

## DEMOGRAPHIC TRANSITION AS A GLOBAL PROBLEM OF THE MODERN WORLD

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### Abstract

This article examines the features of demographic transition in the modern world, as well as the main trends in birth and death rates across different countries and regions. Particular attention is paid to the influence of globalization, urbanization, economic development, education level and contemporary social processes on changes in demographic indicators. The article analyzes current global demographic trends, including declining birth rates, population aging and transformations in social structure. A brief historical overview of the study of demographic processes and approaches to fertility and mortality research is also presented. Comparative and analytical methods were used in the research, making it possible to identify the characteristics of demographic development in the modern world, their causes, consequences and future population change prospects.

### Keywords

*Demography, transition, global, birth rate, mortality, population.*

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## 1. Introduction

Interest in demographic changes and the dynamics of population growth and decline worldwide has constantly concerned scholars. According to the United Nations, in the mid-20th century (1950), the world population was about 2.5 billion people. By 1975 it had increased to approximately 4 billion, by 1999 it reached 6 billion and in 2011 it exceeded 7 billion. In 2022, a new demographic milestone of 8 billion people was recorded.

According to current UN demographic projections, by 2030 the world population may reach about 8.5 billion, by 2050 approximately 9.7 billion and by the end of the 21st century more than 10 billion, with a possible peak occurring in the second half of the century.

At the same time, annual population growth remains significant - about 80-83 million people per year on average - although growth rates have been gradually declining compared to the second half of the 20th century.

One of the most widely used concepts for explaining demographic processes is the theory of the demographic transition. Increased attention to this theory emerged in the second half of the 20th century, due to the consequences of two world wars, accelerated modernization in developing countries and significant progress in medicine over the past two centuries.

Supporters of this theory argue that as societies develop socio-economically, a gradual transformation of population reproduction systems occurs. The traditional type,

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characterized by high birth and death rates, is gradually replaced by a modern type with lower levels of both fertility and mortality. This leads to changes in overall population growth rates and the demographic structure of society.

## 2. Demographic transition

The term “demographic transition” was first introduced by the American demographer Notestein in the 1940s. A significant contribution to the development and theoretical justification of this concept was also made by the French researcher A. Landry, who was among the first to analyze changes in population reproduction during social development.

Within this theory, F. Notestein identified four key stages of demographic transition. He considered the model universal and applicable to most countries, as it reflects the typical sequence of changes in birth and death rates during socio-economic development:

The demographic transition model describes the long-term transformation of population dynamics through several key stages. In the traditional stage, societies are characterized by both high birth and high death rates, which remain close to natural levels. Population growth during this phase is generally very slow or unstable, as high fertility is offset by high mortality, particularly among infants and young children, due to limited access to healthcare, poor sanitation and low living standards.

As societies begin to develop economically and socially, they enter the transitional stage. During this phase, death rates decline significantly as a result of improvements in medicine, public health, nutrition and overall living conditions, while birth rates remain relatively high. This imbalance leads to a period of rapid population growth, often referred to as a population explosion, which is typical for many developing countries undergoing modernization.

In the stabilization stage, birth rates begin to decline as a consequence of urbanization, increased access to education, especially for women, changes in family structure and the rising cost of raising children. Mortality rates remain low and relatively stable. As a result, population growth starts to slow down and demographic expansion becomes more moderate and controlled.

Finally, in the aging stage, both birth and death rates are low, but life expectancy continues to rise. This leads to a growing proportion of elderly people within the population structure. In many cases, population growth becomes minimal, stagnant or even negative, which creates new social and economic challenges related to aging societies, labor shortages and increased pressure on pension and healthcare systems (Kapitsa, 1999).

The traditional fertility regime is characterized by extremely high birth rates - often more than 6 children per woman - and high infant mortality. Because high mortality largely offsets high fertility, natural population growth remains very low or unstable. Such a demographic model was typical of traditional agrarian societies before modernization. Historically, it was observed in rural societies of Ethiopia, Afghanistan and Nepal before active socio-economic development.

The transitional stage reflects the transformation of the traditional demographic model. At this stage, mortality declines rapidly due to improvements in healthcare, sanitation and living standards. As a result, a significant natural population increase occurs. This situation was observed in the second half of the 20th century in several developing countries, such as Pakistan, India, etc.

The demographic equilibrium stage is characterized by a further decline in fertility and a reduction in natural growth rates. At the same time, life expectancy continues to increase, gradually leading to population aging. Countries such as Brazil and Mexico are examples of this stage.

The final stage is typical of the most economically developed countries. It is characterized by very low birth and death rates and pronounced population aging. The share of immigrants in the demographic structure increases. Such processes can be observed in Germany, Italy, etc.

Demographic transition processes are uneven and depend on the social and economic conditions of societies. An example of a slow demographic transition is France, where fertility began to decline as early as the 18th century. In countries where modernization started later, demographic changes occurred much faster. For example, in Brazil and Thailand after the 1960s, rapid population growth was followed by a sharp decline in fertility and natural increase.

In China, the state policy “one family - one child” accelerated the demographic transition and worsened the country’s demographic situation. As a result, long-term fertility decline and population aging forced the authorities to lift restrictions in 2016. According to statistical data, in 2022 China experienced negative population growth. There is also an imbalance in the gender structure, with a strong skew in the ratio of boys to girls at birth and sex-selective abortions, which is of socio-cultural origin. Attempts to correct the negative consequences of demographic intervention in China have not produced the expected results.

Similar trends are observed in a number of other countries. For example, in Vietnam and South Africa, fertility levels have significantly declined and the population is gradually aging. These examples demonstrate that demographic transition processes are affecting more and more countries as they undergo socio-economic development.

