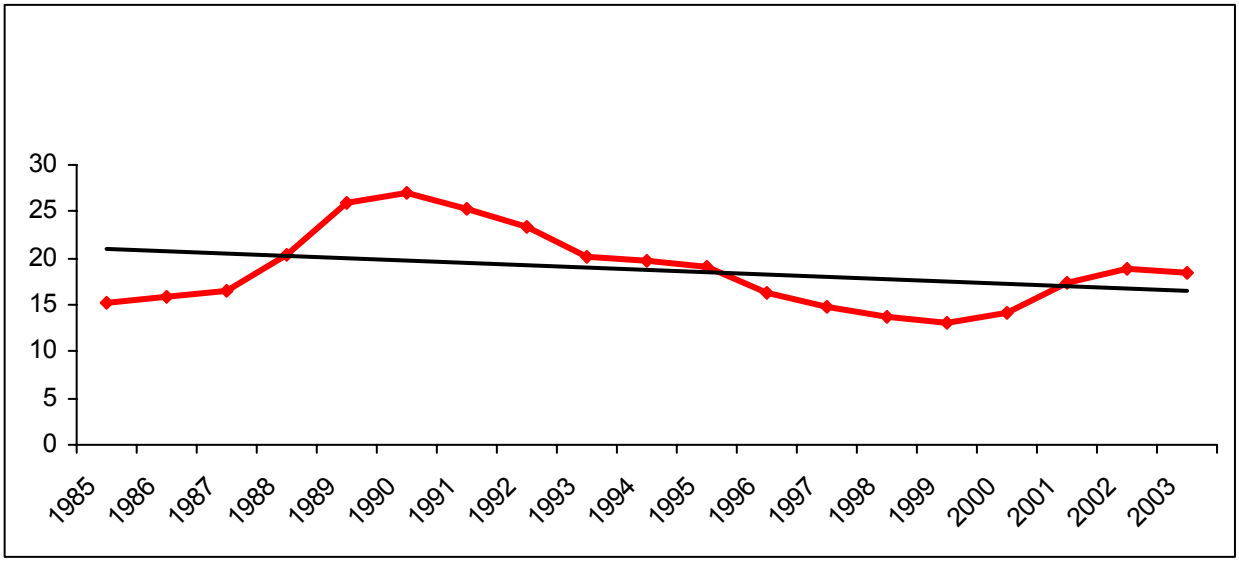


Fig. 7.5.5. Dynamics of mortality, caused by road and transport incidents, per 100,000 persons, as compared to the standard European structure

But, despite of these rather favourable trends, we should mention a multiple exceeding of mortality, caused by accidents, murders, suicides and other external factors, as compared to the same indicators of the developed European countries.

Characteristically, the largest differences are observed in the youngest group: the Ukrainian boys die in 5.7 times more often than boys in Switzerland; while as to girls, the difference is 7.3 times. A comparison with Eastern-European countries is less

dramatic: with Poland – correspondingly 3.9 and 4.0 times, with Hungary – 4.5 and 3.1 times, with Czech Republic – 4.3 and 3.3 times.

It is also should be noted than females of elder age (over 65) die of the external factors even more rare in Ukraine, as compared to the European countries: a comparison with the average indices in region Europe-A provides 97.5%, with Switzerland – 91.4%, with Poland – 88.1%, with Hungary – 39.9% (!), with Czech Republic – 52.8%.

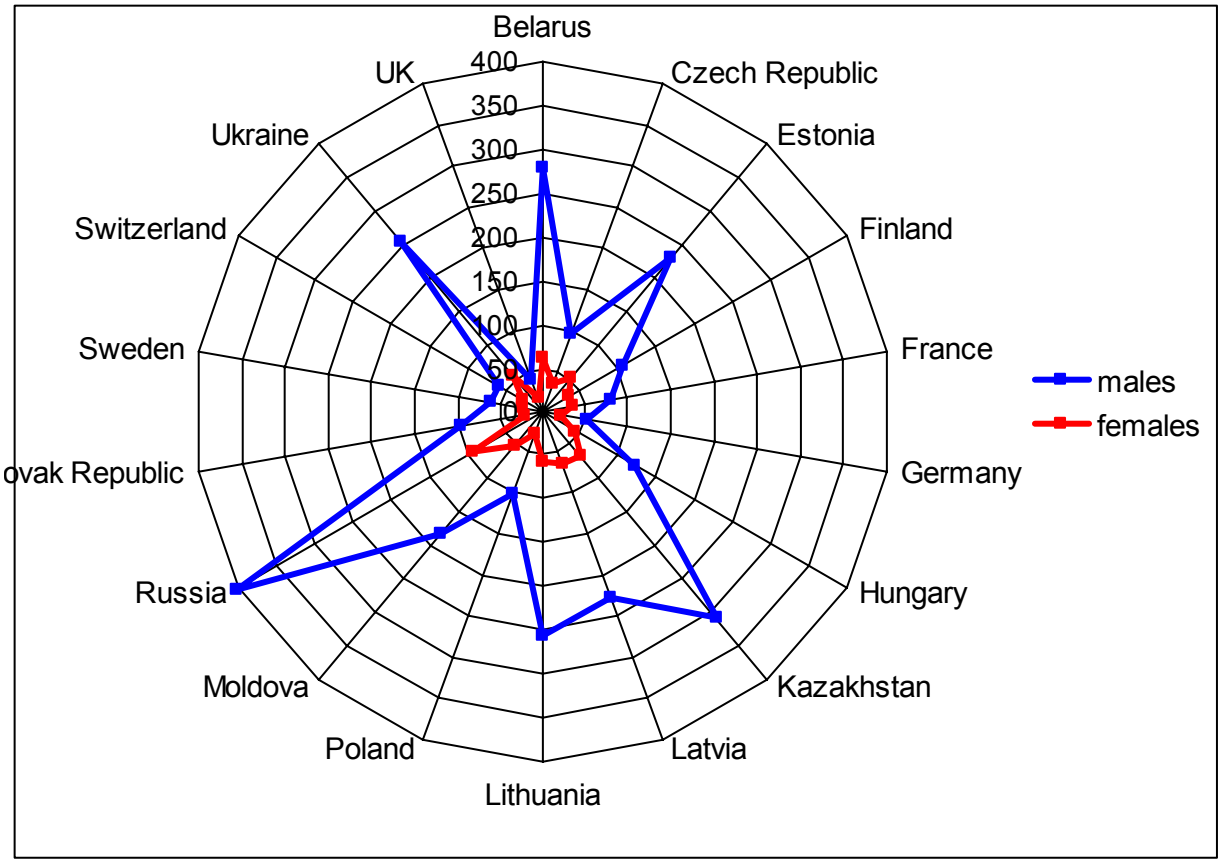


Fig. 7.5.6. Standardized death rates, caused by accidents, murders, suicides and other external factors, per 100,000 persons

7.6. Regional variation of the population mortality in Ukraine

Over-high mortality of rural population is traditional for Ukraine, resulting from unavailable qualitative medicine, in particular of the prophylactic services. Unfortunately, there are no features of the situation improvement.

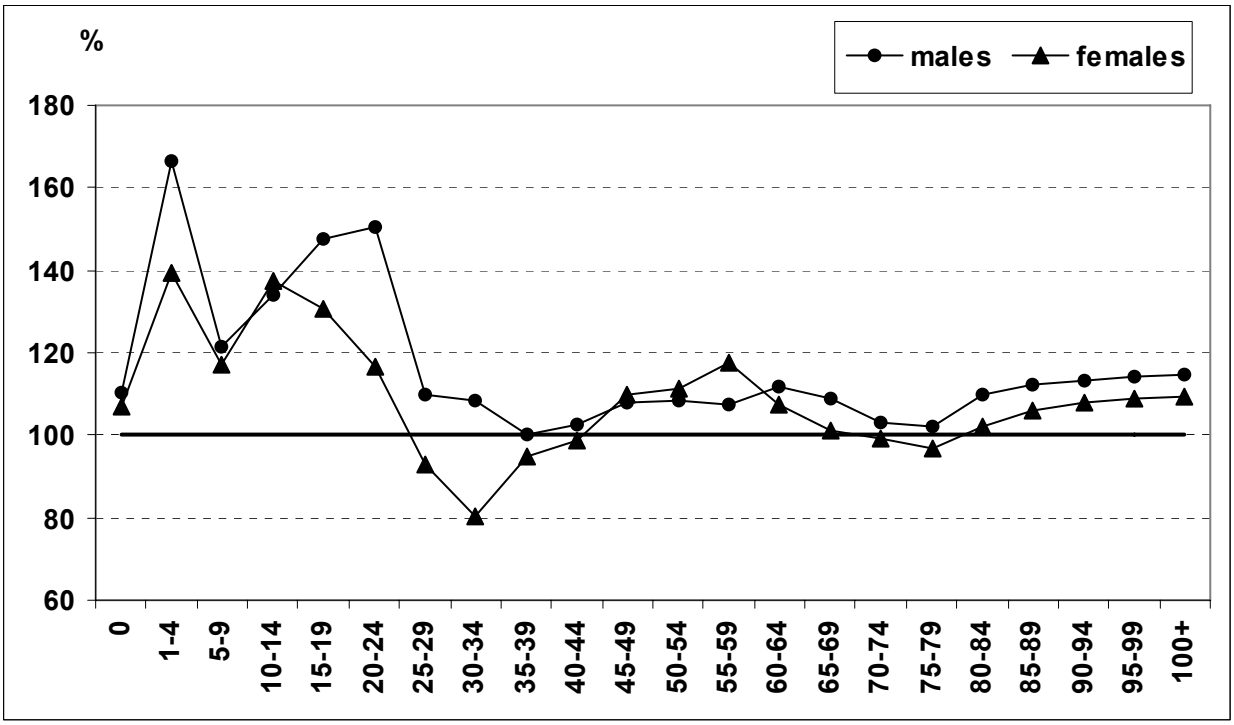


Fig. 7.6.1. Ratio of death rates of rural and urban residents in Ukraine, 2004, %

As well as in case of over-high mortality of males, the main contribution into forming of the aggregate indicators of rural over-high mortality is provided by the working age population groups. A very high rate of traumatism in agriculture is also important, as elder persons often are employed there – rural residents finish their working activity later, as compared to urban .dwellers Also, different access to qualitative medical services should be considered, as well as to clean drinking water.

Differences in mortality of males are larger by different age intervals, but they are also more equal. As to females, probabilities to die in the age of 15-44 are much higher in cities, as compared to the countryside.

The calculations prove rather strong dependency between death rates and urbanization, which contributes to 61.8% of regional variation of the standardized death coefficients of all causes and 66.2% of variation of mortality of accidents, murders, suicides and other external factors. The inverse correlation is observed only between rates of urbanization and deaths, causes by respiratory diseases.

An important feature of differences in mortality of urban and rural residents of Ukraine is found in indices of over-high mortality of males, which much higher and replaced to the younger age groups. While the maximal rates (over 350%) are observed in the age of 40-49 in the countryside, in urban dwellings the maximums are registered in the age of 20-44; moreover, males in the age group of 25-29 die in 4 times more

often than women. Thus, living conditions and a way of life of rural males differ from those of females to a large degree.

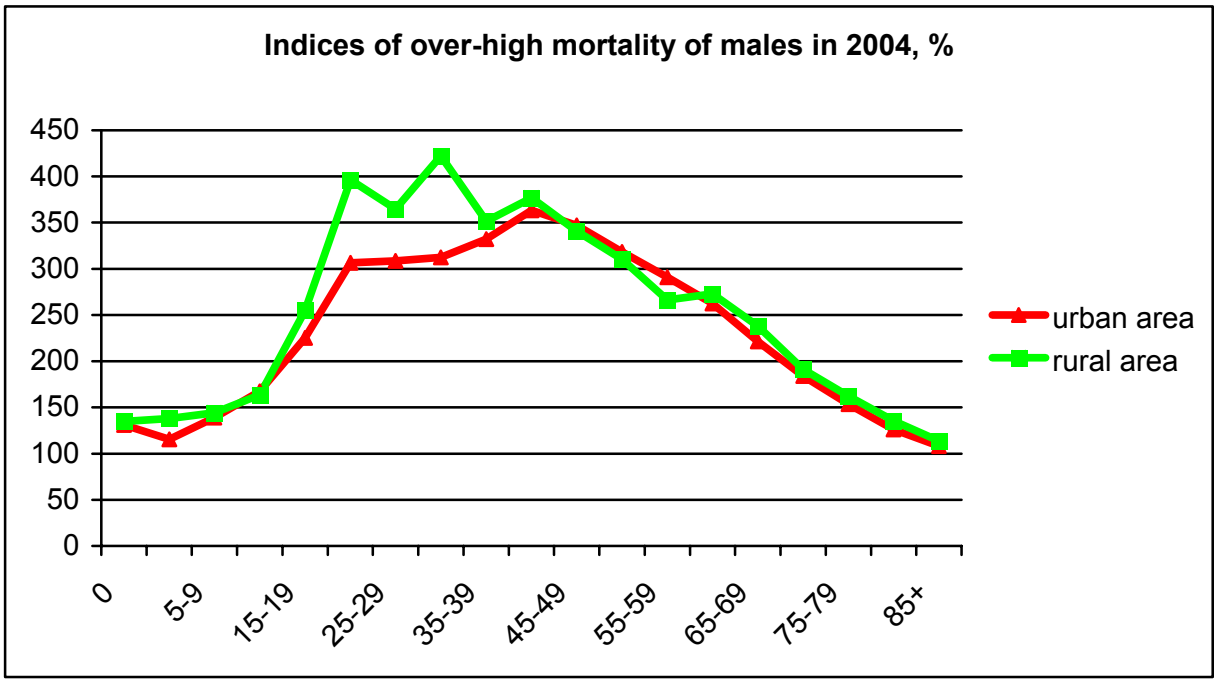


Fig. 7.6.2. Indices of over-high mortality of males, %

In Ukraine, a notable regional variation is traditionally observed as in all age-specific mortality rates in Ukraine; as practically by all death causes. In the first turn, it is reflected in differentiation of infant mortality. The rate of variation of this indicator is 64.7% of the average country's one; from 7.7% in Mykolajivska region to 13.0% in Zakarpatska region. This is rather natural, regarding that 95.4% of respondents in Zakarpatska region declared that none of a family member was able to obtain medical assistance, buy medicines or medical equipment, according to the surveys of the State Statistics Committee of Ukraine (this rate was 10.6% in Mykolajivska region). Obviously, rural residents suffer from unavailable medical assistance, as urban residents are granted with at least initial medical services, irrespective of their incomes.

These peculiarities are reflected in the regional differentiation of all mortality indicators, which are standardized by sex-age structure of the population.

On a background of the general high rates, the northern part nearby Chornobylska AES (Chernihivska, Kyivska and Zhytomirska regions) differ, as well as so-called "black belt", situated from the north-east to south-west of the country, consisting of Luganska, Donetska, Dniepropetrovska, Khersonska, Kirovogradska, Mykolayivska and Odeska regions.

Rather positive indicators, which correspond to region Europe-B+C, are observed at the west (in Chernivetska, Ternopilska, Ivano-Frankivska, Lvivska regions) and in Kyiv city. But, these death rates are also much higher than in Poland, Romania, Slovak Republic, Slovenia, Hungary and Czech Republic.

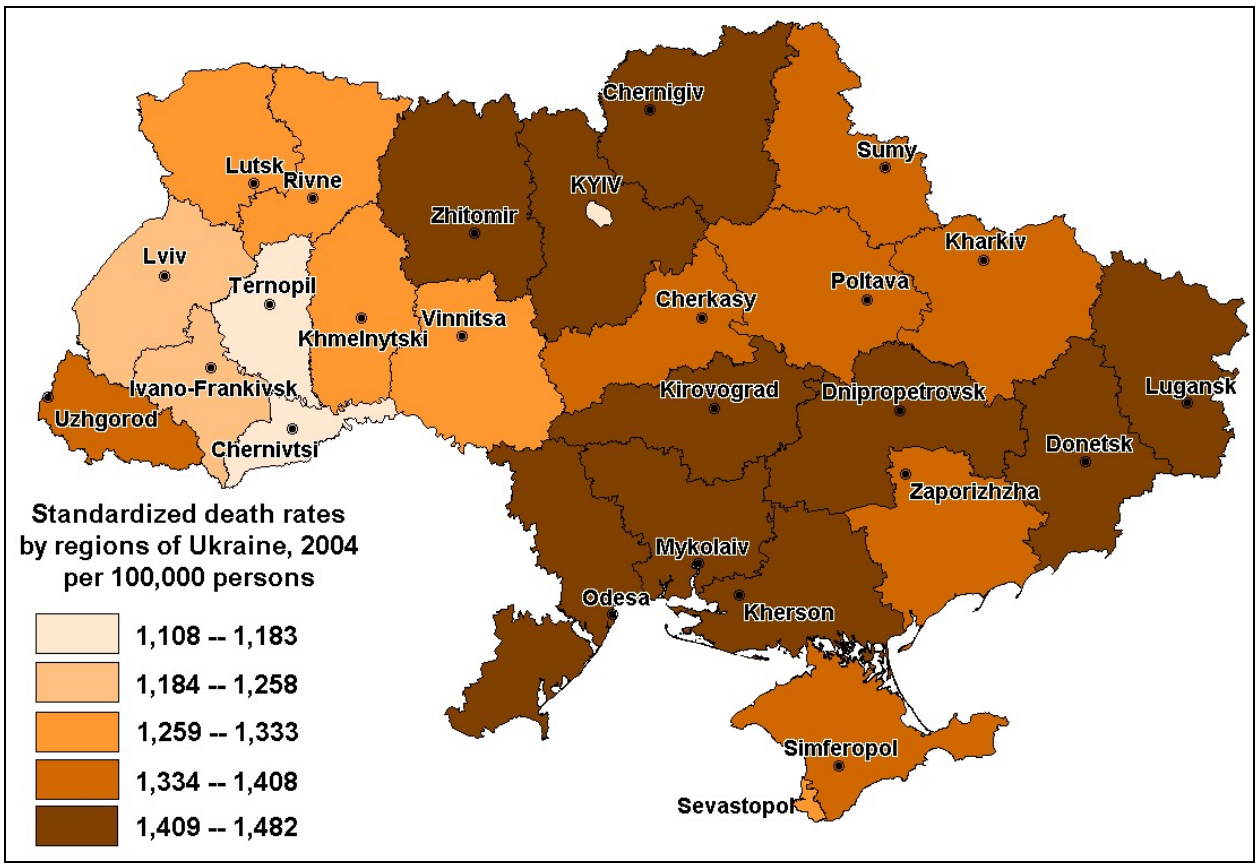


Fig. 7.6.3. Standardized deaths rates in the regions of Ukraine, 2004, per 100,000 persons

Obviously, the variation of mortality, caused by those reasons, which depend on medical-sanitary situation, is the largest, including infectious and parasitic diseases, respiratory diseases and accidents, murders, suicides and other external factors.

