# Summary

## The Generalized Model of Population Dynamics and Its Importance for Demographic Analysis

### Zakharov S.V.

The paper focuses on the methodological foundations of one of the leading trends in modern mathematical demography, associated with the construction of a generalized theory of human reproduction, which can be applicable to any population open to migration and demonstrating the changing regime of generation replacement.

The 1980s witnessed a qualitative leap in the development of the central problem of mathematical demography − the creation of a generalized *r-variable* model of population dynamics. Significant success, that has been achieved, in constructing the most universal mathematical model of human reproduction regime and population age structure had a considerable influence on the development of the demographic analysis worldwide and approaches to a good deal of issues within the historical, regional, and other fields of population studies. Unfortunately, this methodological breakthrough was little noticed by Russian-speaking experts, and even if seen, was hardly enough considered from both theoretical and practical perspectives. To this day, the sections of Russian demography textbooks devoted to mathematical modeling do without reference to the existing generalizations of a stable population theory to the case of a non-stable, time-varying regime of population reproduction, and populations open to migration.

The paper provides examples of use of the generalized model based on the country − specific, the USSR and Russia's data, which not only demonstrate the capabilities of the model, but also expand our knowledge about the demographic history of the country, as well as provide ground for further theoretical and statistical-mathematical studies of patterns of reproduction of any non-demographic collectivities, which members can be distributed on the basis of a parameter similar to age (i.e., a defined duration of existence in a certain state, characteristic of a given collectivity). For the relation to hold, the distribution of numbers and the force of each attrition factor must be continuous functions of age, or its equivalent.

***Key words:*** age distribution; age-specific growth rate; closed and open to migration populations; generalized equation of population dynamics; net-reproduction rate; *r*-variable model, stable population.

## Misleading Policy Messages from the Period TFR: Should We Stop Using It?

### Sobotka T., Lutz W.

Public discussions about fertility trends and policies in developed countries refer almost exclusively to the period Total Fertility Rate (TFR), which is commonly misinterpreted as the «mean number of children per woman» as if it were a cohort measure of fertility. We argue that the use of this indicator frequently leads to incorrect

interpretations of period fertility levels and trends, resulting in distorted policy conclusions and, potentially, in misguided policies. We illustrate this point with four policy-relevant examples, drawn from contemporary Europe. These illustrations show that the TFR (a) inflates the presumed gap between fertility intentions and realised fertility, (b) erroneously suggests a significant fertility increase in many countries of Europe after the year 2000, (c) often exaggerates the level of immigrants' fertility and (d) frequently suggests that family-related policies which led to shorter birth spacing in fact brought an upward swing in fertility level. We argue that there seems to be no policy-relevant question for which the period TFR would be the indicator of choice to be preferred over other existing measures, which range from measures related to future cohort size (total number of births) to sophisticated fertility indexes controlling for age, parity, duration since previous birth and tempo effect. Hence, there is a strong case for stopping the use of the period TFR as a one-fits-all fertility indicator which is now common practice.

*Key words:* fertility policy, total fertility rate; quantum and timing effects; tempo-adjusted fertility indices; completed cohort fertility; ideal and intended family size.

## Causes of Death and Policy Priorities
## for Reducing Mortality in Russia

### Vishnevsky A.G.,  Vassin S.A.

The problem of the health policy priorities choice to increase life expectancy in Russia is discussed. It is shown that the existing practice of choice of priorities does not use the whole arsenal of scientific analytical instruments developed in demography. A practice is based on the most common rough indicators having low analytical capacity, and therefore proceeds from the incorrect ideas concerning the real situation in the field of mortality in Russia. This reduces the effectiveness of efforts to increase life expectancy in Russia and put obstacles in the way of overcoming its growing backlog by this index from most developed countries.

More thorough analytical methods based on the analysis of the functions of life tables by cause of death are proposed. The importance of considering the two-dimensional structure of life expectancy, which reflects both the probabilities of dying from a particular cause of death, and age distribution of deaths from each cause is emphasized. This analytical approach allows to estimate the contribution of various causes of death to the formation of the mortality situation and trends and to justify the choice of priority long-run objectives of the struggle for reducing mortality.

*Key words:* mortality; life expectancy; causes of death.

## Healthy Life Expectancy as Health Summary Measure
## of Russian Population

### Ramonov A.V.

This paper covers methodology of health expectancy indicators and introduces an attempt to analyze Russian population health using them. Health expectancy indicators combine mortality and self reported health data within a summary indicator

measuring average health of total population and its subgroups. Different approaches to measuring health using national representative surveys are elucidated and several applied for analyzing healthy life expectancy of Russian males and females using self reported data on health status from RLMS and GGS representative surveys.

## Demographic Behavior of Russians: Family and Fertility Patterns Across Generations

### Mitrofanova E.S.

After break up of the Soviet Union the behavior of Russians in all spheres of life began to change. Nowadays youth, born and socialized in new Russia, has other norms and values, than Soviet period generations. According to examples of other countries, it is possible to assume that distinctions in values and motivation should lead to shift of a calendar of births and matrimonial events, to the change of quantitative and qualitative patterns of fertility and matrimony.

Have these values transformations of the society resulted in transformations of actual reproduction behavior of Russians? And if so, what is the direction of occurring changes?

This paper is trying to answer these and accompanying questions.

The paper starts with a short description of long-term changes of base characteristics of formation of the Russian family. Moreover there is an attempt of defining certain patterns of changing matrimonial behavior across generations.

There were constructed matrimonial biographies for interrelation revealing between matrimonial and reproductive behavior. The research was made on the data base of panel, representative for Russia selective survey focused directly on studying of a family and generations.

The analysis was done with the help of advanced econometric toolkit, allowing to reveal characteristics of demographic behavior of different generations, to define zones of its basic distinctions and to make assumptions concerning the reasons and consequences of occurring transformations.

## Birth Control in Byelorussia, Russia, and Ukraine in Post-soviet Period

### Denisov B.P., Sakevich V.I.

The first decade of XXI century showed an increasing divergence in the dynamics of the levels of abortions in Belarus, Russia and Ukraine, despite the historical and social proximities of these nations. Russia lags far behind neighboring countries in the rate of reduction in the incidence of abortion. Only the differences in the use of contraception could explain the observed discrepancy. The authors use official statistics to analyze trends in abortion rates in the three countries, and the data from sam-

ple surveys to study structure of the methods of contraception. The analyses did not reveal obvious determinants that could explain the differences in the dynamics of abortion; the study found some national differences in contraceptive behavior and big differences in national policies. To find the ways to overcome the Russia's lag the authors propose special in depth study of contraceptive behavior.

*Key words:* abortion; contraception; reproductive health; family planning; birth control; population policy; Byelorussia; Russia; Ukraine.

## Decreasing Fertility in the Global South: Policies about Policies

**Ivanov S.F.**

Population dynamics in the global South changed dramatically in the second half of the 20th century. The time lags between the onsets of mortality and fertility declines blew up the population bomb producing serious long-term negative consequences at the national and global scales. The realization of the destructive nature of population bomb initiated the search of means to defuse it through fertility policies. Generous assistance by the North, political will of recipient countries and attainment of the international consensus on this ideologically loaded issue loaded have determined the success of the family planning programmes which became a big factor of the demographic transition. This experience is relevant for population policies in other settings and may be applied to completely different social issues.

*Key words:* population boom; fertility; fertility policies; family planning programmes; developing countries; Bangladesh; India; Iran (Islamic Republic of); China; United States of America.