

MBS SCHOOL
Geography short note

Unit four

UNIT FOUR GLOBAL POPULATION DYNAMICS AND CHALLENGES

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4.1. THE GROWTH OF WORLD POPULATION

According to the demographic transitional model in the first stage countries normally exhibit a population growth with a high level of fertility and mortality.

In the second stage, death rates decrease, notably among children aged 0 to 5, while birth rates remain high, indicating significant population growth.

The third stage is marked by a decrease in the birth rate, owing mostly to socioeconomic changes, urbanization, and widespread contraception use. At this point, population growth continues at a slower pace.

More industrialized countries experienced a demographic transition in the eighteenth century, transitioning from high birth and death rates to low birth and death rates.

In the fourth stage, birth rates fall to levels where they are equal to death rates, resulting in a slowly growing population.

In the fifth stage, the birth rate rose again but the death rate remained low bringing stable or low population growth.

4.2. Population size and annual growth rate for the world.

Source: United Nations, The range of possible trends in the three demographic components of population change: **fertility, mortality,** and **international migration,**

- ❖ The "medium variant" estimate anticipates a drop in fertility in countries where big families are still common, a minor increase

in fertility in numerous countries where women have less than two live babies on average during their lifetimes, and ongoing mortality decreases.

- ❖ Close to half of the global population lives in Europe and North America, Latin America and the Caribbean, Australia/ New Zealand, and eastern and southeastern Asia, where lifetime fertility is below 2.1 births per woman
- ❖ Fertility remained above the global average in 2019,
 - primarily in Sub-Saharan Africa (4.6),
 - Oceania (3.4) and
 - Northern Africa and Western Asia (2.9).
- ❖ Sub-Saharan Africa is expected to experience the greatest decline in total fertility.
- ❖ Sub-Saharan Africa could account for more than half of the world's population growth and is expected to continue rising through the end of the century
- ❖ Eastern and South-Eastern Asia, Central and Southern Asia, Latin America and the Caribbean, and Europe and Northern America, on the other hand, are expected to achieve peak population and begin population decline by the end of the century.

4.1.1. Population Trends in Less Developed Countries (LDCs)

- population increase around the world has shown a fluctuating trend over time. Population growth rates in less developed countries (LDCs) were relatively modest in the mid-eighteenth century.

Since World War II, significant progress has been made in the provision of medical facilities, disease management, piped water, improved housing, and the spread of education in the less developed world, all of which have led to a decrease in death rates, particularly among young people.

A rapidly rising population adds to the difficulty of eradicating poverty, improving quality of life, combating hunger and malnutrition, and improving the quality and coverage of health and education systems. Increased population density may be beneficial if it results in larger marketplaces, increased economic engagement, more intellectual exchange, and labor division.

4.1.2. Population Trends in more Developed Countries (MDCs) MDCs' population growth rates are lower than those of LDCs, and they are going lower. As a result, the number of people of working age has decreased. A reduced potential support ratio is the effect of a declining number of working-age populations.

The low potential support ratio values show the potential impact of population aging on the labor market and economic performance, as well as the economic pressures that many countries will face in the coming decades as they seek to build and maintain public health care, pensions, and social protection for the aged.

4.2. Factors Responsible for Accelerated Population Growth

Several variables may contribute to faster population increase on a global scale and in developing countries.

- Among the most important are the advancements in agriculture, which ensured human security and continued life.
- The growth of organized agricultural communities allowed for more worker specialization, which led to the development of the market economy and urban societies.
- the second major element that significantly boosted the population of those societies.
- The third major factor of high population rise was accompanied by new social and economic developments.
- As a result of lower death rates, population growth accelerates at first (i.e., mortality transition)

4.2.1. Measures of Fertility

Fertility is the actual occurrence of live births and reflects a population's actual reproductive performance.

The nature of fertility is determined by some factors.

- Marriage has undoubtedly been a fertility-promoting institution.
- The lower the fertility rate, the longer a woman waits to engage in a sexual partnership.
- Conversely, fertility rates are higher when women marry at a young age due to the increased risk of pregnancy and longer periods during which pregnancy could occur.
- Contraception is the other major factor that influences fertility in most developed countries.

- The “reproductive revolution,” which was ushered in by the availability and development of modern and effective family-planning technologies like the birth control pill, made it easier to avoid pregnancy.
- Finally, infertility is linked to either voluntary or involuntary fecundity. Breast-feeding, for example, reduces (but does not eliminate) the risk of pregnancy for up to twenty-one months after delivery.

Fertility is measured most commonly in terms of

- crude birth rate (CBR),
- general fertility rate (GFR),
- total fertility rate (TFR).

I. Crude birth rate (CBR),

The crude birth rate is simple to compute and can be used to determine fertility quickly.

(CBR) is calculated as follows:

$CBR = 1,000(B/p)$, where B is the number of annual births, and p is the mid-year total population.

II. The Total Fertility Rate (TFR) estimates the total number of children a woman will have throughout her reproductive career, assuming

- (1) that she will live at least through childbearing age and
- (2) that children will be born at the current age-specific fertility rates.