Table 7.6.1. Standardized death rates by death causes and regions in Ukraine, 2004

per 100,000 persons

	Death causes					
	Total	Infectious and parasitic diseases	Cancer	Blood circulation diseases	Respiratory diseases	Accidents, murders, suicides and other external factors
AR Crimea	1359,4	37,9	159,2	868,5	42,2	153,3
Vinnytska	1284,3	15,5	146,1	832,4	40,0	129,7
Volynska	1330,3	35,1	144,6	742,4	***118,8***	125,2
Dniepropetrovska	1460,9	44,8	174,2	879,4	55,8	159,9
Donetska	1449,7	46,4	175,7	840,7	43,0	163,8
Zhytomirska	***1481,7***	21,4	156,9	927,2	54,6	170,2
Zakarpatska	1379,6	32,8	151,8	741,5	45,3	93,9
Zaporizka	1378,3	32,1	186,7	631,9	42,7	159,0

Ivano-Frankivska	1189,7	17,8	146,8	673,4	79,2	89,1
Kyivska	1450,8	26,7	172,5	***962,4***	36,7	152,1
Kirovogradska	1463,7	31,3	175,9	723,6	56,4	***190,5***
Luganska	1475,8	30,6	159,6	892,0	67,6	172,9
Lvivska	1193,8	23,7	***143,5***	734,7	56,4	89,2
Mykolajivska	1476,9	51,3	161,7	***630,9***	41,0	161,8
Odeska	1467,2	***63,6***	180,1	867,8	46,5	170,7
Poltavska	1376,4	25,4	162,2	785,9	56,0	169,4
Rivnenska	1316,3	20,0	161,8	830,2	38,6	107,5
Sumska	1407,2	21,5	157,0	805,2	67,5	178,9
Ternopilska	1169,3	15,1	156,6	737,5	68,0	***81,2***
Kharkivska	1355,4	21,9	147,7	883,3	29,1	151,1
Khersonska	1441,4	53,7	178,5	775,2	***21,2***	167,1
Khmelnitska	1266,3	19,9	161,7	642,8	55,6	117,3
Cherkaska	1345,6	18,2	145,4	843,1	70,0	148,3
Chernivetska	1167,0	20,3	163,4	748,4	46,9	103,2
Chernihivska	1421,5	28,6	144,7	872,2	61,2	182,5
Kyiv city	***1108,2***	***13,7***	172,2	705,1	26,6	88,9
Sebastopol city	1269,0	25,5	***229,0***	717,9	35,7	143,4
Coefficient of variation, %	6,7	34,2	7,8	9,9	27,3	20,4
Ratio of variation swing and average rate, %	27,6	169,5	52,3	42,0	187,9	77,3
Coefficient of correlation with urbanization rate, %	61,8	47,3	43,5	30,2	-20,8	66,2

Generally, the structure of mortality (by the standardized rates) has important geographic variation. An exception is made only by mortality, caused by blood circulation diseases, as

it dominates in all regions of Ukraine. Unfortunately, the population die of these causes not only more often, but also much earlier, as compared to the European countries, in all regions. The peculiarities of a way of life, as well as imperfect diagnostics and treatment contribute to these trends.

Mortality of ischemic illness of a heart dominates in all regions; while rather moderate over-high mortality of males (as compared to the Ukrainian standards) – 164.5-238.1%. But, while the corresponding death rate exceeds on 5.2% death rates, caused by cerebral and vascular diseases in Sumska region, in Vinnitska region this exceeding is about 10.7 times.

Rather small regional variation of mortality, caused by tumors, is accompanied by a clear correlation with urbanization rate. Obviously, urbanized territories are defined by larger environmental pollution, leading to larger risk of cancer. Indeed, more than 180 cases of oncology deaths per 100,000 persons of the standard population are observed in Sebastopol city, Zaporizka and Odeska regions, about 170-180 cases – in Khersonska, Kirovogradska, Donetska, Dniepropetrovska, Kyivska regions and Kyiv city[18]. The lethal cases occur later in these regions. Probably, more accurate audit of death causes contributes to higher rates, as well as environmental conditionality of oncology diseases. To some degree, this conclusion proves inverse dependency between oncology and respiratory mortality (Table 7.6.2).

[18] Death rates of tumors are comparative to the European rates only in the city of Sebastopol.

Tumours of trachea, bronchi and lungs play the leading role in forming of oncology mortality among males (it is in 10 times higher, as compared with females). As to females, tumours of breasts are the most dangerous.

When analyzing regional variation of mortality, we should mention that oncology deaths occupy only 3rd place in the structure of mortality in 9 regions (Zhytomirska, Kirovogradska, Luganska, Mykolajivska, Poltavska, Sumska, Kharkivska, Cherkaska and Chernihivska regions), while the second place is occupied by accidents, murders, suicides and other external factors. Deaths, caused by external factors, dominate in the structure of male mortality in all regions, with exception of the west (Zakarpatska, Ivano-Frankivska, Lvivska, Rivnenska, Ternopilska, Khmelnitska and Chernivetska regions), Kyiv and Sebastopol cities.

Suicides should be defined among deaths of this class, as they cause more deaths than infectious and parasitic diseases in Vinnitska, Zhytomirska, Poltavska, Sumska and Cherkaska regions. Suicide death rates are much higher among males in Sumska and Kharkivska regions, as they cause more than 70 lethal cases per 100,000 of the standard population.

The calculations show that regional variation of mortality is largely caused by external factors (85.8%), which provide larger impact than diseases of blood circulation system (47.2%) or tumours (12.1%).

Mortality, caused by respiratory diseases, occupy the forth place in the structure of mortality in all regions of Ukraine. In Volynska, Ivano-Frankivska and Ternopilska regions these diseases are more important in female mortality, while accidents, murders, suicides and other external causes are less significant.

Deaths, caused by infectious and parasitic diseases, contribute to 64.8% of the total mortality variation. These causes occupy the 4th place in the structure of mortality in some regions (Donetska, Mykolajyvska, Odeska and Khersonska). They cause more than 50 lethal cases per 100,000 of the standard population. This is absolutely unacceptable under present conditions of development and proves the total deterioration of the Ukrainian health protection system. Infectious and parasitic diseases are more important in female mortality, though the absolute data reflect higher mortality of males.

Table 7.6.2. Matrix of pair coefficients of correlation of the standardized death rates according to data of 2004, %

		Death causes					
		otal	Infectious and parasitic diseases	ancer	Blood circulation diseases	Respiratory diseases	External causes
Death causes	Total	100,0	64,8	12,1	47,2	-5,5	85,8
	Infectious and parasitic diseases	64,8	100,0	8,7	-14,6	49,4	47,3
	Cancer	12,1	8,7	100,0	-15,9	-44,6	24,7
	circulation diseases	47,2	-14,6	-15,9	100,0	-8,1	-20,8
	Respiratory diseases	-5,5	49,4	-44,6	-8,1	100,0	66,2

	Externa l causes	8 5,8	47,3	24,7	- 20,8	66,2	1 00,0

In accordance with mortality variation, large regional differences in life expectancy are observed: under conditions of mortality of 2002-2003, the general gap was 5 years for both sexes, including 4.2 years for females and 5.1 years for males. The situation is worse in the East-Southern part of the country, while it is rather favourable in the West.

Regional variation in the average life expectancy at birth does not respond to differences in access to medical services or in the living standards of the population. It rather could be explained by environmental differences, in particular by quality of drinking water, differentiation of consumption of alcohol drinks and by regional peculiarities of employment patterns.

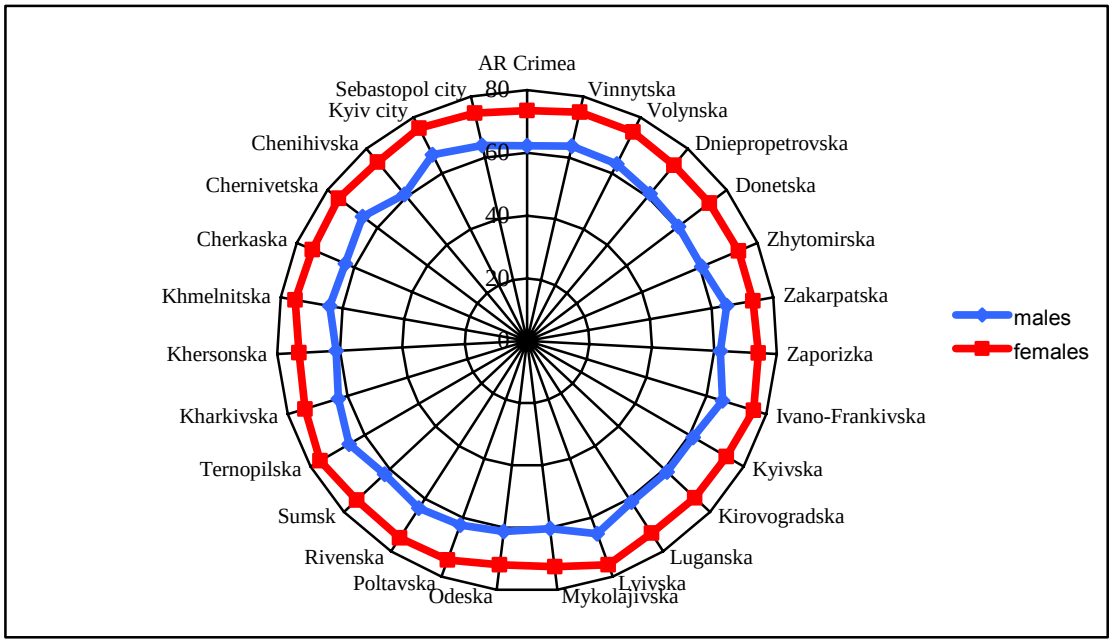


Fig. 7.6.4. Average life expectancy at birth in the regions of Ukraine in 2003-2004, years.

Such large regional variation reflect the population inequality in a wide range of aspects – in the living conditions, access to the disinfected drinking water, peculiarities of employment, in particular in occupation with harmful and dangerous conditions, pollution of environment, availability of the qualitative medical assistance, but they do not correspond to regional differences of industrial development. Thus, the urgent task of the Ukrainian regional policy is presented in equalization of regions not by a level of economic development, in particular industrial, but by living standards, access of medical assistance, environmental situation and possibility to carry out a healthy life.

8. MIGRATORY PROCESSES

8.1. Migration mobility and its impact on demographic development

Migratory processes have been making different impact on the dynamics of the population number during the different periods of Ukrainian history. The Ukrainian lands, belonging to the Russian and Austrian-Hungarian empires, have been actively involved in forming of migrant flows from Europe beyond the ocean since the end of XIX century. The Ukrainians have been occupying the third place among ethnoses of Russian empire by number of emigrants to the New World (after Jews and Poles) during the last years of the Empire existence. There were also a lot of Ukrainians among persons, who have moved to the countries of America from Poland during the period between two World Wars.

Migration mobility of the population has been high during the whole period of the USSR existence. Ukraine had large migration losses in the result of recruiting of labour force and new constructions of the eastern regions of the former Soviet Union and developing of virgin lands, as well as in the result of forced moving out of the repressed persons and deportation of some ethnic groups before the World War II. Thus, more than 400,000 Germans, almost 200,000 Crimean Tatars, by 11-15,000 Greeks, Bulgarians and Armenians have been deported from the southern regions of Ukraine and Crimea to Siberia, Kazakhstan and Central Asia during the World War II.

Later, the organized migrations have been replaced with spontaneous individual migrations, which also involved numerous contingents of persons. The unification of a way of life in the whole territory of the state (at least, in the cities), as well as presence of working places, have contributed to these movements; so, the citizens of the former Soviet Union have been assured in finding a job and of incomes after moving.

The annual net migrations of the population of Ukraine have not exceeded ±100,000 persons during 1960-80‘s. This indicator has been positive for the most part of this period, providing 5-10% of the general population growth (in some years – up to a quarter). According to the population census in 1989, 44.4% of the permanent residents of Ukraine have changed their places of residence at least once in their lives. At the same time, almost 14% of the residents of our state have been abroad.

Migration processes have been notably transformed during the transition to market economy. The gross migrations have largely decreased, while the positive net migration has sharply increased during 1991-1992. But, a large drop in migrations was observed next year; starting from 1994, the number of emigrants has been exceeding the number of immigrants. Totally, the direct migration losses of Ukraine have notably exceeded 1 million persons during the period of 1994 - 2001. The intensity of stationary migrations (which are related to the permanent change of residence and are registered by the state statistics) has sharply decreased during this period, simultaneously the new form of migration movements have become widespread, including external labour migration, refugees and illegal migrants transit.

Many ethnic Ukrainians and representatives of the deported nations have returned to Ukraine after the independence; instead, the numerous groups of Russians and of other ethnoses of the former USSR have returned to their native countries. As a result, the population census of 2001 has fixed the growth of persons, who have been born in Ukraine, and a notable reduction of persons, who have been born in the CIS and Baltic states (as compared to 1989). A small increase of shares of persons, who have been born in Uzbekistan have occurred, owing to the return of Crimean Tatars, as some of them have been born after the deportation.

Owing to the economic crisis and drop in the living standards, the rate of migration mobility has sharply decreased (regarding the stationary migration, which is related to

the changes of the official place of residence and is registered by the state statistics). While 3-3.5 mln. persons have been participating in migrations at the edge of 1980-1990's, presently the number of migrants is about 1.6 mln. This drop largely results from prevalence of poverty among the population and absence of the means, which are needed for organization of a moving, as well as from unemployment practically in all regions; thus, the citizens value their workplaces more, than during the Soviet times. Another reason of decrease in mobility is found in disintegration of the Soviet Union: the differences in social and language environment have increased among the former republics; there are some specific legislations and currencies in each of them. The gross migration among the states has dropped more notable, as compared with the gross inter-regional migration, – from about 1.5 million to 85 thousand persons in 2004. Moreover, the drop in gross migrations results exclusively from the external migrations in the second half of 1990's and at the beginning of the XXI century (Table 8.1.1). Recently, the trend to a small increase of the inter-regional migration has been observed, while the external gross migration is decreasing.

Table 8.1.1.Gross inter-regional and external migrations in 1995-2002

thousand persons

	1995	2000	2002	2004
Migration of the population – total	1899,2	1627,5	1553,8	1586,4
Inter-regional	1446,4	1473,5	1435,1	1501,6
External	423,0	154,0	118,7	84,7

Source: State Statistical Committee of Ukraine

Thus, 500,000 persons arrived to Ukraine from the former republics of the USSR in 1988, while 400,000 persons departed to these countries; in 1996 - correspondingly 124 and 194 thousand persons, in 2000 – 49.7 and 55.4 thousand persons, in 2002 – 36.3 and 49.5 thousand persons, in 2004 – 33.0 and 29.0 thousand persons. The population exchange with the closest states of the former USSR (in terms of ethnic and geographical features) – Russian Federation, Belarus and Moldova – can be regarded as rather active, while migratory connections with the Baltic states have practically disappeared. As to the contacts with countries of Transcaucasia and Central Asia, they have unilateral character – a sharp crisis in the economic and political situation in Georgia, Armenia, Azerbaijan and Tajikistan supports a rather high intensity of the population inflow from these regions to our state, as well as repatriation of the deported nations and ethnic Ukrainians, who have suffered of the political repressions and Soviet policy of the population redistribution.

The destruction of the "iron curtain" in the second half of 1980's resulted in a sharp activation of emigration out of the former USSR (emigration has been small during the ideological war). There were in 8-10 times less persons, who have left the USSR, as compared to the inter-regional emigration, during the last years of its existence; but, while the ratio of these two flows of emigration was 4:1 during the first half of 1990's, presently almost 40% of emigrants are moving to the "old foreign countries".

Israel, Germany and the USA have been the main countries of emigration (beyond the former Soviet Union) and they remain the leaders till now. Germany has been occupying the first place since 2001, while Israel was replaced to the third place in 2002. But, regarding the relative intensity of emigration from Ukraine, Israel still occupies the leading place with a large lag; the next positions are occupied by Moldova, Russia, Belarus, Germany and other CIS countries. The main migration inflows to Ukraine (by relative indicators) are provided by Moldova, Russian Federation, Armenia, Israel and Belarus.

The registered migratory connections of Ukraine with Asian countries (with exception of the CIS countries and Israel), countries of Africa and Latin America are characterized by small scales and relatively equal sizes of inflows and outflows. The rotation of the "educational migrants" is the main mechanism of the population exchange with these regions, including the return of persons, who have graduated from high educational establishments in Ukraine, to their native countries, and their replacement by the new contingents.

Sex-age structures of the population differ by non-uniform rate of participation in migrations. The main part of movements is provided by educational and marital migration: more than a half of all migrants (52.4% in 2004) are persons in the age of 15-29. Thus, migration mobility of persons in the age of 15 and 16, who have graduated from secondary schools and take part in educational migration, is higher, than the corresponding mobility of persons in the age of 14. But, educational migration of graduates of the 9th form cannot be compared with rates of migration of persons, who have graduated from the secondary schools. The coefficients of migration mobility of persons in the age of 17 are almost in 4.7 times higher than the corresponding coefficients in the younger age groups; it is also the highest one among all age groups. The mobility of women in the age of 17 is almost in 1.5 times higher than the mobility of men of the same age, though the general rates are almost equal for men and women (Fig. 8.1.1).

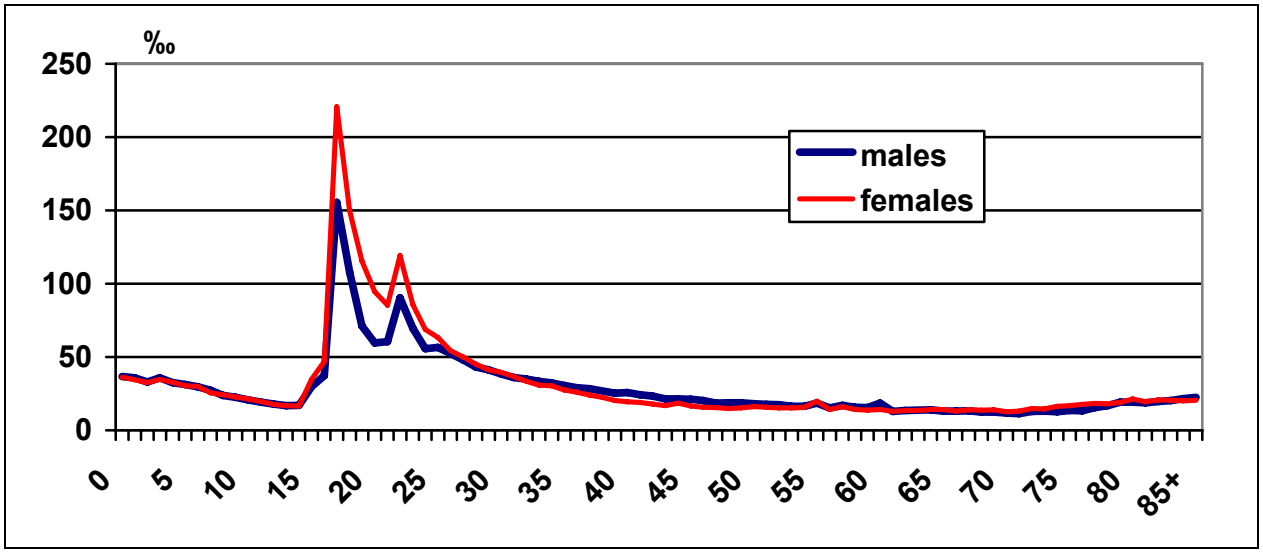


Fig. 8.1.1. Age-specific intensity of migration of the population of Ukraine, 2004.

The second peak (after a slight decrease in mobility) is fixed in the age group of 22; it is related mostly to return of persons, who have graduated from educational establishments, to their place of origin. The migration mobility of the population is sharply decreasing after age of 22; the rates of decrease are slowing down only after 29 years.

