
UNIT 1 POPULATION

Structure

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1.1 INTRODUCTION

We all have some ideas and experiences about the growing population, and sometimes we analyze, or discuss among ourselves, various issues related to it, like rising numbers, crowding, and congestion. We also try to analyze various consequences arising from overpopulation. Some of the major consequences are unemployment, poverty, lack of basic amenities, like housing and drinking water. Therefore, we can say that population and development have a very close relationship. There is a cause and effect relationship, i.e., development can affect population, and *vice versa* (Gould, 2009). Human beings are at the centre of the concerns for any developmental activities. This is because people are the most important and valuable resource of any nation. Consequently, the right to development must be fulfilled so as to equitably meet the population and development needs of present and future generations. In this unit, we will analyze the complexities that exist between population and development.

After reading this unit, you will be able to

- describe the growth and distribution of world population over the time and space
- explain age-sex compositions and its implication on development
- analyze various theories on population and development and their significance
- evaluate various arguments in favour and against the linkages between growth of population and development
- compare the population policies adopted by developed and developing countries.

1.2 WORLD POPULATION SCENARIO: SPATIAL-TEMPORAL ANALYSIS

World population is unevenly spread all over the globe. Some places have a low concentration of population, like deserts, dense forests, and mountainous areas,

whereas many areas are heavily populated, like coastal and deltaic plains, moderate climates, fertile areas, industrialized areas, and urban centers. This spread of population is known as the distribution of population. If we look at the factors responsible for the distribution of population, then all the factors may be broadly grouped under two categories: (i) geographical factors – latitude, altitude, relief, climate, mineral and energy resources, and (ii) socioeconomic factors, like industrialization, urbanization, type of economy, political scenario and public policies. Density is one way of expressing distribution. Density of population is expressed as the number of persons per sq. km. This is popularly known as arithmetic density.

1.2.1 Distribution and Density of Population

Population distribution can be analyzed by different criteria. In terms of continents, Asia has the largest share of population (about 60 per cent) followed by Africa, Latin America and Europe. According to the Population Reference Bureau, World Population Data Sheet, even by 2050, Asia will still have the largest share of population, but it would decline from about 60 per cent to 57 per cent. But the major increase of population would take place in Africa, i.e., 12.7 per cent to 22.4 per cent and a major decline in population would take place in Europe, i.e., 7.2 per cent to 4.1 per cent (Figure 1.1). As the world’s population has risen from 2.5 billion in 1950 to 6.7 billion in 2008, the proportion of those living in the developing countries of Africa, Asia, and Latin America, and the Caribbean has expanded from 68 per cent to more than 80 per cent. India and China, with a billion plus each in 2008, make up about 37 per cent of the total. Projections for 2050 show this shift to developing countries continuing. The share of those living in the more developed countries is projected to drop from about 18 per cent in 2008 to less than 14 per cent in 2050.

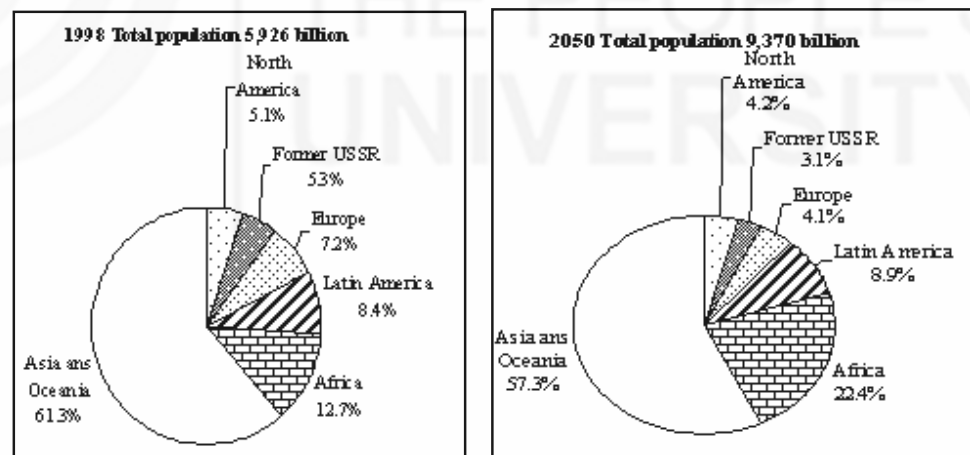


Fig. 1.1: World Population Situation

Source: Population Reference Bureau, 1998 World Population Data Sheet (Washington D.C.: Population Reference Bureau, 1998); United Nations, Report on the World Social Situation, 1997 (New York, United States, 1997), pp. 15-16.