This measure is often used to describe fertility patterns and to compare fertility rates across different regions, and it is a better measure of fertility than the crude birth rate since it takes into account the population's age and sex structure. The following is how TFR is defined

$TFR = \sum [(B_x/P_x) \times 1,000] \times 5$, where B_x is the number of live births to mothers of age x and P_x is the number of resident women age x.

iii. **Gross Reproductive Rate (GRR)** The Gross Reproductive Rate (GRR) is comparable to the Total Fertility Rate (TFR), but it only counts female births rather than all births. While total fertility can be used to determine whether a population is growing or shrinking as a result of fertility, the Gross Reproduction Rate (GRR) estimates the number of female

offspring a woman will have based on age-specific rates and assuming she survives her reproductive years. In this approach, the GRR can be used to determine whether or not a population is replacing itself. It's calculated as follows:

$$\text{GRR} = \text{TFR} \times (\text{FB}) / (\text{Bx})$$

IV. General Fertility Rate (GFR): is a method that helps rectify the weakness of CBR by considering live births, not total births. It measures the number of live births in a year per thousand women of reproductive age. It is calculated as follows

$$\text{GFR} = \frac{\text{B}}{\text{P1}} \times 1,000, \text{ where B is the total number of live births during a year, P1 is the mid-year population of women between 15 and 49 years age}$$

The demerit of GFR is that it does not account for the difference in age groups. It is well known that the different age groups are not equally fertile. That is, the child-bearing rate is appreciably higher in the age group of 20-29 than in the 15-19 and 40-49 age groups.

Measures of Mortality

Mortality (the occurrence of death) can be measured in several ways, including the use of crude death rate and infant mortality rate.

Key factors that determine the rate of mortality rate include standards of living, nutrition, medical services, personal hygiene, and environmental sanitation. is a simple measure calculated by the ratio of the total registered deaths of a specified year in a region to the total mid-year population, multiplied by 1000.

The crude death rate (CDR) is computed as follows: $= \text{D/P} \times 1,000$, where CDR is Crude Death Rate, D stands for total observed deaths, and P is total mid-year population

Infant mortality rate (IMR): is the number of death of infants under the age of one year for every 1000 live births, in a given year

$$\text{IMR} = \frac{\text{Number deaths below the age of one year}}{\text{number of live births in the year}} \times 1,000$$

4.3. International Migration

The current highly irregular spatial distribution of population can be explained in terms of human ability to adapt to physical conditions (spatial relationships and accessibility);

- resources (relief, climate, vegetation, soils, water supplies, and mineral deposits);
- influence of demographic (birth and death rates, age structure, population migration flows),
- cultural (social attitude and institutions), economic development, and historical factors. Because one country's loss is another's gain, migration has no direct impact on the global population.

Migration, like fertility and mortality, has an impact on population growth rates in sending and receiving countries.

The annual change in population for every country is equal to birth minus death plus immigrants minus emigrants (B-D) + (I-E).

The ability to make more money is one of the benefits of international migration

Measures of Migration

The most common measures of migration that could affect the population growth of an area include immigration rate and emigration rate. The immigration rate is the number of people arriving at a given destination per 1,000 people in a given year.

$$\text{Immigrant rate} = \frac{\text{Number of immigrants}}{\text{Total population at destination}} \times 1,000$$

The emigrant rate is the number of departing people from an area of origin per 1,000 people of the area of origin in a given year.

$$\text{Emigration rate} = \frac{\text{Number of emigrants}}{\text{Total population at origin}} \times 1,000$$

Net migration rate (NMR) shows the net effect (balance) of immigration and emigration in an area. It can be expressed as an increase or decrease per 1,000 people in the area in a given year.

$$\text{Net migration rate} = \frac{\text{Number of immigrants} - \text{Number of emigrants}}{\text{Total population at the destination}} \times 1,000$$

4.4. Population Policies

4.4.1 Policies on population growth and socioeconomic development

A series of government declarations, choices, and measures done openly or implicitly to impact population number, growth, distribution, and composition is referred to as population policies.

The core objectives of population policies aim to promote both economic development and social or individual welfare.

- Pro-natalist restricting emigration and stimulating immigration were historically the key areas of focus for population policies. On the contrary, currently restricting immigration, encouraging redistribution, prolonging survival, and being primarily
- anti-natalist are the major concerns of population policies.

DIRECT OR EXPLICIT

- Government actions taken for demographic outcome. Example:
 - ✚ Provide free family planning services
 - ✚ Increase taxes for each additional child
 - ✚ Migration law: restrict immigration
 - ✚ Raise the age of marriage

INDIRECT OR IMPLICIT

- Decisions and actions of government indirectly have some demographic effects. Example:
 - ✚ Compulsory secondary education
 - ✚ Restrict child labor
 - ✚ Limit size of houses
 - ✚ Promoting female education and raise status of women
 - ✚ Provide old age security

In balances between demographic changes and social, economic, and political goals could be avoided through explicit or implicit population strategies.

At the national level, most governments have addressed population policies by:

firstly, gathering demographic data through censuses, civil registration systems, and surveys; and

secondly, developing and attempting to execute specific public health and population policies about mortality, fertility, and migration

4.4.2 Policies on population migration and distribution

The spatial distribution, density, and population strain on agriculture, natural resources, and the environment are all influenced by migration and urbanization. Migration has an impact on demographic net growth as well as socio-economic development in general. As a result, population plans must manage both urbanization and internal migration issues.

Policies governing geographical distribution and urbanization have far-reaching implications for a country's long-term growth. For example, the government the following measures:

1. Encourage population redistribution from densely populated urban regions to smaller urban, suburban, and rural areas.
2. Decrease migration from rural to urban areas, as well as to major urban agglomerations
3. Ensure access to basic services and infrastructure for the urban poor,
4. Address the strain population has on environmental sustainability by preventing unintended pregnancies through family planning programs,
5. Address the strain population has on environmental sustainability by improving road safety and promoting public transportation.
6. Promote settlement of under-populated areas, and
7. Relocate population out of environmentally fragile or threatened areas