While the raised general mobility of the population is observed in the age diapason of 17-23, active involvement of the population into the external migration movements starts from the age of 20-21 and lasts till age of 33-34 (the peak is observed in the age of 25); i.e. mostly persons, who have already some qualification level, are involved into the external migration (Fig. 8.1.2). Also, we should mention, that amplitude of fluctuations of the coefficient of external migrations is obviously smaller, than of the general rate.

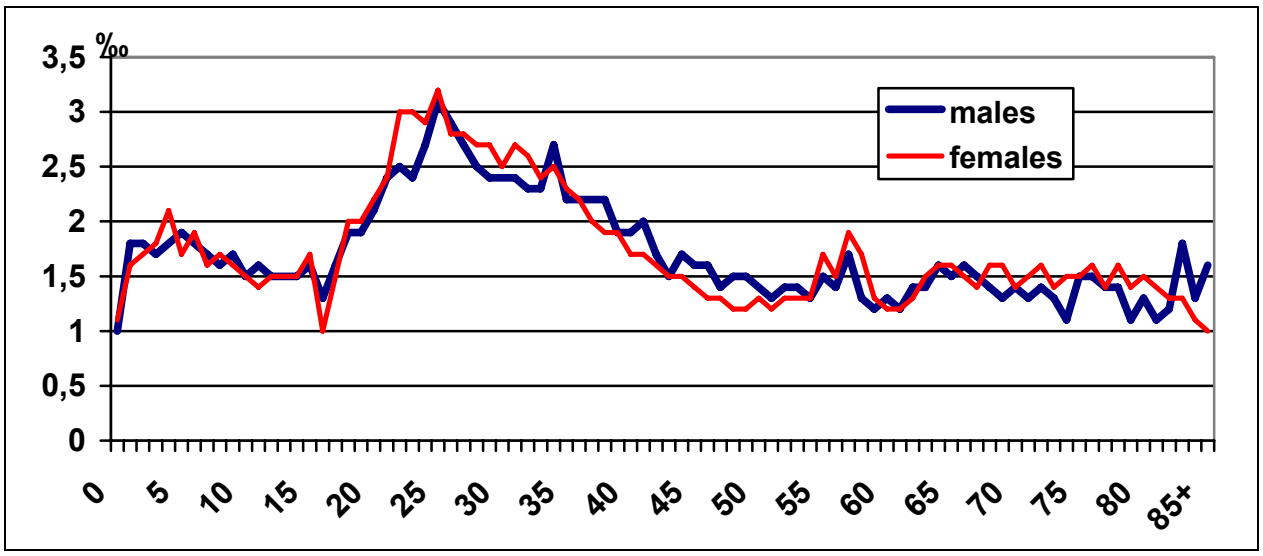


Fig. 8.1.2. Age-specific intensity of external migrations of the population, 2004

Net external migrations, close to zero, have been observed in Ukraine till 1990. A sharp increase in migrations has been observed during 1991-1992; it has reached the highest rate after the war - +287.8 thousand persons (+5.5‰), while a significant decrease has been taking place in the next two years - to -142.9 thousand persons or -2.8‰ in 1994. The new growth of migratory losses was observed in 1996 (to -169.2 thousand persons) after a notable decrease of the negative net migrations in 1995. But, the modular rate of the negative net migrations decreased again in the next year – more than on 20%. The further decrease has been registered during 1999-2000; it was almost on 9-12% larger than in 1998. It mostly resulted from reduction of emigration to Russian Federation, owing to the war in Chechnya (Fig. 8.1.3).

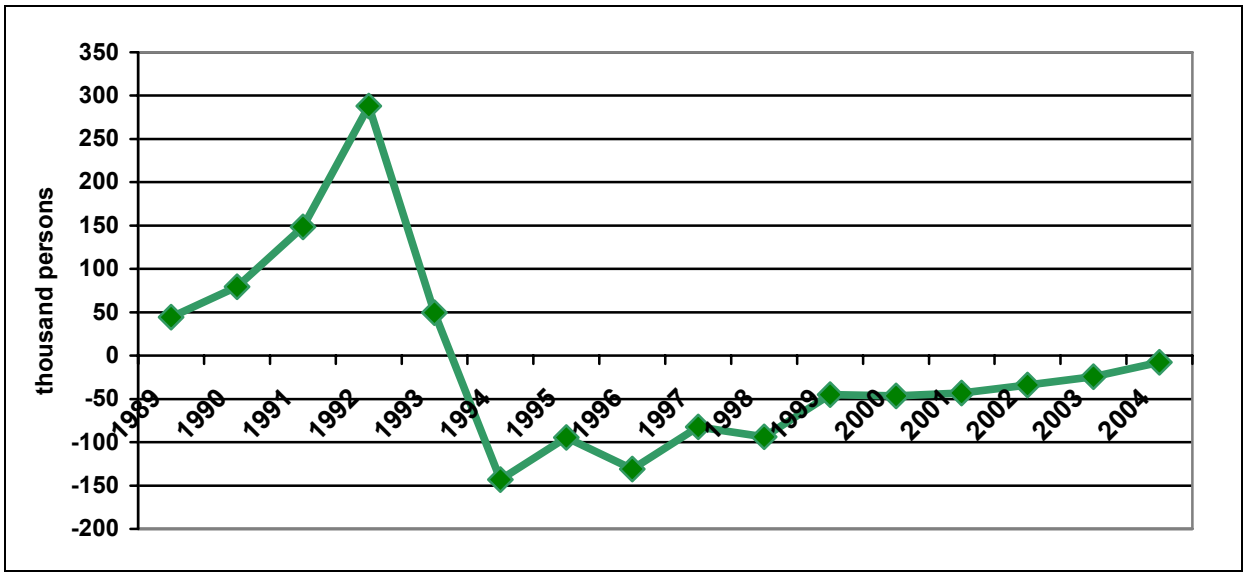


Fig. 8.1.3. Dynamics of net migrations of the population of Ukraine during 1989-2004 (by the current statistics data)

Generally, Ukraine has lost almost 680,000 persons in the result of migratory exchange with other countries during 1994-2001 (only by the current statistics data). The population census of 2001 has revealed that the real migratory losses of this period are in 1.7 times larger and make 1155.8 thousand persons. As the persons of young and middle age dominate among migrants, i.e. the representatives of the most productive

population groups in the term of reproduction and economic activity, the indirect losses of the population are much larger than the direct ones (due to increase of the population ageing, leading to the further decrease of births and natural growth rate). The main part of emigrants has no attention to return to Ukraine.

Recently, the scales of the migratory losses of the population of Ukraine have decreased; the exceeding of emigration was 33.8 thousand persons in 2002, 24.2 thousand persons in 2003 and 7.6 thousand persons in 2004 (the operative migratory data of 2005 evidence on the positive net migration). But, a small negative net migrations also make a notable impact on demographic development under conditions of its preservation during a long time. The calculation of the combined life and migration tables for the population of Ukraine for the period of 2003-2004 showed that the average life expectancy at birth turned out to be almost on a year shorter (on 0.94 years), when considering migrations. Migratory processes reduce the living potential of the new born infants on 1.4%.

Sex-age structure of migrants has experienced notable transformations during 1990's. Thus, the exceeding of youth is not so large, as it was 10-12 years ago; nowadays, the stationary migration has mostly family character. The positive shifts of 2004-2005 result mostly from the individual migrations, while the net family migration still is negative (Fig. 8.1.4).

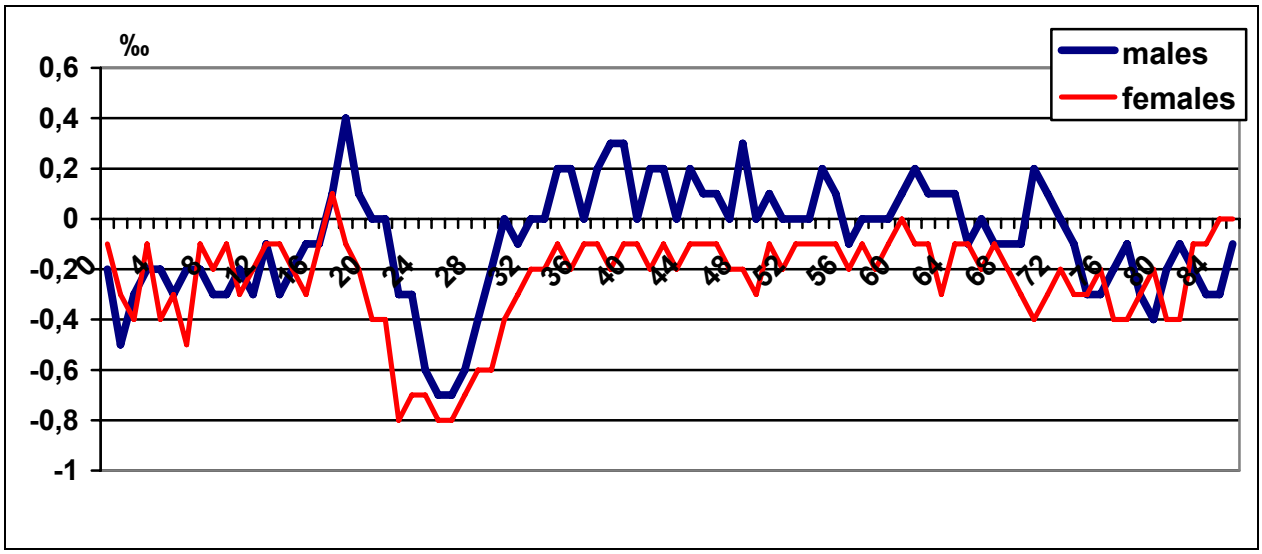


Fig. 8.1.4. Age-specific net migration rate, 2004.

The analysis of migratory trends and, in particular, of their impact on transformation of age structure of the population is complicated by insufficient reliability of the initial data. The present information sources on migratory movements provide not so reliable data, as on other demographic processes. So, when investigating migrations, the indirect methods of information obtaining should be also used, including information on migration movements by the data, which have no direct relation to migration audit. Correspondingly, the ***estimation of migrations' impact on the dynamics of the population number and structure*** is provided for the period between censuses, while the correspondent model is developed only by using of information on the population number at the moment of censuses and number of births and deaths between censuses, thus it does not consider the current audit of migrations.

The model of estimation of migrations' impact on the changes on the population number and sex-age structure is based on combination of the balance method and the method of probabilities to reach some age. As the number of residents of some place can be changed in two ways – in the result of *natural growth* (births and deaths)

and due to *migratory movements*, and the statistics of the first one is developed very well, the reliable information on the last one could be obtained by **comparison of the general population growth** between censuses (difference between the population at the moments of censuses) and **its natural growth** (difference between the number of births and deaths) for this period.

$$S = {}^{1}P - {}^{0}P - (N - M)$$

where *S* – net migration for the period between censuses, ${}^{1}P$ – number of the population at the end of the period between censuses (date of this censuses), ${}^{0}P$ – number of the population at the beginning of the period (date of the previous censuses), *N* – number of births during the period, *M* – number of deaths during the period.
But, it should be noted, that change of the population number makes an impact on the number of births and deaths in the result of annual migrations. The hypothetic number of infants, born during the period between censuses, under condition of migrations absence will be equal to:

$$N' = \frac{N * (\overline{P} - 0{,}5S)}{\overline{P}}$$

where *N'* – hypothetic number of births between censuses under absence of migrations, *N* – actual number of births during the period, $\overline{P}$ - the average number of the population between censuses, *S* – net migrations during the period.
The formula for calculation of the hypothetic number of deaths will look like:

$$M' = \frac{M * (\overline{P} - 0{,}5S)}{\overline{P}}$$

where *M'* – hypothetic number of deaths between censuses under absence of migrations, *M* – actual number of deaths during the period.
The expected number of the population in the end of the period between censuses under absence of migrations is calculated by the next formula:

$${}^{1}P' = {}^{0}P + N' - M'$$

To analyze age-specific impact of migrations, the **method of probabilities to reach some age** is applied. This method suggests a comparison of the actual number of some sex-age group of the population and its expected number, calculated by the data on the number of persons, who have been younger during the period between censuses than the previous census, and their probabilities to reach the specified age. The probabilities are calculated on the basis of death rates in the given period. These methods are less correct, as compared with the balance methods. They are based on rather inconsistent assumptions on the equal rates of death for migrants and non-migrants and on unchanged conditions of mortality and equal migration processes during the period between censuses. But, as the rates of mortality (with exception of the youngest and the oldest age groups) are notably lower than migration rates, while the contingents of migrants are less numerous, than the whole population, the methods of probabilities of reaching of some age can be used.
Migrations' impact on the dynamics of age groups of 12-14 could also be estimated by this method (depending on a length of the period between censuses, the calculation can be considered as the correct one for contingents, which were not younger than 2 at the moment of the census), as well as of persons over 70. As mortality rate is higher in the youngest and the oldest age groups, some errors in estimation of a probability of death

are possible, resulting in incorrect estimation of migation's contribution to the changes in their numbers. To estimate the impact of migration on the dynamics of age groups till 14 and over 70, the specific approaches should be used.

The coefficient of migration's impact on the dynamics of those young age groups, which have been living during the whole period between censuses (I.e. they have been born before the previous census), can be considered as the equal to the coefficient of migration's impact on the dynamics of the number of persons in the age of 14 (the calculations, carried out for some periods between censuses, prove the correctness of this assumption). Regarding groups, which have been born after the previous census, the coefficient of migration's impact on the population dynamics proportionally increases to zero in the group of 0 years. The change in the population number, caused by migrations, for the population in the age over 70 is calculated as the difference between the corresponding rate for the whole population and the sum of rates of all other age groups. Obviously, the correctness of calculations of migration's impact on the youngest and the eldest groups is less, as compared to the age contingents of 15-69.

To estimate *the contribution of migrations into the whole population dynamics* or on some sex-age group, the comparison of the changes of the population number (of a group) in the result of migrations for some period and of the expected population number at the end of the period (under absence of migrations) should be done.

The estimation of migration's impact on age structure of the population is done by comparison of the actual indicators of age structure (for instance, rates of ageing, demographic dependency rates, share of the youth etc.) with the hypothetic ones – which would be registered under condition of absence of migrations.

The calculations show, that the unique situation has been formed in Ukraine during 1960-80's – under the general positive net migrations, the decrease of migration of the youth has been observed. Mostly young people were departing to work in the regions of Syberia, Far East and Far North, while pensioners were returning. Thus, the total population has been growing less than on 1% in a decade in the result of migrations during 1959-1989, while the number of men in the age of 20-29 has been decreasing on 5-6% during every period between censuses (the correspondent number of women – on 2%). Contrary, the number of persons of the younger retirement ages (males in the age of 60-69, females in the age of 55-69) has been stably increasing during 1959-1970 in the result of migrations (this process has been slowing down only during 1980's). Such character of migrations resulted in increase of the population ageing and deterioration of its labour potential. Migrations have provided 12.5% of the general increase of ageing rate during the first period between censuses after the WWII (1959-1970), while this rate has been 28.3% during 1970-1979, 13.8% during 1979-1989 and 15.5% during 1989-2001. It can be proved, that the trends of the after-war migrations have accelerated the depopulation at least on several years. Moreover, the professioanl and educational potentials of Ukraine have been deteriorated in the result of permanent selection of the experts and their concentration in the central part of the USSR.

The total population number of Ukraine has decreased only on 1.0% in the result of migrations during the period between censuses (1989-2001). The number of men in the age of 25-29 has decreased on 6.8%, while the number of women of the same age – on 4.9%, of men and women in the age of 30-34 – on 3.7 and 2.1% respectively. At the same time, migration processes have contributed to the growth of persons in the age under 20 and over 70, i.e. namely of contingents with very low economic activity. Migration losses of the population of Ukraine have been related almost exclusively to the most economically active contingents (Table 8.1.2).

Table 8.1.2.Age-specific structure of the Ukrainian population losses, casued by migrations, during 1989-2001 (as on the end of the period)

Sex-age structure	% of the total losses
0-14, both sexes	-18,6
15-19, both sexes	-15,3
Males, 20-49	81,7
Females, 20-49	38,4
Males, 50-69	25,4
Females, 50-69	7,9
70+, both sexes	-19,5
Total	100,0

Calculated by the data of the State Statistics Committee of Ukraine.

Under absence of migrations during 1989-2001, the population census of 2001 would register a share of persons of the most economically productive age (25-44 years) on 0.5% higher than the actually registered one, while the demographic dependency rate would be on 2.5% smaller (Table 8.1.3).

Table 8.1.3. Actual and hypothetical indicators of age structure of the population of Ukraine in the end of 2001 (in %)

	Actual rate	Hypothetical rate (under condition of absence of migrations between the censuses)
Rate of ageing (a share of persons in the age over 60)	21,4	21,2
Demographic dependency rate	723	705
A share of persons in the age of 25-44	28,7	29,2
A share of women in the fertile age (15-49)	26,0	26,1

Calculated by the data of the State Statistics Committee of Ukraine.

The negative impact of emigration on demoeconomic development is not limited by changes in age structure. As education of migrants is usually higher, as compared with the whole population, the deterioration of the education potential of the nation usually becomes a result of emigration exceeding. Presently, emigration from Ukraine out of the former USSR is characterized by the “brain drain”: a share of persons with high education is in 1.5 times higher among emigrants to the “old foreign countries”, as compared with emigrants to the CIS and Baltic states, as well as with persons, who have arrived to Ukrane. The educational level of persons, who have moved to Canada is particularly high.

Generally, Ukraine has lost more than 70,000 person-years of education or 0.0018 years per 1 person in the age over 16 in the reslt of external migrations in 2004. The scales of these losses can be considered as insignificant, as the contingent of migrants is small in comparison with the total population number. But, preservation of these trends during a decade is a very negative determinant of the educational potential development, as it slows down the rates of the growth of the population education.

74 Candidades and 13 Doctors of Scinces have moved out of Ukraine during January-September of 2004, i.e. each of these groups of researchers has lost 0.12% of their total numbers. As compared with 1995, the number of Doctors of Sciecens, who have

emigrated, has decreased almost in 4 times, as compared with 2002 – almost twice. It can be explained, as the main part of experts, who are inclined to emigration, have already left Ukraine. Also, the improvement of possibilities of incomes for high qualified specialists have been observed during the last years in the result of the economy stabilization, transition to industrial growth and improvement of the living standards of the population. More than a third part of Doctors of Sciences, who have emigrated, have moved to Russian Federation during 1990's, the same part – to the USA, about 1/6 – to Israel. Presently, there are no clear geographic priorities of emigration among the scientists.

At the same time, the number of emigrants have increased among Candidades of Sciences: while the differences in the Ukrainian conditions of work and incomes and those of foreign countries are not so significant for famous experts nowadays, emigration still is the only way of a fast improvement of well-being for talanted scientific youth. The largest number of Candidades of Sciences is moving to the United States, Russia, Germany and Canada (regarding the population number in these countries, the emigration to Canada should be defined as the most intensive one). The highest intensity of emigration of Candidads of Sciences (twice as high as the average rate) is observed among persons in the age of 31-40, i.e. among those age contingents of qualified personnel, who have large experience of work and good state of health and ability to work.

8.2. Regional peculiarities of migratory situation

The population of the different regions of Ukraine is involved into migratory processes with different rates. At the time of the last census, a share of migrants in the total population of the regions was changing from 13.5% (the Trans-Carpatian region) to 60.6% (the AR of Crimea). Generally it grows from the west to the east and from the north to the south. A portion of the newly born outside the region is also the highest one within the most industrially developed region in the East and within the southern regions, particularly in Kyiv and in the Crimea (above 50%). The main part of Kyivians who originated from outside of Kyiv still were born within the Ukrainian territory, whereas 32.0% of Crimeans were born outside the Crimea (33.1% of citizens of Sevastopol) originate from outside of our state.