1.2.2 Growth of Population

The growth of a place is determined by fertility, mortality, and migration. Population growth may be expressed in various ways. Natural growth is the simplest expression which is the difference between birth rate and death rate, whereas actual growth takes migration in to consideration. As of May 31, 2009,

the Earth's population is estimated, by the United States Census Bureau, to be 6,792,467,727. The world's population has been growing continuously since the end of the Black Death around 1400. There were also short term falls at other times due to plague, for example in the mid-17th century. The fastest rates of world population growth (above 1.8 per cent) were seen briefly during the 1950s, and then for a longer period during the 1960s and 1970s. According to population projections, world population will continue to grow until around 2050. The 2008 rate of growth has almost halved since its peak of 2.2 per cent per year, which was reached in 1963. World births have levelled off at about 137-million per year, since their peak at 163 million in the late 1990s, and are expected to remain constant. However, deaths are only around 56 million per year, and are expected to increase to 90 million by the year 2050. Since births outnumber deaths, the world's population is expected to reach about 9 billion by the year 2040. The alarming fact is that we have been adding one billion populations in 12 years interval. If we look at the demographic history, it is evident that the world took about 200 years to add three billion populations, whereas the next three billion population were added in the next forty years (Table 1.1).

Table 1.1 : World: Growth of Population

Year	Population (Million)	No. of years to Add 1 Billion People
8000 B.C.	5	-
1 A.D.	200	-
1000 A.D.	300	-
1650	500	-
1804	1000 (1 Billion)	1804
1927	200 (2 Billion)	123
1960	300 (3 Billion)	33
1975	400 (4 Billion)	15
1987	500 (5 Billion)	12
1999	600 (6 Billion)	12
2012	700 (7 Billion)	13
2025	800 (8 Billion)	13
2040	900 (9 Billion)	15

Source: http://en.wikipedia.org/wiki/World_population

If we look at growth patterns in terms developed and developing countries, till 1950, the growth rate in the developed world was high in comparison with developing countries. This was due to the decline in mortality, and the widening gap between birth rate and death rate. The decline in mortality was due to various factors like increase in literacy, advancement in medical sciences and health facilities, etc. But in developing countries, the growth rate was low because both birth rates and death rates were very high, and that helps in reducing growth rate. After 1950, the growth rate in the developed world was very low in comparison with developing countries. This was because of the remarkable decline in birth

rates and death rates in developed countries, whereas in the developing world, particularly in the countries with a larger population base, like China and India, there was a sharp decline in the death rate, but the birth rate remained high. Overall, worldwide, the population growth rate has witnessed a downward trend during the last 30 to 40 years (Table 1.2).

Table 1.2: World: Growth of population in Developed & Developing Countries

Range of Years	Growth Rate in Developed Countries	Growth Rate in Developing Countries
1750-1850	0.6	0.4
1850-1950	0.9	0.6
1950-1970	1.1	2.2
1990-1995	0.4	1.7

Source: Chandna, R. C. (2008) Geography of Population, Ludhiana & New Delhi: Kalyani Publishers, p.194-195.

If we look at the trends amongst various continents, it has been observed that Africa continues to display the highest growth rate of population of 2.8 per cent (1990-95). Europe displayed a growth rate of only 0.2 per cent, which is the lowest amongst the continents. The world average is much higher (1.4 per cent) than the continental average. If we look at other continents in terms of descending order, then Africa is followed by South America (1.7 per cent), Asia (1.6 per cent), Oceania (1.5 per cent), North and Central America (1.4 per cent) and Europe. Europe, in contrast to Africa, attained a zero population growth rate during 2000-05, where many European countries were likely to record a negative growth rate in their population. Both Asia and South America, too, were likely to record a significant decline in their growth rates. Most of the countries in this continent would be able to attain an average annual growth rate of about 1.4 which is considerably below the replacement level of 2.1 per cent that will help in the population stabilization process in the near future. China, India, Brazil, Mexico, etc. were going to be the major contributors in the world’s population stabilization process in the near future.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Describe briefly, what the tentative population scenario in 2050 would be.

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2) World population is not evenly distributed- Comment.