Van de Kaa argued about the influence of various changes on population growth rates. He stated that since the mid-1970s, Europe has entered a new stage in its demographic history. He suggested that the demographic transition of the 19th-20th centuries should be considered the first transition. “Unexpected” and “complex” demographic changes since the mid-1960s marked the beginning of the second demographic transition. By that time, the post-war baby boom had ended and a long-term decline in fertility had begun. The four main features of this transition, associated with the idea of “tolerance”, are:

1. Transition from the “golden age” of marriage to its decline, i.e., the spread of informal unions and alternative family forms.
2. Transition from a child-centered family model to an individual-oriented “mature” couple with one child.
3. Transition from preventive contraception to conscious planning of each child.
4. Transition from a unified model to pluralistic forms (Kazenin, 2017).

Historically, there is a clear relationship between living standards and fertility rates. According to medieval chronicles: “In 15th-century Northern Italy, in the city of Florence, poor women aged 30-34 had on average 3.0 children, middle classes 3.6 and wealthy women 4.9. However, in the 20th century Italy showed a negative relationship between fertility and education and occupational status. In the French city of Rouen, in 1670 the two lowest classes had about 6 children and in 1789 about 5 children; conversely, the two highest classes had more than 7 children in 1670 and about 4 children in 1789” (Zvereva, 2015).

### 3. The concept of the “third demographic transition”

Another important factor influencing population dynamics is migration, which plays a significant role in shaping demographic transition by affecting the age and sex structure of the population. Migration not only redistributes people across regions and countries but also alters the demographic balance between different age groups, particularly by changing the proportion of young, working-age and elderly populations. In countries experiencing late stages of demographic transition, emigration of young and economically active individuals can intensify population aging and lead to labor shortages, while also reducing the natural rate of population growth.

In contrast, immigration can partially offset the negative effects of low fertility and population decline in developed countries by increasing the share of younger age groups and supporting the labor force. In addition, migration influences fertility patterns, as migrants often adapt their reproductive behavior to the norms of the host society over time, which may result in lower or gradually converging fertility rates. Migration also affects the sex structure of the population, especially in cases where migration flows are dominated by one gender, which can lead to demographic imbalances in both sending and receiving regions (Kazenin, 2017).

Migration plays an important role in shaping demographic transition processes and significantly influences population structure in both sending and receiving countries. In late-transition countries with low fertility rates, the emigration of young people contributes to the acceleration of population aging, as seen in the Baltic States and Poland, where the outflow of working-age population reduces the demographic balance. At the same time, in countries characterized by low fertility and an increasing share of elderly people, immigration serves as a compensatory mechanism that helps stabilize population size and partially offset natural population decline, as observed in Canada and Germany.

Internal migration also has a strong impact on demographic dynamics by redistributing population between rural and urban areas. For example, in China large-scale movement of people from rural regions to major cities such as Beijing, Shanghai and Guangzhou leads to urban concentration of population and changes in fertility patterns, as urban environments are generally associated with lower birth rates. In addition, migration can accelerate demographic transition because young migrants often adopt the fertility norms of the host society, which are typically lower than those in their countries or regions of origin.

From a broader socio-economic perspective, migration affects fertility and mortality through labor market mechanisms, economic development and access to social services. By increasing the size of the working-age population, migration supports economic growth and helps maintain pension and healthcare systems, while also mitigating some of the negative consequences of population aging. Thus, migration is a key factor that can both accelerate and moderate demographic transition processes depending on the specific social and economic context of a country.

Thus, migration can both accelerate and slow down demographic transition by changing population size, age structure and spatial distribution.

The concept of the “third demographic transition”, proposed by British demographer D. Coleman in the 2000s, offers a broader interpretation of demographic theory, emphasizing new trends in post-industrial societies.

According to him: “Unlike the first demographic transition, which is universal, the third demographic transition is observed only in low-fertility countries. In economically developed countries, migration plays an increasingly important role,

gradually replacing the native population of receiving countries and directly changing their ethnic composition through immigration. For example, more than 2 million people in Belgium were born outside the country. Differences in fertility between immigrants and native populations also influence ethnic composition. The share of children born to immigrant families reaches 20-40% of all births in some countries, depending on the share of women of reproductive age and fertility differences. However, many studies show a gradual decline in immigrant fertility, especially in subsequent generations” (Pintaeva, 2019).

In his research, D. Coleman predicted the growth of the Latino population in the USA and the decline of the white population share, as well as potential conflicts and stricter immigration policies.

The concept of the “second demographic transition” is considered an important paradigm for analyzing modern demographic processes, although it has received mixed evaluations. It describes behavioral changes in post-industrial societies: fertility below replacement level, later marriages and divorces, increase in single-parent families and smaller household size.

However, the number of demographic transitions remains controversial. D. Caldwell attempts to reconcile the limitations of both first and second demographic transition theories. The first focuses on quantitative changes in fertility and mortality, while the second focuses on family relations and social roles, but often neglects quantitative indicators ([books@econ.msu.ru](mailto:books@econ.msu.ru)).

Another critique is the insufficient consideration of socio-cultural factors. According to M. Klupt, demographic theory should integrate socio-economic relations, institutions and policy, as ignoring civilizational differences leads to an incomplete understanding of demographic dynamics ([books@econ.msu.ru](mailto:books@econ.msu.ru)).

#### 4. Conclusion

Despite criticism, demographic transition theory remains central to demographic analysis. It helps explain and predict population dynamics, aging processes and supports policy development in global demographic management.

Thus, demographic transition theory not only explains historical and contemporary demographic changes but also serves as a basis for forecasting future trends, assessing social and economic consequences of population change and shaping global demographic policy.

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