Generally, Kyiv accumulates 15.9% of the Ukrainian citizens who live outside the areas they were born (this is three times higher than a portion of Kyiv citizens within the total population of Ukraine). This number also includes the persons, who were born in the settlements of the Kyiv region, which later joined the Kyiv city area (according to the census, 1.1% of Kyivians were born outside Kyiv but have never changed their settlement place). Among the Kyivians who were born outside Kyiv, 24.0% originate from the Kyiv oblast, and 28.0% were born in the regions, surrounding Kyivska oblast. At the same time, people born in Kyiv constitute 2.5% of the population of the Kyiv region. The census results confirm a fact that the most intense migration connections exist between neighboring regions: in each region, among the people born in the other regions, those born in the adjacent regions, are most abundant in number. For instance, 3.1% of the Kyiv region population originate from the Zhytomyr region, and 2.3% - from the Chernihiv region. In the Zaporizhya region, 2.4% of the population originates from the Dnipropetrivsk area, 1.8% - from the Donetsk area, and 1.6% - from the Kherson area.

Migrants from outside of Ukraine are most important for the population forming within the Crimea: people born in Russia, constitute 26.9% of the population of Sebastopol city and 18.8% of the Crimean population. The other 8.1% of Crimeans were born in Uzbekistan. Without considering the Crimea, the distribution of population born in the

former USSR republics (with exception of Moldova), is in the direct correspondence with the territorial differentiation of the economical development. 35.6% of the Ukrainian population, born in Moldova, live in Odeska region, whereas 37.0% of the persons, born outside the former USSR, live in 3 regions of the Halychyna, which were within Poland before the World War II. Comparing with 1989, the last index has dropped, as in other regions (firstly, in Kyiv), the large groups of migrants appeared (those who originate from Afro-Asiatic countries, as well as representatives of foreign firms and children of former officers of the Soviet Army, born in the countries of the Warsaw Treaty).

The needs of forming of balanced migratory policy and elaboration of reliable projections of migratory movement (a component of elaboration of demographical prognosis) demand the consideration of regional peculiarities of migratory situation. Thus, the analysis of dynamics and regularities of territorial differentiation of migratory processes is one of the most important branches of their investigation. The highest level of such an analysis is a subdivision of Ukraine into the regions on the base of migratory features, and establishment of the migratory areas.

The main indices for study of regularities of territorial differentiation of migratory situation are as follows: a share of persons, who (at least once during their life) have changed the place of their residence, in the total population of a region at the moments of two last censuses (1989 and 2001), coefficients of net migration and general mobility of population in 1989-2004. The additional indices are as follows: a share of people, born outside the region (according to the census), coefficients of inter-state, inter-regional and inside-regional migratory mobility of population. When making the subdivision into regions, not only regional indices have been considered, but also the differences of migratory situation between the cities and the country.

Regarding the long-term migratory processes, revealed in all censuses, and peculiarities of the officially registered migration in the end of the XX – at the beginning of the XXI centuries, all administrative regions of Ukraine can be combined in 7 geographically integrated migratory regions.

1. The Crimean region – the AR Crimea and Sebastopol city. The specificity of migratory situation in the Crimea depends on the return of the deported people and on peculiarities of ethnic structure of the population, for instance, high share of Russians. According to the 2001 census, the Crimea was the first one in Ukraine, regarding a share of people, who (at least once in life) have participated in migratory processes – 60.6% in the ARC and 59.3% - in Sebastopol. During 1989-1993, the Crimea has an extremely high immigration growth of the population (+180 thousands in 5 years). During the next years, particularly in 1996-1998, the Crimea has experienced the most essential migratory losses among the other regions of Ukraine. At the present period (1999-2004), the districts of the Crimean migratory region differ from the other territories of Ukraine by extremely high intensity of external migration (in 2004 4.7‰ in the ARC and 5.2‰ in Sebastopol, whereas in the other areas – less than 3%). It has occurred, firstly, because of the intense migratory contacts with Russia.

2. South-Eastern region - Dniepropetrovska, Donetska, Zaporizka, Luganska, Mykolajivska, Kharkivska and Khersonska regions. The intensity of migratory processes is higher, than the average country's rate; the rapprochement of the migratory situation in cities and rural area takes place. A share of rural residents, who have changed the place of residence at least once in their lives, is higher or practically equal to the corresponding rates of urban population in these regions, while the intensity of gross migration has been higher in villages during the period after the census, as compared to the cities. Thus, the rapproaching of demographic situation in urban and rural areas occurs in the economically developed regions of Ukraine, resulting from situation of a large part of rural area within the urbanized space of agglomerations.

3. Middle-Ukrainian region - Odeska, Kirovogradska, Poltavska and Sumska regions. Practically all indicators of migratory situation are close to the average Ukrainian rates in these regions, which are situated by a narrow strip from the south-west to the north-east and define the former South-Western economic region (according to a network of economic regions, used in the Soviet times) of the east and south. Correspondingly, the name of the region reflects not only its geographic position (the central part of the territory of Ukraine between north-west and south-east), but also the trends of migrations.
4. Halychansko-Bukovinsky region - Ivano-Frankivska, Lvivska, Ternopilska and Chernivetska regions. A very low intensity of migrations of rural population and low intensity of migrations of urban population are observed in these regions. A share of migrants in the total population (according to the census) is small (26.7% against 37.2% averagely in Ukraine), The urban-rural imbalances are striking (while the specified indicator for urban population is almost equal to the national rate, it is twice smaller in rural area of the region, as compared to the whole rural area of the country). Such characteristic features of migratory situation result from historical peculiarities of the region's development. This is a part of Ukraine, which has never belonged to the Russian Empire and have been integrated to the USSR only during the World War II (it should be mentioned, that Volynska and Rivnenska regions entered the structure of the USSR simultaneously with Halychyna, but their separate existing of the main part of Ukraine have not been long). As a result, the population of these regions and especially its more "conservative" part – rural population - are notably different from the population of other regions of Ukraine.
5. Zakarpatsky region. This region includes the same-name region, which have been integrated to the USSR almost at the same time, as Halychyna and Nothern Bukovina. But, Zakarpattya has been separated from Ukrainian lands for a longer period – since the times of the Old-Russian state; correspondingly the population has specific mentality, which is very different from mentality as of the main part of Ukrainians (including Halychans), as from any other numerous geographic groups of the population. As a result, the peculiarities of migratory situation, which are common for the neighboring regions, are observed in a more distinct form in Zakarpattya. Presently, extremely low rates of gross migration of rural population are observed there, even as compared to the Halychansko-Bukovynsky background (in 2.5 times lower, than in the country as a whole), as well as the lowest corresponding rates for urban population (on 25% lower than the average Ukrainian rate). According to the census, a share of migrants was 13.5%, including 24.8% in the cities (over 33% in all other regions) and 7.0% in rural area.
6. North-Western region - Vinnytska, Volynska, Zhytomirska, Kyivska (without Kyiv city), Rivnenska, Khmelnitska, Cherkaska and Chernivetska regions. As the list shows, the region consists of a range of the central regions as well; the name of the region is related to its situation to the north-west of the Middle-Ukrainian region, which migratory situation is regarded as a base for comparison. Generally, the main indicators of the migratory processes of the urban population are close to those, observed in the South-Eastern region, while rural migrations are close to the corresponding rates of Halychansko-Bukovinsky region. Gross migration of the region's population is close to the average state rate, but it is higher in the cities, as compared to rural area. The low rate of urbanization (by the national standards) (raised share of rural population, insufficient development of a network of urban settlements) and lower level of economic development resulted in large urban-rural imbalances in the living standards. As a result, persons, who have been migrating to these regions during the mass inflow of the population to Ukraine, preferred urban settlements.

7. The Capital region – Kyiv city council. A share of persons, who have been born outside the region, is almost as large, as in the Crimea. But, contrary to the Crimea, the majority of outcomers were born within the territory of Ukraine (mostly, in Kyivska and neighboring regions). Such peculiarities of migratory situation are explained by complications with registration in the Capital on one hand, and by high rates of attachment of those, who have already arrived. Starting from 1995, Kyiv has been the only region of Ukraine, where the stable positive net migration has been observed, also, the trend of its increase is been noticed (there are no large exceeding of the number of arrivals on the number of departures in other regions of Ukraine). A large gap in the living conditions between Kyiv and all other regions of Ukraine has been formed during the transition to market relations. As a result, the level of attraction of the migrants to the Capital has sharply grown. So, Kyiv could be defined as a separate migration region (the name reflects the main factor of the region's forming).

Presently, the trend to the gradual decrease of regional differences in migratory situation can be observed in Ukraine. Firstly, we could speak on approaching of the trends of migratory processes in South-Eastern, Middle-Ukrainian, South-Western and, partially, Halychansko-Bukovinsky region. At the same time, Kyiv, the Crimea and Zakarpattya differ rather notably from the general background.

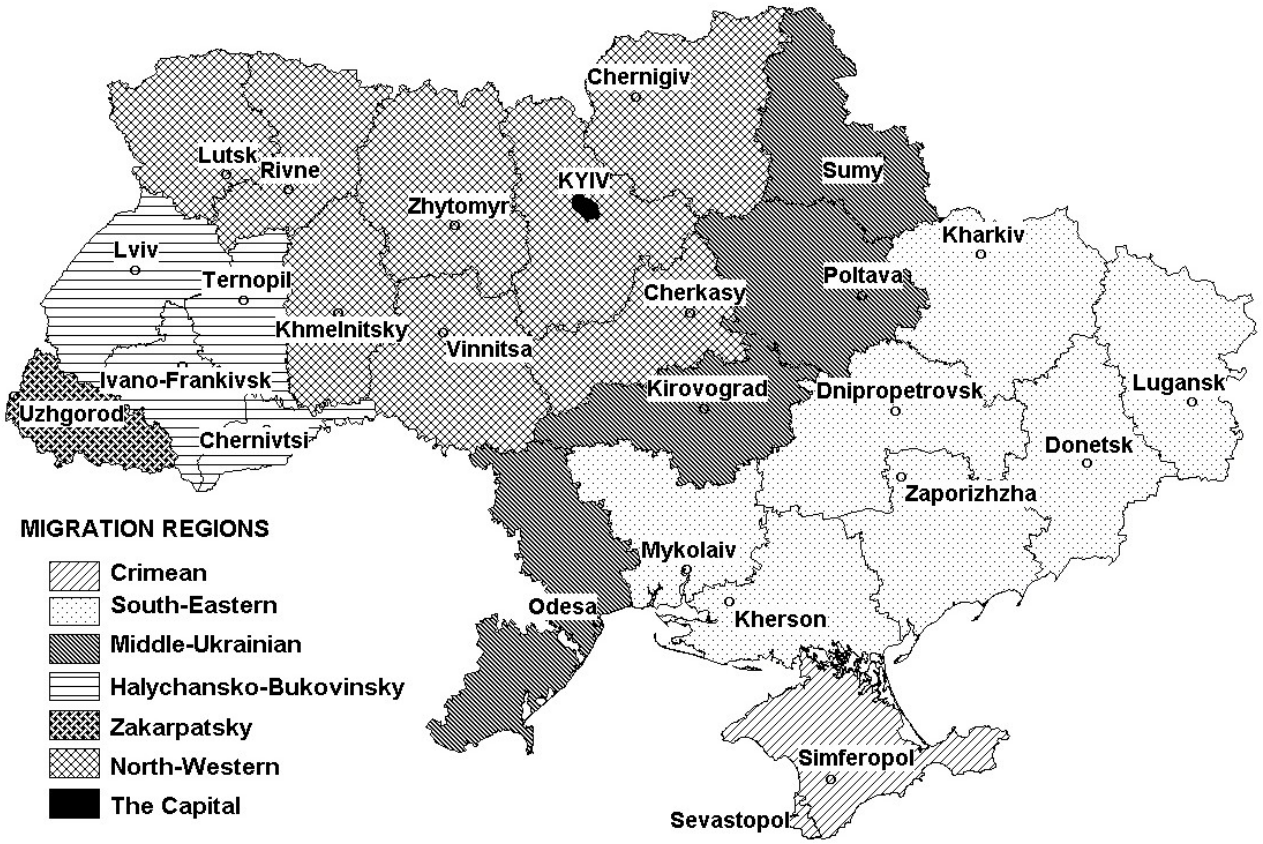


Fig. 8.2.1. The regions of Ukraine, defined by peculiarities of migratory situation

Thus, the main factors, which determine the specificity of migratory situation in the regions of Ukraine, consist of their geographic situation and peculiarities of historical development. Generally, the changes of the main indicators of migratory processes in the geographic space of Ukraine occur in the direction from the southwest through north and center to the southeast. The regions, which largely differ by the specificity of historical development (Zakarpattya, the Crimea), also have the unique migratory situation.

8.3. New forms of migratory processes: external labour migration, refugees and transit of illegal migrants

Under limited possibilities of employment at the official labour market of Ukraine, employment in the registered sector of the economy does not guarantee well-being; it also does not provide the needs in reproduction of labour force. So, many economically active persons wish to use non-standard ways of realization of their economic activity: they work at two (or more) jobs, realize informal or shadow activity, carry out private part-time farming economies, or become labour migrants. Labour migrations of the Ukrainian citizens abroad have become the objective reality and, no doubts, the mass phenomenon.

The priority tasks of investigation of labour migrations are found in estimation of their scales and defining of the main directions (distribution of labour migrants by countries of destination). The different estimations of the external migrants' number are presented in the national scientific and publicistic literature. According to the data of the survey "Living ways of the population of Ukraine", realized in March of 2001 as a long-term module of the survey on economic activity issues of the State Statistics Committee of Ukraine, 380.5 thousand residents of 8 regions of the Western Ukraine and Donbass were employed abroad in 2000, that is in 70 (!) times larger than the contingent, registered by the state statistics (5,579 persons) [16]. The rate of participation of the whole population in labour migrations (a ratio of persons, who have participated in labour migrations during a year and the total number of the population in the age of 15-70) was 3.2%, including the rate of participation for persons in the age of 20-49 – 4.9%. The revealed migration scales of the population of 8 regions of Ukraine present the minimal estimation, the so-called lower limit of the confidential interval. The combination of the survey results and information of other sources provides with estimation of labour migrations in the country at the level of, at least, 1 mln. persons.

The most numerous flows of labour migration in the transboundary regions are directed to Russia (37.2%), Poland (18.7%), Czech Republic (16.9%), Italy (8.5%), Portugal (3.8%), Hungary (2.5%), Greece (2.2%), Slovak Republic (2.0%) and Belarus (1.7%). Generally, the countries of Western and Central Europe (including Turkey and Cyprus) cover almost 60% of the total number of labour migrants from 8 regions of Ukraine. The countries of Visegrad group (Poland, Czech Republic, Slovak Republic and Hungary) accumulate 2/5 of labour migrants or 2/3 of the migration flow to the "new foreign countries". Almost 40% of the Ukrainian labour migrants are employed in the CIS and Baltic states, while non-European countries (the USA, Canada, and Argentina) attract less than 1% of labour migrants.

The main countries of destination of labour migrants, who origin from rural area of Ternopilska region, according to the data of labour migrants audit by Ternopil regional employment center as on the 1st of October, 2001, are Poland (30.8%), Italy (21.1%), Russia (13.3%), Portugal (12.0%), Spain (5.1%) and Czech Republic (4.2%) [17]. According to the expert calculations, the gross labour migration in the region covers 42.4 thousand persons, while it does not exceed 2 million persons in Ukraine as a whole [17].

According to the expert estimations of the Ministry of External Affaires of Ukraine, more than 2 mln. citizens of Ukraine illegally work abroad, including a half of them – in Russian Federation (during the season this number is increasing in three times), 300,000 - in Poland, 200,000 - in Italy, 100,000-200,000 in Czech Republic, 150,000 – in Portugal, 100,000 – in Spain, 35,000 – in Turkey, 20,000 – in the USA, 5,000 - in Slovak Republic, by 4,000 – in Argentina and Belarus, 3,000 – in Greece [18].

Thus, the data of the expert estimations of the Ministry of External Affaires are

practically equal to the estimations of Ternopil regional employment center, while many analytics declare larger figures. Thus, the experts of the Ministry of Labour and Social Policy of Ukraine estimate external labour migration in 2.5-3 mln. persons, considering persons of the working age, who have "disappeared" of the national labour market. The specialists of the State Statistics Committee of Ukraine estimate the number of labour migrants in 2.4-3 mln. persons on the basis of the data on those, employed in the economy of Ukraine, persons, who study at the stationary forms of education, unemployed persons and some other population categories. But, it is possible that a part of citizens, who does not belong to any of these categories, are employed in the "shadow" sector of the Ukrainian economy. The report of the Ombudsmen of the Verkhovna Rada of Ukraine on human rights presents the figure in 5 mln. labour migrants [18].

According to the data of the All-Ukrainian sociological monitoring, realized by the Institute of Sociology of NAS of Ukraine, the representatives of 12% of households have the experience of employment abroad. If we assume, that there is no more than 1 adult with experience of external labour trips in every household, we receive the scales of labour migrations in 2.1 mln. persons, while considering the probable prevalence of trips of two and more members of a household – 2.3-2.8 mln. labour migrants. But, in this case we should speak neither about persons, who are working aboard at some moment of time, nor about persons, who have been working abroad during some period, but about persons, who have participated in labour migrations at least once in their lives.

Thus, labour migrations of the Ukrainian citizens abroad have become the objective reality and, without any doubts, the mass phenomenon. By different estimations, gross migration makes from 1 to 5 million persons, while by the most real estimation – from 2 to 2.7 mln. The main centers of attraction of labour migrants from Ukraine include Russia (40-50%), Poland (15-20%), Czech Republic (10-12%), Italy (about 10%) and Portugal (5-8%).

The notable differences are observed in the direction of the external labour migrations of men and women. Thus, regarding the main recipients of the Ukrainian labour force, a sharp domination of women is observed among migrants to Italy; labour migration to Turley, Japan and Greece also has mostly female character [18]. Russia and Portugal attract mostly male migration from Ukraine, while gender ratio of persons, who depart to Poland and Czech Republic, is almost the same as within the whole migrations (Table 8.3.1). Generally, four main recipient countries, who attract female labour force, can be defined – Italy, Poland, Russia and Czech Republic. The flows of female migration to three first countries are almost equal (by 22-27% of the total number), while the flow to Czech Republic is twice less than the average one; the fifth place by priorities of the Ukrainian women is occupied by Greece.