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1.3 MIGRATION AND DEVELOPMENT

Migration is the movement of people which involves a change in the place of normal residence of people from one settlement to another. Migrations occur due to push and pull factors. Push factors are those that compel humans to leave a place of origin, whereas pull factors are those that attract humans towards a particular place. Some of the major push factors are war, political unrest, poverty, natural calamity, lack of opportunity, etc., whereas some of the major pull factors are more opportunity, glamour, fertile land and soil, good means of transport and communication, high levels of urbanization, industrialization, etc. There are two types of migration i.e. internal migration and international migration.

1.3.1 Internal Migration

The process of urbanization is intrinsic to economic and social development and, in consequence, both developed and developing countries are in the process of shifting from predominantly rural to predominantly urban societies. The proportion of the world’s population living in urban areas grew from 29 per cent in 1950 to about 50 per cent in 2009, and is projected to reach 60 per cent by 2020. Migration to cities is contributing to the marked increase of urbanization in the developing world. Today, eight out of ten of the world’s mega cities are in developing countries.

Rural-Rural Migration in India

In developing countries like India, rural to rural migrations also constitute a significant number of people. In short distance, rural-to-rural migration, most females migrate due to marriage. But in long distance migration, people migrate from economically backward areas of Bihar and Eastern Uttar Pradesh to economically progressive states, like Punjab and Haryana, to work as agricultural and allied field workers. They also migrate even up to Jammu & Kashmir for the same. This provides seasonal employment to many and full time employment to some.

Urban growth in the developing world results more from rural poverty than urban prosperity. Rapid rural population growth, along with inequitable land distribution, poor income prospects, and inadequate government investment in agriculture, all combine together to make even urban slums seem more appealing than rural life. Due to unemployment rates in developing countries, the search

for jobs is a major incentive for migration. Unfortunately, migrants arriving in many cities of developing countries find large areas of shanty towns and slums characterized by high unemployment, pollution, disease, social disorder, political unrest, and, in many cases, violence. At least a third of Mumbai lives in slums, and Mexico City is surrounded by shanties and garbage dumps. Cities in most developing nations are similarly circled by squatter settlements that lack space, safe water, sanitation, waste collection, lighting, adequate housing, and other essentials for decent living. This leads to the spread of diseases, alienation and violence, and vulnerability to natural and industrial disaster.

1.3.2 International Migration

International economic, political, and cultural interrelations play an important role in determining the flow of people between countries. In its diverse types, international migration is linked to such interrelations. International migration both affects, and is affected by, the development process. There are broadly two major patterns of international migration, South-South Migration and North-South Migration. Let us analyze them one by one.

- 1) **South-South Migration:** This migration is basically between the countries that are emerging as newly industrializing countries and countries at the periphery that seem to be performing less well. A key feature of this migration is that it is circular rather than permanent. Within this pattern of migration, labour migration from poorer countries of the south to richer countries of the south is very prominent, and that reflects the current global international order associated with globalization (Gould, 2009). The migration is basically to the oil rich countries of the Arabian Gulf from the non oil producing countries of the Middle East and highly populous countries of South and East Asia. The vast majority of labourers are unskilled or semiskilled working in construction and maintenance, IT, and service industries, etc. In this type of migration, remittances are varied but definitely better than the migrant's own country. But, the host countries generally do not have much liability because the majority of migrants are temporary and without their families. Therefore, the host government does not have to spend money for education, family health, pensions, and other social security.
- 2) **South- North Migration:** In contrast, in this pattern, migration has been mostly permanent and any associated problems are entirely different from the previous one. Here, migrants dominate various sectors of an economy, like transport, health service, tourism industry, and in some of its manufacturing and service industries. In this type of migration remittances are definitely better in comparison to South-South migration. But the hosts have much more liability because the majority of migrants are permanent and with their family. Therefore, the host government has to spend huge revenue for education, family health, pensions, and other kinds of social security. The most visibly negative impact of South-North migration is the brain-drain. The source country spends a huge amount on education to develop skilled manpower but ultimately this skilled manpower does not pay back adequately to the source country in terms of their services and remittances.

The table given below depicts both positive and negative effects of emigration.