Table 8.3.1. Shares of women among migrants by countries of destination (according to different researches)

%

Country	Survey „Living ways of the population of Ukraine"	Audit of labour migrants of rural area in Ternopilska region	Survey of the Ukrainian labour migrants in Italy
Russia	19	11	-
Poland	36	36	-

Czech Republic	26	24	-
Italy	87	79	85[19]-91[20]
Portugal	11	16	-
Greece	72	81	-

The intensity of labour migrations is notably higher in the regions, which border with foreign countries; it is particularly high in Zakarpatska region, which borders with all four western neighbors of Ukraine. Labour migrants are almost exclusively persons in the age of 20-49, i.e. the representatives of the most economically productive age groups. The maximal rate of participation in labour migrations is observed in the age diapason of 25-29. Rural residents are involved into labour migration more often, while men make almost 70% of them. Married men and women are more involved into labour migration, as compared with persons, who have never been married. It can be explained by more important needs of family budgets in the "migration money", as compared with the budgets of single persons. But, the highest intensity of labour migrations is common for divorced persons, who, on one hand, have experience of family life and earning of incomes for a family, on other hand they are not tied by family duties and do not experience the risk of loosing of a family in the result of the prolonged separation. Moreover, divorced persons often face a problem of raising of a child without assistance of another parent (it particularly concerns female migrants), so labour migration becomes the only way to solve this problem. According to the data of the survey of the Ukrainian female migrants, who work in Italy, only 6.1% of female migrants do not have children, while more than ¾ of them have 1-2 children at home and almost 8% of them have 3 children and more [19].

Persons with professional-technical and complete secondary education become labour migrants more often. Low-educated persons have initially limited possibilities of employment abroad because of low qualification, while high-educated groups are less interested in this employment because of better opportunities of employment in Ukraine. Almost ¾ of persons, who have experience of labour migrations, are oriented on the repeated trips.

Realization of economic activity at the external labour market also includes economic tourism („shuttle trade"). Economic tourism is considered as a type of migration in the majority of researches. But, this approach should be defined as not substantiated. Despite of similarity between economic tourism and migration, they are rather different processes. The radical difference is in the position of economic tourists and external labour migrants at the national labour market: a part of labour activity, related to realization of "shuttle trade", is carried out within Ukraine. "Shuttle trade" is a territorial mobile form of organization of self-employment or business activity.

Economic tourism has become not only a source of incomes in the worst period for many citizens of Ukraine, but also is a source of the „market" and business experience, initial accumulation of capital, finding of niches at labour markets of neighboring countries. Presently, economic tourism is gradually loosing its former importance, but it is still a source of incomes for some population groups. There is a question on the number of the "shuttle traders" in Ukraine. Unfortunately, there is no corresponding statistics; but, the results of the numerous sampling population surveys provide with approximate estimation of this contingent number.

According to the data of the survey of labour migrants in the cities of Kyiv, Chernivtsy and Prylbychy of Lvivska region [20], realized by the National Institute of International

[19] Mass sociological survey of the Ukrainian migrants in Italyï realized by Western-Ukrainian Center "Womens' perspectives" in 2002.

[20] Sociological survey „State of the present Ukrainian emigration to Italy", realized in 2003 by sociologist N.Shegda.

Security Problems in 2002, a ratio of the number of „shuttle traders" and of labour migrants is 1:5.7. The results of the survey "Living ways of the population of Ukraine" provide with another ratio of these contingents – 1:4. Considering the data of the survey of the National Institute of International Security Problems, we obtain the number of "shuttle traders" in 350-475 thousand persons, while considering the data of the surveys of NAS of Ukraine and State Statistics Committee of Ukraine, – correspondingly 500-675 thousand persons.

The experts estimate the annual number of commercial trips from Ukraine abroad in 3 mln. departures by the combined data of the transboundary audit and sociological surveys [20]. Taking the average number of trips, revealed by the survey "Living ways of the population of Ukraine" (4.5 trips per person) as a basis [16], we have the number of "shuttle traders" at the level of 670 thousand persons. So, by combination of the results of three estimations, we could rather correctly declare, that the number of econoic tourists is from 350,000 to 700,000 persons in Ukraine. Correspondingly, the rate of participation of the population in the age of 15-70 in economic tourism (a share of "shuttle traders" in the total number of the population in the age of 15-70) is 1.0-2.0%.

The largest flows of economic tourists are directed to Russia (about a half) and Poland (almost a third part); while trips to Slovak Republic, Romania, Hungary, Belarus and Turkey are also important for citizens of some regions. Every tenth economic tourist visits more than one country.

The contingent of economic tourists differs of the contingent of labour migrants not only by the sphere of activity, duration and frequency of trips, but also by the numerous social-demographic characteristics. Thus, while labour migrants are mostly rural men with low educational level, residing mostly in the western regions, economic tourism is almost equally widespread in different regions of Ukraine, mostly among high-educated urban dwellers. "Shuttle traders" averagely are older than labour migrants. According to the data of the survey „Living ways of the population of Ukraine", the peak of participation in economic tourism is fixed for the age group of 35-39 (the same for labour migrations – in the age of 25-29). Women participate in the commercial tourism more active, especially divorced ones.

Labour migration of the citizens of Ukraine is realized by a direct invitation of the foreign employers, with assistance of the dealer organizations, which are engaged in employment abroad (including tourist agencies), by independent search of a job abroad by citizens themselves (via persons, who have moved abroad before, relatives and friends in the recipient countries, via Internet etc.). It is possible to define 4 qualitative different levels in the structure of labour emigration of the Ukrainian population by a level of legality and possibilities of statistical audit:

1. official labour migration – movement of the Ukrainian citizens, who declare participation in labour activity as the aim of their departure;
2. unofficial legal migration – trips of our citizens abroad with declared aim of tourism, visiting relatives etc., with further employment and registration in the recipient country; the participants of these trips cannot be estimated by the national statistics, but they become absolutely legal labour migrants in the recipient countries;
3. successful illegal migration – trips abroad, related to the non-registered employment in activities, permitted by legislation of the corresponding countries;
4. migration of victims of criminal groups – trafficking in human beings and other cases of violation of human rights of the Ukrainian citizens or their forced employment in criminal activities.

There are four categories of citizens of Ukraine, who are at the territory of other countries with purpose of employment, depending on their legal status, in the report of the Ombudsmen of the Verkhovna Rada of Ukraine [18]:

- ♦ persons, who have a permit on permanent stay at the territory of a foreign state,

which also grants a right on employment (these persons do not belong to the structure of the permanent population of Ukraine);

- persons, who have temporarily permit on stay and employment;
- persons, who temporarily stay at the territory of a foreign state (medical services, training, with tourist or private purposes) and work illegally;
- Persons, who stay at the territory of a foreign state illegally and work illegally.

Persons, who have entered the recipient country legally, but the term of their residence permit has ended, should be defined in the structure of the last group, as well as persons, who have entered the territory of the state illegally. Belonging of a person to some category is the main factor, which determines the legal and social rights of a person in the recipient country.

Summarizing the mentioned above, it is possible to define three main segments of the Ukrainian labor migration by combination of the legal status and economic features:

- unique specialists and high-qualified professionals, who legally work by their specialty by personal invitation;
- workers of different levels of qualification, who are employed mostly in low-qualified works (rarely – in works of the medium qualification) legally or illegally;
- victims of criminal groups.

The representatives of the first segment have the same rights, as citizens of the recipient country. They practically have no problems with guarantees of employment, conditions of work, social and medical protection, and decent wages. Migrants, who form the second segment, have the minimum of social and labour guarantees. Though a position of legal and illegal workers notably differs, Ukrainians often face violation of their rights even under condition of legal employment. As to the victims of criminal groups, they mostly are in a position of slaves.

Regarding the total number of the Ukrainian labour migrants, only slightly more than 40,000 persons of them are employed abroad with assistance of the official dealers. The number of Ukrainians, who are not fixed by the national statistics, but legally work in the recipient countries, is about 500,000 persons, including by 100,000 in Russian Federation, Portugal, Italy, Spain, by several tens thousand – in Poland, Czech Republic, Greece, Hungary (more correct calculation is possible by the corresponding data of the governmental authorities of the recipient countries).

Thus, the absolute majority of the Ukrainian labour migrants (as a minimum 3/4 of them) work illegally, resulting in the presence of numerous violations of their rights. Conditions of work of the Ukrainian workers abroad absolutely do not correspond to the normatives, established as in their Motherland, as in the recipient country. Over-normative working day is a usual situation, as well as insufficient safety conditions, realization of works, related to the risk for a life and health; there are also cases of delay with payment of wages. Many of them experience the danger to find themselves in inappropriate conditions or to become victims of trafficking. These persons are being out of the legal environment of Ukraine for a long time, resulting in forming of psychology of social and legal nihilism among representatives of this contingent. Young women, who have become the victims of the trafficking, receive large psychological traumas and „are excluded" from reproduction process. The deterioration of health in the result of heavy and intensive labour is among the consequences of the illegal labour migration, as it is reflected on the death rates. Medical assistance to illegal migrants usually is provided illegally (through personal contacts of an employer with medical workers), i.e. there is no basis to speak on the normal treatment. The adaptation to the Ukrainian society, which has changed during their absence, is another important problem of long-term migrants (a trip to Ukraine actually means the loss of a job abroad for the illegal migrant, while the legal long-term migrants have a possibility to visit relatives and keep permanent social contacts).

Ukrainian male labour migrants are mostly employed in construction. Moreover, a raised share of those, employed in transport and communications, is observed in Russia, while there is a raised share of employed in agriculture in Poland; the contingent of the Ukrainian sailors, employed at the foreign shuttles, is also numerous. The sectoral structure of female employment is different in various countries, depending on the needs of the national economies. Among women, who are employed in Russia, the largest contingents are employed in the trade and construction, while in Czech Republic – in the public catering and industries (mostly light and food processing ones), in Poland – in agriculture and in home cleaning services. Domestic services also are the main area of employment of the Ukrainian female migrants, who work in Italy. Generally, our citizens are mostly employed in areas, which do not contribute to raising of the qualification, obtaining of skills, necessary for the future productive activity in Ukraine. Usually, worse condition of work and staying abroad are common for the Ukrainian constructors, while better conditions – for sailors and domestic workers.

The duration of a working day of the Ukrainian labour migrants practically always exceeds 8 hours; usually it makes 10-12 hours. The survey "Living ways of the population of Ukraine" suggested a question on the duration of a working period and variants of responds, including duration of a working day or of a working week. Those migrants, who preferred the variant of a working week (less than a third part of the contingent), responded on its duration in 55.8 hours, that is on 40% longer than the norm, established in Ukraine. The average duration of a working week was less than 40 hours only among 1/6 of the total respondents, while every second respondent declared the duration in more than 60 hours, every fourth one – over 70 hours. Those labour migrants, who preferred a working day, averagely had the duration of a working day in 9.9 hours. More than 2/3 representatives of this group had a working day with duration in 10 hours and more, ¼ of them – in 12 hours and more [16]. A working day in 8 hours is a norm for those migrants, who are employed at plants with shift regime of work (correspondingly, the duration of a working day reflects the duration of a shift).

A monthly wage of the main part of Ukrainians workers abroad is from USD 200 to 1,000. Regarding persons, employed in construction in the neighboring countries (Russia, Poland, Czech Republic, Hungary), non-qualified workers usually earn USD 200-400, while qualified workers - USD 500-700; these incomes are much higher in Germany, Italy and other countries with developed market economies. The incomes of sailors are USD 600-1300 for privates and from USD 1,800 to 4,000-5,000 for commanders. Domestic workers, waiters, caregivers receive about USD 200-300 monthly (in some cases – USD 600 and even USD 1000), while medicians earn USD 1,000-2,000, specialists in IT – up to USD 5,000. The summary costs, earned by the Ukrainian workers abroad, are estimated in USD 4.7-7.6 billion yearly, making 7-11% of the Ukrainian GDP.

Generally, our citizens are satisfied with conditions of their work; they agree to work in the intensive regime with purpose of earning. Being abroad, they have smaller time needs on keeping of social communications, there is also no need to spend some time with their families. To minimize their expenditures in the recipient country, migrants reside in non-comfortable living conditions; some of them bring food products from Ukraine.

When estimating the impact of labour migration on the development of regional labour markets, the conclusion can be made, that participants of migrations would propose their labour force in the regions of origin under absence of possibility of labour migrations. Thus, development of labour migrations contributes to decrease of labour force suggestion in the regions of departure (and of unemployment rates). But, in the reality, the “relations” of labour migrants with the national labour market are more complicated.

Positive impact of labour migrations of development of possibilities of employment at labour markets of the recipient countries is not limited by departure of some part of able to work groups. Some persons, having accumulated the needed incomes abroad, are becoming economically inactive; some of them start private business, forming new workplaces (for themselves and other employees).

The correct ***estimation of the impact of the external labour migrations on development of labour market*** of a country (a region) requires the next input data:

1. **Number of economically active population (A)**.
2. **Number of employed population (E)**.
3. **Number of unemployed population (U; U=A-E)**.
4. **Number of actual labour migrants** (^{a}**M)** – persons, who work abroad at the moment of the research.
5. **Number of persons, who do not make demand on workplaces at the internal labour market due to savings, accumulated by working abroad (R^m)**.
6. **Number of persons, who have started private business (under conditions of self-employment) due to "migratory" earnings (SE^m)**.
7. **Number of persons, who have started private business (as employers) due to "migratory" earnings (B^m)**.
8. **Number of persons, who are working at enterprises, organized by labour migrants (L^m),** it could be estimated by multiplying of the number of employers of the former labour migrants on the average size of an enterprise, created by the former migrants.

The hypothetic number of economically active population under absence of labour migrations **(A')** is estimated by the formula:

$$A' = A + R^m + {}^{a}M$$

The number of employed population under absence of migrations **(E')**:

$$E' = E - SE^m - B^m - L^m$$

Having calculated the hypothetic number of economically active and employed population, we can estimate the hypothetic (under absence of the external labour migrations) number of unemployed:

$$U' = A' - E' = A + R^m + {}^{a}M - E + SE^m + B^m + L^m$$

The estimation of the impact of the external labour migrations on development of labour market is realized by comparison of its actual indicators (in particular, of unemployment rate) with hypothetic ones – which would be observed under absence of labour migrations.

The state statistics provides the information only on thee first absolute indicators of eight specified above. The source of the initial data is presented by the survey on issues of economic activity of the population of the State Statistics Committee. According to the survey in 2004, the average yearly number of economically active population was 22.2 mln. persons, including 20.3 mln. of employed, 1.9 mln. unemployed. As the rate of information provision on labour migrations is insufficient, only estimated indicators could be used for calculation of the impact of this process on development of labour market.

We will estimate the number of actual labour migrants for a *casual day of a year*. The survey „Living ways of the population of Ukraine" provides information on the distribution of the participants of labour migrations by duration of a trip. It is logically to assume, that a probability of staying abroad in a casual day will be 0.75 for persons, whose trip equals to 9 months, 0.167 for persons, who are leaving Ukraine on 2 months; finally, persons, who work abroad more than a year, will probably be there at the moment of investigation. Using the estimated probabilities of belonging of representatives of every group of real migrants to the contingent of actual migrants, we can calculate their summary number. It will make 1,142 thousand persons for a casual

day; correspondingly there will be 1,208 thousand persons with recent experience of labour migrations in Ukraine at the moment of investigation.
According to the data of the survey „Living ways of the population of Ukraine", 35.4% of persons, who have done labour migrations abroad in 2000, were qualified as economically inactive in March of 2001. Taking this share as a basis, we are calculating the number of persons, who do not form any demand on workplaces at the internal labour market due to their savings, earned abroad. Thus figure is (1,208*0.354) 423 thousand persons.
The results of the specified survey show, that a share of self-employed among persons with experience of labour migrations is in 1.5 times larger, while a share of employers – on a third part larger than among the employed population; the number of employees at an enterprise, formed by a former migrant, is averagely 5 persons. Thus, we receive the number of persons, who have opened the own business due to the "migratory" earnings as self-employed – 118 thousand persons, while 3.7 thousand persons have started their business as employers. The number of persons, who are employed at enterprises, organized by the former migrants (3.7*5) is 18.5 thousand persons. The obtained results are put into the formulas (1-3).
The results of the calculations are presented in Table 8.3.2. Regarding imperfect information sources, *the obtained data do not pretend on absolute correctness, they rather reflect the order of figures*. Thus, if the assumptions on the number of labour migrants, their distribution by duration of a trip and peculiarities of labour activity of persons with experience of labour migrations are correct, development of labour migrations reduces the suggestion of labour forcer in the national labour market almost on 7%; it also reduces the number of unemployed on 73% (!). I.e. under absence of labour migrations, the unemployment rate (by ILO methods) would be twice higher in Ukraine, as compared with the present one; it would reach the rate, estimated by the national experts as the critical one [21].

Table 8.3.2. Actual and hypothetic indicators of labour market of Ukraine in 2004 (averagely in a year)

	Actual rate	Hypothetic rate (under absence of labour migrations)
Population in the age of 15-70, mln persons	35,8	35,8
Economically active population, mln. persons	22,2	23,8
Employed, mln. persons	20,3	19,8
Unemployed, mln. persons	1,9	4,0
Economic activity rate, %	62,0	66,4
Employment rate, %	56,7	55,4
Unemployment rate, %	8,5	16,6

Source: calculations of the author by the data of the State Statistics Committee of Ukraine, estimation of labour migration scales and data of the survey „Living ways of the population fo Ukraine".

Labour migrations are an important determinant of realization of labour potential of the population of Ukraine. The estimation of the potential indicators of labour migration is important for countries of mass labour migrations, including Ukraine. ***External labour potential*** of the population is considered as a *number of person-years of labour life, which should be worked abroad by a group of the residents of a country (region) under the present rates of deaths, stationary migration, and peculiarities of age-specific rates*

of employment and participation in labour migration. In other words, external labour potential is a part of labour potential of the population, which is realized out of a country. The estimation of the external labour potential is based on the principles of potential demography. The algorithm of calculations includes:

♦ Calculation of the general tables of lives and life expectancy of the population[21];

♦ Calculation of the combined tables of lives and migrations (stationary, related to the change of residence place) by correcting of the number of those, who have reached some age (l_x) on age-specific net migrations with corresponding recalculation of other indicators;

♦ Forming of tables of labour lives with input of employment coefficients to the tables and calculation of labour potential of the population;

♦ Estimation of the number of person-years of labour activity abroad for age groups:

$$LmW^{i}{}_{x} = Lm_{x} * i_{x} * y_{x}$$

where LmW^{i}_{x} – number of person-years of labour activity abroad in the age of x years, Lm_x – number of person-years of life in the age of x years (corrected on the stationary migration), i_x – rate of participation in labour migration in the age of x years (ratio of number of persons in the age x, who have worked abroad at least one day in a year, and total number of the age group x), y_x – the average duration of staying abroad of one labour migrant of the age group x; unfortunately, the official statistics does not provide the needed data, so the author used the average variant of estimation of the total scales of labour migration in Ukraine (2,350 thousand persons) and information of the survey "Living ways of the population of Ukraine" on age-specific participation rates and on distribution of labour migrants by duration of staying abroad (age-specific data have been smoothened by 3-year intervals);

♦ Forming of tables of the external labour potential by input of the obtained indicators into the combined table of lives, migrations and labour activity with purpose of calculation of the external labour potential for every age group of the stationary population during the whole period of expected life;

♦ Correcting of the obtained potentials of separate generations in accordance to the number of age groups of the real population and calculation of summary rates for the whole population;

♦ Calculation of the ***average expectancy of labour life in a position of labour migration*** for the group of newborns and persons, who have reached some age.

Under conditions of 2003-2004, the external labour potential of the real population of Ukraine was 37.5 mln. person-years, making 5.3% of labour potential. Under condition of preserving of the present trends, averagely every newborn will live 1.63 years in a position of labour migrating.

It is known, that labour migration has become more widespread in the western region, as compared to the central, eastern and southern regions. According to the estimation of the department of migratory studies of the Institute for Demography and Social Studies of NASU, seven western regions provide more than a half (53.7%) of the total number of the Ukrainian labour migrants.

The main indicators of the potential of labour migrations of the whole Ukrainian population and of the western regions are presented in Table 8.3.3. So, the preference to realize their economic activity out of Ukraine is almost in three times higher in the western region, as compared to the average country's rate. Regarding imperfect

[21] When calculating the potential indicators of labour migrations, the death and life expectancy tables have been used under conditions of 2003-2004, developed by the State Statistics Committee of Ukraine.

information sources, *the obtained data do not pretend on the absolute correctness, they rather reflect the order of figures*.

Table 8.3.3. Potential rates of labour migration of the population of Ukraine under conditions of 2003-2004

	Ukraine	Western region
Share of the external labour potential in the structure of labour potential, %	5,3	15,6
Average expectancy of working life at birth in the position of external labour migration	1,63	4,31
Average expectancy of working life in the position of external labour migration at reaching 18 years	1,67	4,51
Average expectancy of working life in the position of external labour migration at reaching 35 years	0,84	2,39

Source: calculation of the author by the data of the State Statistics Committee of Ukraine, estimations of labour migrations and data of the survey „Living ways of the population of Ukraine".

Under condition of long-term preserving of these trends, such high level of orientation on the external labour market could result in reduction of social importance of labour in Ukraine. The inter-regional labour migration and development of micro business and self-employment present an alternative to the external labour trips. So, stimulation of these directions of the economic activity realization and development of the correspondent programs are important tasks of the state policy of labour market.

According to the First All-Ukrainian population census in 2001, almost 200,000 of persons are employed out of their permanent residential place[22]; 62.7% of them are made by citizens of Kyiv, Chernihivska and Zhytomirska regions, who are employed in Kyiv city. Persons, who are employed in the capital city, make 16.6% of the population of Kyiv region, 2.0% of the population in Chernihivska region, 0.8% of the population of Zhytomirska region. The rate of participation in pendulum migrations to the Capital is notably decreasing with increase of the distance: the gross rate was 26.3% for 10 rayons and 6 city councils of suburban area of Kyiv city[23], while the corresponding rate is 2.2% for the rest administrative regions.

The raised intensity of labour migrations to Kyiv is registered in the rayons with magisterial railroads. Thus, a rate of participation in pendulum migrations to Kyiv is higher in Jagotynsky rayon, which is rather far from the nuclear of agglomeration, as compared to Makarivsky rayon, which belongs to the suburban zone of Kyiv. The region of intensive trips to Kyiv has been formed along railroad Kyiv-Moscow in Chernihivska region. In particular, the intensity of pendulum migrations is twice higher in Nizhynsky rayon, which is separated from Kyiv region by two rayons, as compared to Kozeletsky rayon, which is the closest one to Kyiv. Regarding Zhytomirska region, leaders by intensity of pendulum migration to Kyiv include those rayons, which do not border with Kyivska region, but have railroad connections (Berdychivsky, Andrushkivsky). Such peculiarities of territorial differentiation of the intensity of pendulum migration mobility are explained by less expensive electric trains, as compared with buses. Correspondingly, smaller wages in Kyiv will be minimally economic profitable for residents of those settlements, which are close to railroads, than for residents of

[22] Regions present the oblasts, AR Crimea, Kyiv and Sebastopol city councils; unfortunately, pendulum trips within a region have not been registered by the census.

[23] Suburban area includes Baryshevsky, Boryspylsky, Borodjansky, Brovarsky, Vasylkivsky, Vyshgorodsky, Kyiv-Svjatoshinsky, Makarivsky, Obukhivsky, Fastivsky rayons, cities of regional subordination Berezan, Boryspyl (with rural settlements, subordinated to city councils), Brovary, Vasylkiv, Irpyn (with settlement of urban types, subordinated to city councils) and Fastiv

settlements without railroads.
A share of employed in the Capital is in 1.3-1.8 times smaller in the cities of regional subordination, belonging to the suburban zone of Kyiv, than in rayons, where these cities are situated. It can be explained by larger possibilities of employment in the cities, as compared with villages, and also by presence of private part-time farms among rural residents, which provide them with reliable source of incomes and let them to agree on less-paid employment in the capital city. The exception is presented by Brovary city, as it is closer to Kyiv and has better transport accessibility, than any village of Brovarsky rayon it is also the largest by the population number (and correspondingly by suggestion of labour force) among all cities of suburban zone of Kyiv.
Mostly young people participate in pendulum migrations to Kyiv: a share of the youth among residents of other regions, who are employed in Kyiv, is almost in 1.5 times larger, as compared to all employed. Particularly high intensity of pendulum migrations is observed in the age of 18-28. The exceeding of youth is getting larger with increase of a distance. Thus, pendulum migrants are averagely on 1.7 years younger, as compared with all employed in Kyivska region, on 3.9 years in Chernihivsta region and on 5.7 years in Zhytomirska region.
Participants of pendulum migrations have higher educational level, though the differences with other contingents of employed are not striking: the average length of education is 12.2 years for the population of these three regions, while it is 12.5 years for pendulum migrants. In particular, persons with high education make 23.6% among pendulum migrants against 17.3% among all employed. Obviously, a part of pendulum migrants with high education is formed by persons, who have been studied in Kyiv before.
There are some kinds of economic activity, where labour of pendulum migrants is mostly used: transport, construction and health protection. Pendulum migrants are mostly employed in less qualified occupations, as compared to Kyiv residents. They present in 1.6 times less legal experts, senior governmental officials and chiefs (tough a share of those, employed in state administration in practically the same, as among Kyiv residents), in 1.8 times less of professionals (including in 2.4 times less of teachers), but there are in 1.6 times more employed in the services (especially in security and transporting services), in 1.4 times more qualified workers with instruments and operators of equipment and machines, in 1.2 times – of representatives of the simplest professions.
The inter-regional labour migration has also developed in Kyiv. Unfortunately, there are not reliable data on the scales of unofficial migration to Kyiv of residents of other cities, but the contingents, which reside in the capital, while being registered in other settlements, are numerous. According to the data of the survey of labour force, originating from another places at Kyiv labour market, realized by the Institute for Demography and Social Studies of NASU in 2005, a ratio of the contingents of the internal labour and pendulum migrants is 8:5. Women prevail among the internal labour migrants (while sex structure of pendulum migrants is characterized by a small domination of men); the majority of them are young. 27.4% of the contingent are persons, registered in Kyiv region, 12.6% - in Vinnytska region, 12.2% - in Chernihivska region; other regions, bordering with Kyiv region (Cherkaska, Zhytomirska, Poltavska) cover 16.8% of migrants, the western regions – 13.9%. More than a half of respondents rent an apartment, other live at their relatives or rent a room. Inter-regional migrants are employed in trade and public catering more often, than the pendulum ones, as well as in education and financial activity; they are less employed in the industries, state administration and on transport. The overwhelming majority of unofficial residents of the capital is planning to stay in Kyiv, despite of the fact, that only 1/5 of them are satisfied with their incomes.

As on the 1st of January, 2005, there were 2,459 persons, registered as refugees in Ukraine. They origin from over 40 countries of Asia, Africa, the CIS and former Yugoslavia. The number of refuges has been growing in Ukraine; their number has increased more than in 2.5 times from 1997 to 2003. Recently, the growth of the refugees' number has slowed down.

More than a half of them are made by citizens of Afghanistan (1,290), though their number has decreased – from 87% in 1996 to 52% in 2005. The next places are occupied by Armenia (206), Azerbaijan (197) and Russia (195).

The largest number of refugees has settled in Kyiv (943 persons), in Odeska (610), Kharkivska (198) and Kyivska regions (167). Generally, these four regions cover more than ¾ of the total refugees' number. At the same time, there are no refugees in Mykolajivska and Sumska regions at all.

Such negative phenomenon, as illegal migrations, has become rather widespread in our country. The territory of Ukraine is been actively used for illegal transit of people from some Asian and African countries to the Western Europe. The scales of these migrations are difficult to estimate. The expert estimations largely differ: from several tens of thousand to a half of a million. According to the data of boundary services, there are representatives of over 100 world countries among illegal migrants. The most numerous groups include citizens of China, India, Sri-Lanka, Afghanistan, some African countries.

The consequences of illegal migration are particularly noticeable in the large cities of Ukraine, where illegal migrants stay for some time. Thus, according to the expert estimations, the number of illegal migrants makes 15,000 only in Kyiv city; there are also 5,000 migrants in Kharkiv, that could be compared with legal number of foreigners, staying there [22].

9. DEMOGRAPHIC POLICY

9.1. International experience of demographic policy

Usually, demographic policy is defined as a system of administrative, economic, propagandistic and other measures, by which a state makes an impact on natural movement of the population in the desired direction.

The counties of Europe have a long experience of the state regulation of the population reproduction.

France has the largest experience of demographic policy realization, as the control over the birth rates start to be realized there in the XVIII century.

These measure have become systematic starting from 1930's, when a sharp decrease in fertility has been observed after economic crisis of 1929-33. In the result of dangerous reduction of birth rates, the attempts on its stimulating have been started. „Starting from this time… demographic policy has been developed in social-economic and political life of the European countries and presently it makes its inevitable component" [23].

Presently, about 130 economically developed world countries and about 80 developing countries, realize demographic policy. Its direction depends on demographic situation in some country.

Demographic policy, directed on increase of fertility and of natural growth of the population dominates in the countries of the first type; till the end of 1980's, the most active demographic policy has been realized by the Eastern Europe. The actions of demographic policy include: benefits to just-married, benefits due to a childbirth (by a progressive scale), benefits on children, long maternal leaves, privileges for purchasing of dwellings and etc. The similar demographic policy has been realized in the former USSR as well.

A position, relating the aim of demographic policy with problems of labour resources forming has been rather widespread in the Soviet period. The extensive and labour-consuming character of our economy resulted in the adequate views on the population and on a family as a source of the future workers. So, the deficit of labour resources during 1980's forced the administrative authorities to pay more attention to the problems of demography and to approve the proposals of demographers on development of demographic and family policies.

Till 1981, the actions of demographic policy have been limited by economic and moral support of many children (starting from measures, introduced in 1936 and intensified in 1944) and by economic support of low-incomes families (from 1974). But, the assistance did not provide neither demographic nor social results in those forms and sizes.

The complex of actions, realized in the USSR during 1981-1983, has principally new approaches and actions on support of families. The official understanding of those actions declared forming of better conditions for the population growth and raising of children.

In correspondence with declared position on the need of intensifying of the state support to families with children, single-time benefits have been granted starting from a birth of the first child, not from the third one, as it has been before; correspondingly, 2/3 of children have been deprived of the support. Single-time benefits have been introduced for the first child (RU 50) and second one (RU 100), while the benefits for the third children have been raised in 5 times (from RU 20 to 100). A partly paid maternal leave for children under 1 year has been granted in the size of RU 35 (RU 50 in the

regions of Siberia, North and Far East). Maternal leaves have been paid with the same levels, irrespective of the sequence of births, incomes and other characteristics of a family. Enterprises and organizations have been granted with a right to provide families with bearing no interests credits in the size up to RU 1.5 thousand for 8 years after a birth of the first child. After a birth of the second child, a sum in RU 200 has been paid off the rest of the sum, while after a birth of the third one - RU300. The new privileges for working mothers have been introduced, in particular additional days to the regular leave. The actions for propaganda of a family and family values have been outlined.

The realization of these actins has been contributed to the growth of the total births in combination with very favourable age structure of the population, formed in the first half of 1980's (the most numerous generation of persons, born at the end of 1950's has been in the most active fertile age - 20-24 – during this period). The growth of births has been observed till 1987, as well as increase of the number and share of births of the second and third children. As a result, the number of births (in the USSR as a whole) has grown to 5.4 mln. in 1983-1985 and to 5.6 mln. in 1986-1987.

Demographic policy has been realized with different intensity in various countries of Europe. It has been the most active in France and Sweden.

The Scandinavian countries had the highest rates of fertility in Europe in the end of XX century. So, it is purposeful to considerate their positive experience. The revealing of peculiarities, which define their approaches, is particularly useful.

The basis of the policy of stimulating of fertility in the Scandinavian countries is formed by the double strategy of combination of maternity and employment. Such approach is based on the use of the changed role of a woman in the society. The numerous researches prove the negative impact of education of fertility. High educational rate of the modern women contributed to decrease of fertility through several components:

- Receiving of education often means postponing of a birth;
- Receiving of higher grade of education changes the standards of attitude to a life. The new interests, the need in social realization, in particular in career promotion, appear;
- The requirements to the quality of own life and of a life of a child grow. As receiving of education postpones the possibility of own incomes, birth of a child is also postponed till the time, when incomes (to the opinion of the future mother) will be sufficient for provision of the needed life standards.
- As all mentioned positions contribute to postponing of a birth, it could result in absence of time for a birth of children of the next sequences.
- A household with many children has high risk of poverty. A woman with a higher educational level will not permit herself to have children, if she is unable to provide high living standards for them.

Sweden has experienced a long way of transformation of traditional gender roles of men and women in raising of children. There have been rather long stages, as the corresponding literature proves [24]. Thus, there have been widespread public discussions on gender equality since 1960's to 1973. As a result, general opinion has been developed, making a large impact on changes in gender relations. The reforms in demographic policy have reflected a vision of equal roles of men and women at taking of maternal/parental leaves, as well as of family responsibility during the second period (1974 – middle 1983). The procedure of divorces has been simplified (without opening of a judicial case); payment of aliments after divorce has been cancelled. The economic position of women has also been improved, as the first one among components of gender equality, during these years. Starting from the middle 1983, and till 1993 p, the policy has been concentrated on men. Another aspect of gender equality has been presented by involvement of men to paternity. Prolonging of the term of maternal leaves

(to 12 months since 1989) provided better possibilities to care of a child. Co-guardianship of a child after a divorce has become widespread. Thus, the Sweden policy has become not only women-friendly, it also has contributed to transformation of gender roles, „...although male behavior was rather narrow" [24].

The length of a maternal leave is 15 months in Sweden. Moreover, The flexible possibilities of partial leaves for children under 8 are suggested. The peculiarities of the Swedish model are also found in stimulation of reduction of the period between births, the so-called "speed premium". This rule is in force under condition that there were less than 30 months between births of the first and the next child, and the previous child is alive, even in case if a woman has not returned to her workplace. It is interesting to mention, that a woman prefer to have the second child, while a father takes a parental leave at the same time. Thus, an active involvement of a father to raising of a child contributes to increase of fertility.

In Finland, the basic monthly benefits on a child are granted with additional payments for her/his brothers and sisters, as well as a grant of the municipality [25]. Since 1985, Finland has been introducing a possibility of choosing between a place in a kindergarten and additional payment, in case, when parents stay with children till 3. The similar practice has been started in Norway since 1998.

Since 1987, the period of a maternal leave has been prolonged several times in Norway; it has reached 52 weeks in 1993 (with 80% of the wages compensation) or 42 weeks (with complete compensation). The same rule was in force in 2004. Parents have been using only two weeks of the non-paid leaves with keeping of their workplaces after a birth, though they has a right to use a part of more extensive leaves. To motivate both parents to raise children, starting from 1993, an agendum has been added (the so-called parental quota – fedrekvoten). According to it, there were 4 weeks pf the expanded leave, reserved for fathers, with exception of three weeks before and six – after a birth of a child. In a case of not-used leaves, they have been lost. In 1996, 80% of parents, who have recognized a child, were using the quota. Also, a share of those, using a right on the expanded leaves, has grown from 4 to 12% [25].

Kindergartens, as public, as private ones, receive state subsidies till they respond to the requirements of care of children in Norway. The size of a subsidy depends on the number of children. A large part of private kindergartens receive subsidies of the local budgets. The main principle is presented by distribution of contributions among parents, a municipality and the state (represented by the Ministry of children and families). The state covers 40% of expenditures, municipalities – 30% and parents - 30%. The payment depends on incomes of parents in the public kindergartens, while it does not in the private ones. The price is established freely as by the first ones, as by the second ones. Money assistance to parents on a child approximately is equal to the monthly payment for kindergartens.

Thus, a woman should not choose between a work and a child; she has a possibility to combine everything. Public sector is more attractive for women due to more advantaged conditions of work. Women have possibilities for further employment and education.

Econometric researches, carried out for 22 industrialized countries of Europe show, that fertility is positively related with a level of benefits of children, but a length of a maternal leave has not significant importance [25].

As to the USA, demographic policy actually is not realized there, with exception of some privileges to families.

The majority of countries of the second type of reproduction, which still are at the stage of the demographic burst, realize demographic policy, directed on reduction of birth rates and natural growth. Fertility is been decreasing in these countries in the result of popularization and distribution of contraception means, sanitary education,

consultancies on family planning, propaganda of families with few children by different economic and administrative methods. Some countries not only permit, but also support voluntary sterilization of males and females with this purpose.

Family planning programs are realized in the countries of the Eastern, Southeastern and South Asia. India was the first one to realize these policies, but the largest successes have been reached by China. The main actions, providing reduction of fertility, include raising of marital age (in India - 21 for males and 18 for females, in China — correspondingly 22 and 20), stimulation of forming of families with one or two children.

The activity of demographic policy is small in the countries of Arab-Muslim region, covering Southwestern Asia and North Africa, owing to the national and regional traditions (Muslim dogma encourages early and obligatory marriages, having many children, polygamy; it also has a negatively opinion on demographic policy).

There is practically no policy of family planning in Africa (with exception of Nigeria), resulting from traditions of large families and other national and social-economic determinants.

9.2. Recommendations on improvement of demographic policy in Ukraine

The urgency of development of the scientifically substantiated strategy of demographic development, of the corresponding actions and mechanisms of realization are caused by the need of mitigation of consequences of demographic crisis, elimination of threats to the national safety of Ukraine in social and economic sphere.

The Program of actions of the International conference on population and development (Cairo, 1994) has underlined the need in creation of internal state institutional mechanisms and friendly environment in the society for provision of factors, which influence the demographic crisis overcoming, by decision-making of all government agencies. Accordingly, the demographic orientation should become one of the main priorities of the policy.

Depopulation processes, which are characteristic for the present stage of demographic development of a large part of Europe, require strengthening of attention to qualitative structure of the population - continuation of life expectancy, improvement of the health, increase of the living standards, etc. At the same time, it is necessary to provide realization of the effective pronatalist policies, to assist restoration of family values in the Ukrainian society.

Overcoming of demographic crisis and achievement of constant demographic development, normalization of reproduction of the population are prolonged and complex processes. Thus, the importance of the real overcoming of demographic crisis is found not only in overcoming of depopulation, but in improvement of quality of the population, preservation and reproduction of its vital and labour potential.

The Strategy of demographic development of Ukraine has been developed in accordance to the Concept of demographic development on 2005 - 2015, approved by the Order of the Cabinet of Ministers of Ukraine from 8.10.2004 N 724-p, recommendations of parliamentary hearings "Demographic crisis in Ukraine: its causes and consequences", approved by the Decision of the Verkhovna Rada of Ukraine from 05.06.2003 № 940-IV, and Decision of the Cabinet of Ministers of Ukraine from 03.08.2005 № 40125/1/1-05.

The aim of the Strategy of demographic development is to improve the qualitative characteristics of the population and to harmonize the reproduction of the population of Ukraine.

The general tasks:

* to revive the Ukrainian spirituality, national values and traditions

* to restore family values, to preserve the moral health of a family, to increase the rates of conscious paternity and prevention of social orphans

* to preserve the traditions of medium fertility in regions, where they still exist, and to form the public aims at a family with two children

* to form the Ukrainian national idea and pride of the Ukrainian state, which will counteract the emigratory processes

* to provide economic preconditions of slowing down of the depopulation and to improve the quality of the population.