Table 1.3 : A Summary of the Economic Effects of Emigration

Positive Effects	Negative Effects
<ol style="list-style-type: none"> 1. Provide opportunities to workers not available in the home country. 2. May ease effect on the domestic market of the supply of excess labour and reduce unemployment. 3. Inflow of remittances (that increase incomes and may lead to improved human development outcomes for recipients) and foreign exchange. 4. Technology, investments and venture capital from Diasporas. 5. Can contribute to increased trade flows between sending and receiving countries. 6. Stimulus to investment in domestic education and individual human capital investments. 7. Return of skilled workers may increase local human capital, transfer of skills and links to foreign networks. 8. Charitable work of Diasporas can assist in relief and local community development. 	<ol style="list-style-type: none"> 1. Charitable activities of Diasporas can assist in relief and local community development. 2. Loss of highly skilled workers and reduced quality of essential services. 3. Reduced growth and productivity because of the lower stock of highly skilled workers and its externalities. 4. Lower return from public investments in public education. 5. Selective migration may cause increasing disparities in incomes in the home country. 6. Loss of fiscal revenue from taxation of workers. 7. Remittances may diminish over time. 8. A ‘culture’ of migration, disincentives to invest locally.

Source: Adapted from UN/DESA (2004: 97)

1.4 AGE-SEX COMPOSITIONS AND ITS IMPLICATIONS ON DEVELOPMENT

Age-sex compositions are traditionally depicted through a diagram popularly known as population pyramid. A population pyramid, also called an age-sex pyramid, is a graphical illustration that shows the distribution of various age groups in a population (typically that of a country or region of the world), which normally forms a pyramid. It typically consists of two back-to-back bar graphs, with the population plotted on the X-axis and age on the Y-axis, one showing the number of males and one showing females in a particular population in five-year age groups. Males are conventionally shown on the left and females on the right, and they may be measured by raw number, or as a percentage of the total population. The age–sex structure reflects the demographic and socioeconomic history of a population over a period of time and, even their prospects for the future. It is the result of various factors such as fertility, mortality, and migration. Four main types of age-sex pyramids have been identified: (i) Progressive (ii) Regressive (iii) Stationary, and (iv) Intermediate.

- a) A **progressive** age structure is one in which **both birth and death rates are high**. Children account for only 45-55 per cent of the total population and the aged for only 5-10 per cent. Such a structure is common in developing countries where social, cultural, and perhaps religious and economic conditions lead to high fertility, and poor living conditions, bad diets and little medical aid lead to high levels of mortality.
- b) A **regressive** age structure is one in which **birth and death rates are low and declining**. Children account for about 30 per cent of the total population and the aged for above 15 per cent. This pattern is common in developed countries (especially those in Western Europe), where high living standards, education and social awareness are accompanied by good food and medicine.
- c) A **stationary** age structure is one in which birth and death rates are both low and children account for about 35-40 per cent of the total population and the aged for about 10 per cent. This pattern may remain the same for many years.
- d) An **intermediate** age structure may vary in character and is most common in countries that are passing through stages of development. Such countries may once have had progressive structures and may, in future, have regressive structures.

Table 1.4 : Estimation of Age Composition and Dependency Ratio in 2005 and 2050

Area	Population (in per cent)			Dependency Ratio (in per cent)		
	0-14	15-64	65+	Total	Child	Old-age
A. 2005						
World	28.2	64.5	7.4	55.1	43.7	11.4
More developed regions	17.0	67.7	15.3	47.7	25.1	22.6
Less developed regions	30.7	63.7	5.5	6.9	48.2	8.7
Africa	41.5	55.1	3.4	81.3	75.2	6.2
Asia	27.8	65.8	6.4	52.0	42.3	9.8
Europe	15.9	68.3	15.9	46.5	23.2	23.3
Latin America	30.0	63.9	6.1	56.4	46.8	9.5
Northern America	20.5	67.1	12.4	48.9	30.5	18.5
Oceania	24.8	65.1	10.0	53.5	38.1	15.4
B. 2050						
World	20.2	63.7	16.1	57.1	31.7	25.4
More developed regions	15.6	58.4	25.9	71.2	26.8	44.4
Less developed regions	20.9	64.5	14.6	55.0	32.4	22.6
Africa	28.7	64.7	6.7	54.7	44.4	10.3
Asia	18.3	64.3	17.5	55.6	28.5	27.2
Europe	15.0	57.4	27.6	74.2	26.2	48.0
Latin America & the Caribbean	18.1	63.6	18.4	57.3	28.4	28.9
Northern America	17.1	61.8	21.1	61.9	27.7	34.2
Oceania	18.0	62.7	19.3	59.5	28.7	30.8

Source: United Nations Department of Economic and Social Affairs/Population Division World Population Prospects: The 2004 Revision, Volume III: Analytical Report, p. 24.