* to raise the well-being of the population by reforming of wages system, introduction of the full-scale system of social insurance, granting of social assistance on the principles of target addressing

* to create the modern infrastructure, to provide the availability of qualitative medical, household, housing-and-municipal, recreational services

* to reform the system of public health services

- to form the orientation on a healthy way of life
  * to propagate the European standards of a healthy way of life;
  * to prevent the use of narcotic and psychotropic means;
  * to prevent sexually transmitted diseases;
  * to form orientation on a balanced diet;
  * to eradicate smoking in public places;
  * to overcome the traditions of abusing of alcohol.
- to create the mechanism of realization of the Strategy of demographic development
  * to reflect the principles and norms of international law in the Ukrainian legislation.
  * to provide further development of legislative and legal base in the area of the state social standards and social guarantees, to provide their realization at the national and regional levels.
  * to solve the problems of restoration of demographic potential at the state and local levels, to form the state program of realization of the complex fundamental demographic researches.
  * to form the mechanism of coordination of actions and funding of realization of the state target programs on public health services, education, state support of the vulnerable families and families with children, programs of granting of housing subsidies, regulation of migratory processes, providing of the youth with housing, etc.
  * to create the system of monitoring of social and demographic situation, of conditions of realization of the Strategy of demographic development, of the corresponding state target programs, their influences on demographic situation in regions and the country as a whole, of provision of demographic researches with information.

* to reform the system of the mandatory state social insurance, in particular, on the basis of principles of encouragement of the insured persons and employers to participate in it.

1. Strategy of fertility and family policy

The basic aims of fertility and family policy are: assistance to the comprehensive development of family, forming of social and economic preconditions for its functioning in full scales, satisfaction and reproduction of the need of family in children.

Task:

- to improve the quality of life of families
- to form friendly social and psychological climate and positive public mood on family values, to form the public aims on creation of families with two children
- to assist to strengthening of a marriage, prevention of its destruction, decrease in divorce rates
- to create the appropriate economic preconditions for realization of the need of families in children
- to raise the efficiency of social protection of families at a birth of a child, as well as families, requiring assistance or special attention from the state and society
- to preserve and improve the health of families, including reproductive one, to raise the level of culture of reproductive behaviour
- to assist and support educational functions of a family
- to strengthen protection of the rights of neglected and homeless children, to provide appropriate conditions for their development

The basic directions of the strategy:

- activization of forming of a model of the "middle class" families, which are characterised by material welfare, investment into development of a family, presence of children as a stimulus and an object for such investments
- reforming of the system of social security of the most vulnerable categories of families, aimed on guarantees of living standards, which are not lower, than the established social standards, on increase of addressing of social benefits granting
- improvement of housing and fiscal policy with the purpose of strengthening of their demographic orientation
- increase of availability and improvement of quality of health protection services
- modernization and further updating of the system of public institutions on education of the youth

Mechanisms of realization:

Provision of economic bases of development of families is realized by:

- reforming of wages system with purpose to achieve the level, which would provide the adequate social standards of living, qualitative caring and education of children;
- support of family forms of labour cooperation; increase of availability of crediting with purpose of development of farmers, small and average family business;
- changes in the system of taxation of physical persons, introduction of taxation of a family, adjustment of the effective mechanisms of social crediting;
- support of the system of youth housing complexes and youth housing co-operatives;
- expansion and development of mechanisms of insurance of a family;
- improvement of opportunities for employed persons to combine their work and family responsibilities through mechanisms of flexible employment.

Strengthening of social protection of families is realized by:

- improvement of the present social assistant system at a birth of a child by:
- stage-by-stage approaching of the monthly size of a benefit on children under 3 to the living wage level,
- differentiation of the benefits' size depending on the incomes of family;
- differentiation of the benefits' size depending on the sequence of a birth of a child with purpose to reduce the differences in material provision of families with different number of children;
- improvement of the mechanism of the target assistance granting to the low-incomes families with purpose to raise the rates of addressing and coverage of the families in need.

Improvement of information and consultation assistance suggests:

- optimization of a network of Centers of social services for families, children and youth and improvement of their activities by introduction of the new effective forms of work;
- development of a network of cultural, leisure and consultancies establishments, whose activity would be directed on creation of conditions for communication of lonely people, who wishes to create a family;
- introduction of the new forms and methods of sexual education of children and youth, directed on expansion of habits of healthy way of life;
- organization of information and educational work with parents on education of children in educational institutions,
- expansion of propagation of family values, conscious attitude to family responsibilities, healthy way of life through mass media.

Improvement of social protection of children includes:

- forming of Services of social support of families on social supervision and patronage of single-parent families with children and social disadvantaged families at the Centers of social services for families, children and youth;
- development of the system of preschool children's establishments, introduction of the newest forms of their organization with purpose of improvement of quality of services;
- creation of children's homes of a family type, reception families, centers of rehabilitation for disabled children, etc., attraction of various sources of their financing;
- preventive maintenance of alcoholic and narcotic dependence, offences of children, social adaptation of children, who are in difficult vital situations;
- introduction of new technologies on preventive maintenance of children's physical inability, preservation of the system of children health improvement on the basis of sanatoria, dispensaries, children's rest establishments, etc.;
- social support and supervision of families with HIV-infected children, creation of the specialized children's establishments for HIV-infected and diseased on AIDS children-orphans and children, deprived of parental care.

Target indicators

№	Indicator	Rates		
		Present, 2004	Target, 2015	Projected, 2015
1.	Total fertility rate, %	1,22	1,30	1,30
2.	General divorce rate, %	3,6	2,6	3,2

3.	Poverty rate of families with children, %	35,4	23,0	27,0

Note: the poverty line is calculated as 75% of the median average monthly total incomes (expenditures) per conditional adult.

2. Strategy of improvement of health, decrease in mortality and prolonging of the life expectancy

Qualitatively new tasks, related to activation of reformatory and Euro-integration process in Ukraine, have resulted in the growth of requirements to conditions of the population health. Realization of the National program "Health of nations", approved by the Decree of the President of Ukraine from 26.03.2001 № 203/2001, and of a complex of regional and departmental programs in the area of health protection and improvement, has contributed to the essential slowing down of the progress of medical-demographic crisis, but it has not provided its overcoming. At the new stage of social and economic reforming, it is necessary to form such model of the nation-wide system of health and life preservation, which would respond to the modern conditions of market relations development in Ukraine, as well as to the international standards on protection of work, social safety and public health.

The aim is to preserve and improve the population health, to prolong a span of a healthy life, to reduce premature death rate and increase the average life expectancy by forming of the integrated public system of protection of the population health and lives.

Tasks:

- to eliminate the economic obstacles in access of all population groups to the means of health preservation and improvement;
- to create the conditions of work, which provide combination of creative development of a worker with preservation of his physical and mental health;
- to form the outlook principles of conscious self-preservation as of socially desirable ethical standard among the population;
- to create the environment, which would be safe for a life and health;
- forming of the effective system of medical services and granting of medical service to the population.

The basic directions of the strategy:

- creation of economic conditions for preserving and improvement of the population health, introduction of the mandatory state medical insurance with further improvement of the whole system of social insurance of health;
- re-structuring of the economy, as well as technical reorganization and updating of industries, directed on creation of safe workplaces and provision of effective protection of work;
- development of the system of sanitary-and-epidemiologic, ecological, transport, household, consumer and public safety;
- formation of public opinion towards priority of healthy way of life, social and personal motivation to preservation and strengthening of health;
- re-structuring and increases of efficiency of the public health services

Mechanisms of the strategy realization:

Forming of economic base for preserving and improvement of the population health is provided by:

- full-scales financing of the state target programs on public health services;

- stage-by-stage increase in the scales of financing of expenditures on public health with simultaneous re-structuring of the system of medical services, including systems of management, transfer of emphasis to the initial level of health services;

- introduction of multichannel financing of medical service by:

- introduction of the mandatory medical insurance;

- improvement of the system of paid medical services providing to the population, including strengthening of the state regulation of paid medical service in the state and municipal establishments with purpose of restriction of uncontrolled replacement of free-of-charge medical services by paid ones;

- increase of the state financial support of self-improvement of socially vulnerable population categories;

- increase of the level of pension (material) provision of disabled children and of the size of corresponding benefits.

Technic and technological reorganization of manufacture, creation of safe workplaces and provision of effective protection of work requires***:***

- allocation of stages of technological process with harmful conditions of work into separate modules of priority technological transformations;

- strengthening of the control over steady conforming to the legislation on protection of work at enterprises, in establishments and organizations, irrespective of their subordination and ownership form; provision of coordination of work of executive authorities, public organizations, which carry out supervision on conditions of work, and observance of hygiene and safety of work;

- forming of favorable economic and administrative-organizational conditions for regular recovery of the workers' health, in particular of those, employed at workplaces with heavy, harmful or dangerous conditions of work;

- improvement of activity of branch systems of sanatorium treatment of workers, restoration of shop principle of their health services, interdiction of closing or changing of a profile of the departmental sanatoria-dispensaries.

Development of the system of sanitary-and-epidemiologic, ecological, transport, household and consumer safety is provided through:

- strengthening of roads and transport safety by:

- improvement of conditions of the present roads and transport ways, as well as construction of the new ones, which would respond to the modern world standards;

- strengthening of supervision of transport flows;

- interdiction of use of the worn out, accident dangerous vehicles and those, which have worn out their technical resources;

- improvement of structure and raising of efficiency of realization of the state sanitary-and-epidemiologic supervision; bringing of sanitary-and-hygienic and ecological norms in conformity with the international ones, strengthening of the control over their observance and responsibility for non-observance;

- development of the system of compensation of damages, which are caused by ecological factors;

- introduction of sanitary-and-hygienic examination of new technologies in industrial production;

- increase of safety of exploitation of housing and municipal complex; acceleration of adaptation of social environment to the needs of persons with physical disabilities;

- strengthening of the state and public control over conformation of consumer safety; creation of the reliable monitoring system on safety of food products, non-food goods of daily use, medicines, etc.; the organization of provision of children by ecologically clean food products and potable water through the catering system in

preschool, secondary, professional, high educational institutions and establishments for children-orphans and children, deprived of parental care;

- creation of the system of the state protection of the population from the non-professional treatment, harmful influence of publicities, mass health improving sessions, which are hazardous to health, services of religious cults, which are related to making a harm to health; improvement of the system of accreditation in medical services provision;

- increase of public safety (ensuring of public order, combating criminality, protection of citizens against illegal encroachments).

Forming of the public opinion on priority of healthy way of life, social and personal motivation to preservation and strengthening of health requires:

- development of the target complex programs, directed on preventive maintenance of the most widespread chronic diseases, as well as of smoking and alcohol abuse and their negative consequences; approving of the Concept of the state policy of Ukraine on alcohol and drugs;

- strengthening of combating narcotism and prostitution;

- assistance in development of mass physical training and sports; expansion of access of children to sports and health improving establishments, youth clubs with purpose of creation of the appropriate conditions for improvement of their physical, mental health and social well-being;

- improvement of quality and efficiency of sanitary-and-hygienic education of the population, active propagation of a healthy way of life by:

- transformation of sanitary education into the state system of continuous medical-hygienic training and education through establishments of secondary and vocational training, mass media, establishment of public health services, physical training and other social institutes;

- transformation of sanitary education in the state system of medical-hygienic education of the population through mass media, establishments of public health services, physical training, educational institutions by development and introduction of a complex of programs on forming of a healthy way of life and rational self-preserving behaviour.

- creation of the branched out infrastructure and industry of health and productive leisure; reforming and updating of the system of health improving and recreational establishments and provision of their availability for all population groups and its vulnerable categories in particular.

Increase of the efficiency of the system of public health services on preservation and improvement of the population health suggests:

- priority development of preventive and rehabilitation directions in medicine; expansion of the population coverage with preventive medical surveys and increase of their quality; provision of medical institutions of all levels with modern diagnostic equipment;

- structural reorganization of the system of medical services for the benefit of the initial level, rationalization of stationary and specialized medical service;

- forming of programs of early diagnostics and qualitative treatment of the most widespread and dangerous diseases;

- improvement and further development of gynecologic, perinatal and neonatal services in the system of public health of Ukraine,

- creation of perinatal centers with departments of prenatal diagnostics, reanimation and intensive therapy, nursing and rehabilitations of newborn children;

- development of medical-genetic consultations;

- introduction and distribution of the new technologies of treatment of barreness;

- creation of the system of medical supervision of families by "centers of family medicine" (family doctors)

- provision of participation of not-governmental, charitable, commercial organizations and the public in reforming and development of the system of public health services;

- strengthening of the state guarantees on protection of motherhood and childhood, priority development of medical and organizational technologies, which provide improvement of reproductive health of the population and preservation of health of children;

- development and introduction of the screening programs of early revealing of gynecologic diseases among women, complications of pregnancy, birth and during the postnatal period;

- provision of the optimal network of establishments of family planning, availability of medical services, directed on preservation of reproductive health, especially for children and youth;

- creation of the system of medical and social patronage of families on the basis of integration of social and pediatric assistance;

- expansion of opportunities of granting of medical service to children in rural area and approaching of the specialized assistance to them (with obligatory introduction of remote diagnostics methods);

- raising of coverage of the population by immunization, realization of treatment-and-prophylactic and preventive actions; adjusting of timely and full provision of public health institutions by immune-biological preparations for carrying out of scheduled preventive inoculations.

Target indicators

№	Indicator	Rates		
		Present, 2004	Target, 2015	Projected, 2015
1.	Infant mortality rate (in the age under 1) per 1,000 live births	9,5	8,1	8,8
2.	Probability to reach the end of the working period for persons in the age of 16, % till 55 for women till 60 for men	 90,4 62,2	 95,0 70,0	 91,0 70,0
3.	The average life expectancy at birth, years women men	 74,05 62,60	 78,00 68,00	 74,5 63,2
4.	Tuberculosis death rates per 100,000 persons	22,73	15,00	33,40
5.	The average age of persons, who have died of blood circulation diseases, years women men	 77,15 68,97	 82,00 74,00	 74,67 65,24
6.	Accidents death rates per 100,000 persons women men	 59,2 256,2	 25,00 100,00	 33,30 160,10

7.	Initial disability of infants in the age under 16, per 10,000 persons	20,0	16,00	18,00
8.	The number of initially registered HIV cases, per 100,000 persons	26,42	20,00	25,00

3. Strategy of regulation of migratory processes

The aim is to slow down the rates of depopulation, to preserve the number and structure of the population at the level, providing support of economic development of territory, in all regions of the state under preservation of the present mental integrity of the Ukrainian population.

Support of the stably positive migratory balance is provided by reduction of departures on constant residing, provision of returning character of external labour trips and increase of the population arrivals to Ukraine. The restoration of the population of Ukraine at the level of 52 million or its stabilization at the present level (47 million) will require the attraction of significant contingents of migrants (correspondingly 500 and 300 thousand persons annually), mainly from the countries of Asia and Africa (considering migratory potential of the east diaspora and representatives of the deported nations). The arrivals of these migrants will lead to infringement of the mental integrity of the population of Ukraine and internal balance of the society, difficulties in mutual adaptation of the native and arrived populations. Regulation of immigration to Ukraine is directed not on overcoming of depopulation, but on the *slowing down of its rates* only. At the same time, it is known, that rigid counteraction of immigration to Ukraine will result in reduction of the population number to the critical level and progress of negative deformations of sex-age structure.

Tasks:

- to reduce the scales of illegal labour migration of the population abroad;
- to provide social security of the Ukrainian workers abroad;
- to provide return character of the external labour trips;
- to attract the earnings of labour migrants into the economy of Ukraine;
- to prevent departure of high-educated experts for employment abroad in low-qualification jobs;
- to prevent decrease in qualification of high-educated experts in the result of employment in low-qualification jobs abroad;
- to eliminate illegal migration (in particular, the transit of illegal migrants from the countries of the Third world through the territory of Ukraine);
- to assist returning of ethnic Ukrainians, representatives of the deported nations and attraction of the limited groups of natives of the Afro-Asian countries.

The basic directions of the strategy:

- improvement of opportunities of legal employment of the Ukrainian citizens abroad;
- counteraction of illegal migration (both illegal emigration of the Ukrainian citizens, and illegal immigration of citizens of other countries);
- development of social protection of the Ukrainian citizens in the countries-recipients;
- stimulation of investment of the incomes, earned by migrants, into the economy of Ukraine;
- mitigation of factors, which stimulate departure of labour migrants abroad;
- active immigration policy.

Mechanisms of the strategy realization:

Improvement of opportunities of legal employment of the Ukrainian citizens abroad suggests:

- expansion of the system of interstate agreements on mutual employment of citizens and their social protection, in particular by signing of contracts on employment of the Ukrainian experts with the countries of Asia and Africa;
- regulations on the mutual recognition of diplomas on high education, as well as on vocational-training education by development of separate agreements and legal certificates;
- increase in quotas for employment of Ukrainians in countries, which have already the signed agreements, including quotas for qualified experts.

Counteraction of illegal migration of the Ukrainian citizens abroad includes:

- distribution of information (the advertizing leaflets-information, special telecasts, target releases of the newspapers, special lecturer on employment in high schools) on the present existing system of interstate agreements on employment, legislation on labour migrations in Ukraine and in the countries-recipients and on regulation of labour market as a whole, as well as on opportunities of granting of assistance from the Ukrainian diplomatic establishments, during stay abroad;
- increase in the number of employees of the Ministry of Internal Affairs of Ukraine which are engaged in revealing and termination of activity of firms, employing citizens of Ukraine abroad without having appropriate licenses.

Development of social security of the Ukrainian citizens abroad is provided through:

- unification of the corresponding ILO conventions on protection of migrant workers' rights, as well as of articles of the European Social Charter (updated);
- introduction of positions of attache on labour migration in Ukrainian diplomatic and consulates abroad in those countries, which have a significant number of the Ukrainian migrants.

To ***stimulate the investment of incomes, earned by migrants, into the economy of Ukraine and provide the return character of migrations,*** it is necessary:

- to develop the special program of stimulation of self-employment and microbusiness for persons, who turn after labour activity abroad; in particular, the concessionary terms of the taxation during the starting period should be stipulated, as well as granting of the legal and consulting help;
- to create the program of adaptation of labour migrants to the Ukrainian society, which has changed during the period of absence of an migrant;
- to permit the duty-free import of means of production by citizens of Ukraine from abroad;
- to create the inexpensive ways of transfer of money from the Ukrainian migrants abroad to their relatives in Ukraine;
- to activizate voluntary participation in the system of the mandatory state pension insurance of persons, who constantly live or work outside Ukraine,
- to attract the former migrants to programs of improvement of professional skills and training for a new profession (at will);
- to develop and introduce the programs of improvement of professional skills and training for a new profession of former migrants;

- to grant an opportunity of housing or of goods of long-term use credits for persons, who are abroad;

- to establish the increased interest rate for deposits, opened in domestic banks by citizens of Ukraine, who work abroad, and raised social guarantees for such deposits in case of a bank closing;

- introduction of a procedure of signing of tripartite agreements between a person, who leaves, the state (on behalf of the State center of employment) and a bank on transfer of a part of earnings of a worker to an account in a domestic bank, when high-skilled Ukrainian experts are hiring abroad;

- iintroduction of a procedure of signing of contracts with graduates of high educational institutions, who have studied by the budgetary funds, by specialities, which are in demand at foreign labour markets; to provide conditions of employment abroad and compensation of money for training in case of constant emigration in these contracts.