1.4.1 Patterns of Population Composition

The population of the world as a whole is ageing (5.6 per cent in 1975 to 7.4 per cent in 2005) both in more developed countries and less developed countries. The proportion of population below 15 years of age for the world as a whole has declined from 36.9 per cent in 1975 to 28.2 per cent in 2005. The proportion of the population in the age group of 15-64 has increased from 57.5 per cent in 1975 to 64.5 per cent in 2005. As far as various continents are concerned, Africa still continues to show age structure associated with high fertility and declining mortality. The proportion of population below 15 years age in Africa has not recorded much change - 44.8 per cent in 1975 to 41.5 per cent in 2005. The proportion of population above 65 years age has also not improved during this period, i.e., 3.1 per cent in 1975 to 3.4 per cent in 2005. The continent of Europe is far ahead of all other continents in terms of proportion of young population in the below 15 years of age group, which is less than 16 per cent in 2005, and highest proportion in the age group of above 65 years, i.e., 15.9 per cent. Between these two contrasting continent Africa and Europe, lie the rest of the continents. It implies that the people of European origin, wherever they may be settled at present, are ageing at a faster rate, while the people of African origin are ageing at snail's pace. In case of people of Asian origin, the process of ageing has picked up during the recent decade (Table - 1.4)

1.4.2 Age Structure & Dependency Burden

Dependency ratio is an age-population ratio of those typically not in the labor force (the *dependent* part) and those typically in the labour force (the *productive* part). The dependent part usually includes those under the age of 15 and over the age of 64. The productive part makes up the population in between, ages 15 – 64. It is normally expressed as a percentage. This gives:

$$\text{Dependency Ratio} = \frac{\text{No. of Children (0-14)} + \text{No. of Old persons (65+)}}{\text{No. of Adults (15-65)}} \times 100$$



Fig. 1.2: Age Sex Pyramid

This ratio is important because, as it increases, there may be an increased cost on the productive part of the population to maintain the upbringing and pensions of the economically dependent. There are direct impacts on financial elements like social security.

The (total) dependency ratio can be partitioned into the child dependency ratio and the aged dependency ratio:

$$\text{Child Dependency Ratio} = \frac{\text{Number of Childre (0-14)}}{\text{Number of Adults (15-64)}} \times 100$$

$$\text{Aged Dependency Ratio} = \frac{\text{Number of Aged (65+)}}{\text{Number of Adults (15-64)}} \times 100$$

Age structure directly affects the economy. If we look at world population, two distinct trends are observed in the developing and developed worlds. In the developing world, a large chunk of the total population is below 15 years of age (about 40 per cent), whereas it is about 20 per cent in the developed world. But, within the developed and developing worlds, there are a lot of variations among countries. Some of the developing countries in Africa and Asia, like Nigeria, Ethiopia, Iran, and Pakistan, have more than 40 per cent population below 15 years of age. What are the implications of such a huge population on socioeconomic conditions of the country? Thus, the work force in developing countries must support almost twice as many children as in developed countries. In developed countries, on an average, the proportion of workforce is about 65 per cent that support less than 20 per cent youthful dependants. Therefore, in these countries problems relate to low population growth and old age dependency, which represent about 15 per cent of their population.

Whether it is child, or aged dependency, it has a direct impact on social sector like health, education, and social security. In the case of aged dependency, a country has to spend on geriatric care facilities and facilities for non-communicable diseases. In developed countries, they spent a large amount on old age pension. In developing countries, the emphasis is on school education, addressing malnutrition, and communicable diseases, etc.

1.5 THEORIES OF POPULATION AND ITS LINKAGES WITH DEVELOPMENT

In this section we will discuss two important theories /models that explain the linkages between population and development. These theories /models are Malthusian theory and Demographic Transition Model. Malthusian theory is an example of population affecting development whereas the Demographic Transition Model is an example of how development affects population. Let us discuss them one by one.