Mitigation of factors, which stimulate departure of the Ukrainian citizens abroad, is provided by:

- creation of the nation-wide database of vacancies;

- development of transport infrastructure in residential suburbs of large cities (improvement of conditions of roads, expansion of a network of suburban transport);

- stimulation of business, creation of new workplaces, in particular in the regions with limited opportunities of economic growth, in high technology areas and in the area of tourism, including green tourism;

- overcoming of the regional disproportions in the quality of life.

The only opportunity of prevention of the excessive reduction of the population of Ukraine, in particular in separate regions, is found in the ***active migratory policy***. In this regard, it is necessary:

- to assist repatriation of ethnic Ukrainians and deported nations;

- to develop the program of integration of refugees into the Ukrainian society;

- to continue accommodation of the repatriates in the AR Crimea;

- to create the preferential system for immigrants to the desirable for the state regions (granting of credits for construction of housing, a delay on service in army, transport privileges for moving and for vacation trips, freeing of taxes during the first 1-3 years of stay at a new residence);

- to define the minimally needed scales (by years) of attraction of migrants from the countries of the Third world (with an annual correcting, depending on tendencies of birth and death rate, efficiency of actions on immigration of ethnic Ukrainians and representatives of the deported people from the CIS countries) and categories of persons, who are privileged as immigrants to Ukraine (by countries of origin, ethnic, religious, professional groups).

To counteract of illegal immigration, it is necessary to:

- to develop and sign interstate agreements on coordination of actions of boundary services on counteraction of transit of illegal migrants with all countries on which Ukraine borders.

Target indicators

№	Indicator	Rates		
		Present, 2004	Target, 2015	Projected, 2015
1.	General coefficient of external arrivals, ‰	0,8	3,4	1,8

2.	General coefficient of external departures, ‰	1,0	1,0	1,0

4. Strategy of overcoming of the negative consequences of the population ageing

The aim of the policy on overcoming of the negative consequences of the population ageing is adaptation of the Ukrainian society to process of demographic ageing and ensuring of harmonic integration of representatives of different generations and their creative interrelation.

Tasks:

- provision of economic preconditions of decent life at retirement
- forming of condition for realization of labour and creative potential of persons of elder age
- ensuring of equal access of elder persons to means of preserving, improvement and protection of health
- assisting to prolonging of a span of independent life in old age
- assisting to development of interrelations between generations and development of understanding of representatives of different age groups

The main direction of the strategy:

- raising of the living standards and forming of non-discriminative system of social security for elder persons;
- assisting to development of life-long education and forming of conditions for realization of economic activity of persons of old age;
- development of the appropriate infrastructure and of a complex of actions, directed on prolonging of a span of the independent life of elder persons;
- provision of elder persons with means of protection, preserving and improvement of health;
- raising of the legal security of elder persons;
- forming of public comprehension of the process of ageing and introduction of the main humanitarian principles of adaptation to this process.

The mechanisms of the strategy realization:

To provide ***raising of the living standards and forming of non-discriminative system of social security for elder persons***, it is necessary:

- to strengthen coordination of activities of the ministries and other central executive authorities in solving of problems, related to life activities of elder persons;
- to stimulate (by fiscal policy means, social advertisements, propaganda of the present positive practice, etc.) enterprises in granting of extra charges, funded by their own means, for veterans of labour, granting of payments for housing and communal services, granting of trade and household services, of medical and sanatoria-resort services, as well as granting of free-of-charge assistance in payment of debts by bank credits;
- development of the regional and branch programs on improvement of social protection of veterans of labour and other elder persons.

Assisting to development of life-long education and forming of conditions for realization of economic activity of persons of elder age suggests realization of the next tasks:

- strengthening of control over discrimination cases at hiring and dismissing of employees by initiative of an employer or authorized body because of retirement age;

- creation of preconditions for professional re-orientation and training of employees of retirement age to new professions at their will with consideration of their adaptation and age possibilities;

- ensuring of free access to information materials and services on professional orientation for elder persons, who still have ability to work, wish to work and have made an application to the employment services;

- forming of legislative and organizational preconditions for realization of programs of preparation to retirement on age at enterprises and in organizations; these programs should suggest spare conditions of work, introduction of partial working time regime at the will of an employee;

- facilitation of technological reconstruction of industrial production on the postindustrial bases with gradual elimination of harmful factors and increase of the developing component of work, directed on prolonging of creative period of an employee and forming of preconditions for raising of pension age to the level of the European standards.

Development of the appropriate infrastructure and of a complex of actions, directed on prolonging of a span of the independent life of elder persons, should be realized by:

- adjusting of production of food, clothes, shoes, private use goods, special furniture, household goods for the needs of elder persons;

- expansion of production of rehabilitation means and provision with them of disabled persons and persons with specific needs;

- provision of comfort of elder persons, when using transport means, housing rooms and outer environment, in shops, in establishments of communal services by organization of places for rest, intermediate stops, specialized passengers' seats, counters, trade terminals for disabled, protected crossroads, as well as development of special transport means, production of special furniture, etc.;

- raising of efficiency of social services granting to elder persons and families with elder persons, which need assistance, development and introduction of standards of provision of such families by the necessary services in case of a need;

- improvement of activity of the present establishments for elder persons and creation of the new forms of temporarily residence of persons, who need assistance, for the period of absence of their caregivers;

- improvement of a network of territorial center of social services for pensioners (with rehabilitation departments, departments of daily, temporarily, stationary residence and with medical and recovering complexes) and departments of social assistance, provided to single disabled elder persons at home; provision of coverage of all those in need;

- renewing of activities of the present and creation of the new sports and recovering establishments for the needs of elder persons in physical activity.

Provision of elder persons with means of protection, preserving and improvement of health should be realized by:

- provision of the guaranteed level and high quality of free-of-charge qualified medical assistance;

- expansion of a network of medical and social residential establishments and raising of quality of services, provided there to elder persons;

- provision of accessibility of the modern means of diagnostics, prophylactics, treatment and rehabilitation of the main diseases, caused by age, for the whole population.

Raising of the legal security of elder persons requires:

- raising of responsibility of the executive authorities for ensuring of a possibility to use all social, economic and personal rights and freedoms, approved by the Constitution of Ukraine and other normative acts, for all elder persons;

- prevention of neglecting of the current laws and any attempts of the legal authorities to limit the present legal rights of veterans of labour;

- to provide coordination of efforts of the central and local executive authorities, enterprises, establishments and organizations, directed on protection of the elder persons' rights.

Forming of public comprehension of the process of ageing and introduction of the main humanitarian principles of adaptation to this process requires:

- a propaganda of respectful attitude to elder persons and their services to the society;

- forming of the outlook of solidarity of generations, raising of responsibility among children for their old parents, raising of prestige of a family with several generations;

- comprehensive assistance to development of mutual assistance among elder persons (volunteer movement) at the base of the local councils of veterans of war and labour.

Target indicators

№	Indicator	Present, 2004	Target 2015	Projected, 2015
1.	Average life expectancy at age of 60: women men	 19,45 14,31	 21,50 16,50	 19,80 16,10
2.	Coefficient of replacement of incomes of employment by a pension	0,33	0,35	0,26

5. Regional priorities of demographic development

The aim is to define the priorities and target indicators in the area of demographic development for each of the regions, as well as sources and volumes of the budget funding, needed for their realization.

Tasks: realization of actions on solving of the urgent problems of demographic development of each region at the state and regional levels. These actions should provide conditions, which would assist to preserve interest in improving of demographic situation in the regions.

The main direction of realization:

- creation of conditions for realization of the state social standards and social guarantees for population of all regions of the country, in urban and rural settlements;

- provision of coordination of efforts of the state demographic policy at the regional level, which are specified in:

  - state target programs;
  - state and regional programs of economic and social development;
  - programs of the state stimulating of development of depressive regions;

- improvement of mechanism of differentiated granting pf the state assistance in the area of regional demographic development;

- development and use of mechanisms of social dialogue, support of regional and local social initiatives on solving of regional problems of demographic development.

The priority tasks of demographic development for the regions of Ukraine:

- reduction of mortality in the working age, in particular of tumors, blood circulation diseases, respiratory diseases, infectious diseases, accidents, poisinonings and traumas;
- reduction of tuberculosis and infectious diseases prevalence rates;
- development of a network of centers of social and medical services for elder persons;
- reduction of migratory outflow of the population;
- reduction of infant mortality rates;
- creation of condition for stimulation of a birth of the second child.

6. System of the Strategy realization

Legislative and legal background

Fertility and development of a family

- improvement of housing legislation, increase of its role in stimulation of families to improve their housing conditions, in particular through:
  - improvement of legislation on crediting of housing construction;
  - legislative solving of a problem of construction of social housing, in particular, for orphans and children, deprived of parental care;
  - renewing of practice of social obligations of enterprises towards employees in provision them with housing (through collective contracts, branch agreements).
- forming of the legislative base on provision of economic incentives of improvement of quality of life of families, in particular by credit and fiscal means.
- improvement of the legislation on granting of credits on housing and education.
- modification in the fiscal legislation.
- modification in the labour legislation on granting of a possibility for women with children to chose the convenient schedule of work; provision of privileges for employers, who assist to employment of women with children.
- legislative regulation of activity of family doctors (establishments of the initial medical and sanitary assistance, which work on the basis of family medicine).
- development of the state guarantees on protection of motherhood and childhood.
- improvement of the legislative and legal bases on strengthening of addressing of social benefits to the most vulnerable categories of the population.
- acceptance of the corresponding acts on social protection of families with children, in particular, of families, which have adopted children.
- improvement of the legislation on adoption of children, in particular of children-orphans deprived of parental care, development of family forms of education of children-orphans and children deprived of parental care, development of actions and the mechanism of the decision of a problem social orphans.

Iimprovement of the population health

- creation of the legislative base on the mandatory state and voluntary medical insurance.
- making changes to the legislative and legal acts on improvement of forms and methods of management of public health services at the state and local levels.
- development of the legislation on protection of the rights of patients on the basis of the international experience and positions, displayed in the normative documents and the legislation on health services.
- precise legislative solving of a problem of payment for medical services in domestic system of public health services.

- creation of the legislative base on ecological, household, consumer safety.
- bringing of the legislation on safety of work, environment, protection of life and health to conformity with the European standards, as well as of the accreditation systems in the area of medical services, professional standards and etc.

Migratory policy

- improvement of the legislation on employment of the Ukrainian citizens abroad.
- development of the State migratory program, of the program of self-employment and microbusiness, of the program of adaptation of labour migrants to the Ukrainian society, which has changed during the period of absence of an migrant, modification in the Program of employment of the population, according to positions of the given Strategy.
- modification in the Law of Ukraine "On immigration" and "On the citizenship of Ukraine".

Ageing of the population

- improvement of the pension legislation on the basis of social justice, with consideration of insurance experience and paid insurance contributions;
- legislative and legal provision of introduction of the second (accumulative) pillar of the state pension insurance;
- passing of the new edition of the Law of Ukraine "On the status of veterans of war and guarantees of their social security" with a detailed definition of the term "a participant of military actions", "an invalid of war", "a participant of war", and exclusion of those categories of citizens, who are not veterans of war, and whose status is defined by other laws.

Regional development

- improvement of the budgetary legislation and interbudgetary relations by transformation of interbudgetary relations, making changes in the Order of transfer of subsidies of alignment and subventions from the state budget to local budgets, interbudgetary transfers between local budgets, Formulas of distribution of interbudgetary transfers (subsidies of alignment and means, which are transferred in the state budget) between the state budget and local budgets with purpose of stimulation of realization of regional programs of demographic situation improvement.
- development of the legislative base on social dialogue, collectively-contractual regulation of labour relations, forming of mechanisms and practice of its realization for solving of problems in the area of regional demographic policy.

Institutional provision

Fertility and development of a family

- forming of the system of authorities, establishments, and social services of the different structure and direction on granting of social, psychological, pedagogical, medical, social and legal assistance to families and children.
- development of social service in the area of family policy, granting of services and consultations.
- development of the complex model of social patronage and support of single-parent, socially disadvantaged, poor families with children, granting of the assistance to homeless children with attraction of the state and public organizations.
- allocation of a special type of funding of actions on family policy (funding of programs, trust funds, social assistance to some categories of families, social services,

researches on family problems, training and preparation of the corresponding staff, etc.) within the budget.

- further development of family forms of preschool and out-of-school education.
- development of housing crediting, especially of crediting for youth, mortgages, activization of participation of the population in financing of housing construction.
- development and realization of special programs of construction of municipal housing, forming of funds of social housing for socially vulnerable population groups.
- creation of the complete system of preparation, retraining of personnel and increase of their qualification for work in establishments of social security.

Improvement of the population health

- reforming of the system of public health services, realization of the corresponding organizational and administrative actions, directed on: strengthening of the preventive component; increase of the initial medical and sanitary assistance role; provision of availability of qualitative medical and genetic services; introduction of medical insurance.
- transition from the centralized management and administration in the system of public health services to the organization of health services on the basis of contractual relations.
- re-structuring of the system of stationary assistance and increase of its efficiency.
- re-structuring of sanitary-and-epidemiologic service and strengthening of its financial base.
- active use of mass media, development and realization of the complex of educational programs on forming of a healthy way of life, rational self-preserving behaviour and etc.
- increase of the role of professional institutes (associations) in provision of quality of the medical personnel.
- expansion of a network of establishments (especially, at the regional level) of medical and social assistance and services, focused on different demographic groups (for example: centers of family medicine, centers of family planning, social services for family, children and young, centers of the psychotherapeutic assistance, etc.).
- development and realization of actions on restoration of reproductive health of the population, especially of women.
- strengthening of the state control on the quality of products and consumer goods, their conformity to the standards.

Migratory policy

- creation of economic mechanisms of stimulation of the return character of external labour trips of citizens, regulation of internal migratory flows by development of pendular migration.
- further development of practice of signing of interstate agreements on mutual employment of citizens and their social protection.
- realization of regulations on singing of tripartite agreements on employment of high-skilled Ukrainian experts abroad and signing of contracts with graduates of higher educational institutions, who have studied by the budgetary funds.
- development of programs of accommodation of immigrants and their integration into the society.

Ageing of the population

- improvement of the state specialized geriatric service, adjustment of functioning of the system of services for elder persons, development of a network of specialized establishments for elder persons and invalids, of the system of granting of the initial medical and sanitary assistance to elder persons, especially to the lonely ones.

- forming of mechanisms of the effective use of residual labour potential of persons of the retired age, their involvement into an active way of life outside of labour activity.

Regional development

- stimulation of creation of public, charitable organizations, self-governing authorities of the population, etc., involved into solving of problems of demographic development, in particular at the regional level, coordination and assistance of this activity by governmental authorities and local self-governing authorities.

REFERENCES

1. Корчак-Чепурковский Ю.А. Избранные демографические исследования. – М.: Статистика, 1970. – С. 37.
2. Українське суспільство: моніторинг - 2000 р. Інформаційно-аналітичні матеріали. // За ред. чл.-кор. В.М.Ворони, д.ф.н. А.О.Ручки. - К., Ін-т соціології НАН України, 2000. - С. 85.
3. Сільська молодь України: стан, проблеми та шляхи їх вирішення: щорічна доповідь Президентові України, Верховній Раді України, Кабінету Міністрів України про становище молоді в Україні (за підсумками 2003 року). - К.: Державний ін_т проблем сім'ї та молоді, 2004. - С. 121-122.
4. Здоров'я та поведінкові орієнтації української молоді: соціологічний вимір (за результатами національного соціологічного опитування підлітків та молоді 10-22 років). – К.: Український інститут соціальних досліджень, 2005. – 256 с.
5. Стан здоров'я жіночого населення в Україні за 2004 рік. – К.: МОЗ України, Центр медичної статистики, 2005. – 230 с.
6. Показники здоров'я населення та використання ресурсів охорони здоров'я в Україні за 2004 рік. – К.: Центр медичної статистики МОЗ України, 2005. – 710 с.
7. Репродуктивное здоровье населения Украины – 1999. Итоговый отчет. – К.: КМИС, УСАИД, Центры контроля и профилактики заболеваемости США, 2001. – 206 с.
8. Кваша Е., Харькова Т. Аборты в России // Население и общество. Информационный бюлетень ЦДЭЧ ИНП РАН. – 2000. - № 48.
9. Жилка Н., Іркіна Т., Стешенко В. Стан репродуктивного здоров'я в Україні (медико-демографічний огляд). – К.: МОЗ України, Ін-т економіки НАНУ, 2001. – 68 с.
10. Жилка Н. Я. Ситуаційний аналіз доступності засобів контрацепції для населення України. – К.: Вид-во Раєвського, 2005. – 56 с.
11. Фещенко Ю. І., Мельник В. М. Медичні аспекти боротьби з туберкульозом //Український пульмонологічний журнал. – 2005. – №2. – с. 5-8.
12. Аналітичний звіт «Оцінка чисельності груп ризику (СІН, РКС, ЧСЧ)». – К.: Міжнародний альянс з ВІЛ/СНІДу, УІСД, КМІС, 2005 (неопубл.).
13. Оцінка можливостей розвитку в Україні програм профілактики ВІЛ в середовищі споживачів ін'єкційних наркотиків – К.: Центр «Соціальний моніторинг», 2003. – 230 с.
14. Аналітичний звіт „Соціально-економічний прогноз наслідків епідемії ВІЛ/СНІДу в Україні"/ МОЗ України, Світовий банк, 2005 (неопублік.).
15. The World Health Report 2004. Changing History. // Annex Table 1. Basic indicators for all WHO Members States – Geneva, WHO,2004 (http://www.who.int/whr/2004/en).
16. Зовнішні трудові міграції населення України / За ред. Е.М.Лібанової, О.В.Позняка. – К.: РВПС України НАН України, 2002.– 206 с.
17. Трудова міграція населення Тернопільської області: кількісний та географічний аспекти. – Тернопіль: Лідер, 2002. – С. 25.
18. Стан дотримання та захисту прав громадян України за кордоном: Спеціальна доповідь Уповноваженого Верховної Ради України з прав людини – К., 2003. – С. 18.
19. Соціальне обличчя новітньої української трудової міграції.– Львів, 2003.– С. 11.
20. Пирожков С., Малиновская Е., Хомра А., Внешние трудовые миграции в Украине: социально-экономический аспект.– К.: НИПМБ, 2003.– 134 с.
21. Лібанова Е.М., Мельничук Д.П. Ринок праці в економічній системі: Навч. посібник. – Житомир: ЖІТІ, 2002. – С. 63.

22. Проблема нелегальної міграції та транспортування мігрантів в Україні:Наук. доп./Упоряд. О.А.Малиновська.-К.:Бланк-Прес,2000-с.18,19,20.
23. Демографічна криза в Україні. Проблеми дослідження, витоки, складові, напрями протидії / НАН України, Ін-т економіки; за ред. В. Стешенко. – К., 2001. – 560 с.
24. Livia Sz. Oláh. Gender and family stability: Dissolution of the first parental union in Sweden and Hungary. // Demographic Research. – Rostock, 2004. – Vol. 4, article 2. – P. 29-96.
25. Marit Rønsen. Fertility and Public Policies – Evidence from Norway and Finland. // Demographic Research. – Rostock, 2004. – Vol. 10, article 6. – P. 143-170.