1.5.1 Malthusian Theory

In 1798, Thomas Malthus published *An Essay on the Principle of Population*, describing his theory of quantitative development of human populations. Between 1798 and 1826 Malthus published six editions of his famous treatise, updating

each edition to incorporate new material, to address criticism, and to convey changes in his own perspectives on the subject. He wrote the original text in reaction to the optimism of his father and his father's associates, (notably Rousseau) regarding the future improvement of society. Malthus regarded ideals of future improvement of humanity with scepticism, considering that throughout history a segment of every human population seemed relegated to poverty. He explained this phenomenon by pointing out that population growth generally preceded expansion of the population's resources, in particular the primary resource of food. While developing his theory, Malthus proposed two postulates: (i) food is necessary for the existence of man (ii) the passion between the sexes is necessary and will remain nearly in its present state. Based on these two postulates, he made the following assertions.

Primary theory: the axioms - The power of population is indefinitely greater than the power in the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison with the second.

Secondary theory: the consequences – Yet, in all societies, even those that are most vicious, the tendency to a virtuous attachment is so strong that there is a constant effort towards an increase of population. This constant effort as constantly tends to subject the lower classes of the society to distress and to prevent any great permanent amelioration of their condition.

Malthus also saw that societies, through history, had experienced, at one time or another, epidemics, famines, or wars that masked the fundamental problem of populations overstretching their resource limitations.

Proposed solutions: Malthus argued that population was held within resource limits by two types of checks: positive ones, which raised the death rate, and preventative ones, which lowered the birth rate. The positive checks included hunger, disease, and war; the preventative checks, abortion, birth control, prostitution, postponement of marriage, and celibacy. In the second and subsequent editions, Malthus put more emphasis on moral restraint. By that he meant the postponement of marriage until people could support a family, coupled with strict celibacy until that time. "He went so far as to claim that moral restraint on a wide scale was the best means—indeed, the only means—of easing the poverty of the lower classes." This plan appeared consistent with virtue, economic gain and social improvement.

Criticisms

- Malthus' basic premise on passion between sexes has been questioned on the plea that the desire to have children cannot be mixed with passion and desire for sex. The desire for sex is a biological instinct whereas the desire to have children is a social instinct.
- The validity of the two ratios proposed by Malthus was also questioned on the basis of empirical evidence that population has rarely grown by geometric progression and similarly production of food rarely multiplied in arithmetic progression.

- The time span of 25 years assumed by Malthus for doubling of population also does not seem to be anywhere near reality because it varies from country to country depending upon demographic situation of that particular country. For example, it took Mexico only 20 years to double the population whereas USA which is the adjoining country took 120 years for the same.
- Malthus also seems to be swayed by the supremacy of positive checks like delayed marriage, moral restraints and controlled frequency of sex after marriage. It is rather strange that Malthus could not think of the use of contraceptives as an effective preventive check despite the fact that Malthus very much knew about it.
- Malthus has been severely criticized for ignoring the role of changing technology and changes in the socioeconomic set up of a society.

1.5.2 Reactions to Malthusian Ideas

Neo Malthusian Arguments

A neo Malthusian is somebody who sides with Malthus beliefs. The neo Malthusian theorists may be presented as a splinter group. Essentially they agree with Malthus that control of population is inevitable, and have pessimistic views that consider the growth of world population with fear and alarm. However, they disagree with Malthus that factors like war and famine are the key to population control and reject such simplistic notions. Instead they promote a number of ideals, for example planned parenthood as a method of population control.

Marxism

Other opposition to Malthus' ideas came from the middle of the nineteenth century with the writings of Karl Marx (*Capital*, 1867) and Friedrich Engels (*Outlines of a Critique of Political Economy*, 1844). Engels and Marx argued that what Malthus saw as the problem of the pressure of population on the means of production actually represented the pressure of the means of production on population. They, thus, viewed it in terms of their concept of the reserve army of labour. *Reserve army of labour* is a concept in Karl Marx's critique of political economy. It refers basically to the unemployed in capitalist society. The use of the word "army" refers to the workers being conscripted and regimented in the workplace in a hierarchy, under the command or authority of the owners of capital. In other words, the seeming excess of population that Malthus attributed to the seemingly innate disposition of the poor to reproduce beyond their means actually emerged as a product of the very dynamics of capitalist economy. Engels called Malthus's hypothesis "...the crudest, most barbarous theory that ever existed, a system of despair which struck down all those beautiful phrases about love thy neighbour and world citizenship."

1.5.3 Demographic Transition Model

The Demographic Transition Model (DTM) is a model used to represent the process of explaining the transformation of countries from high birth rates and high death rates to low birth rates and low death rates, as part of the economic development of a country from a pre-industrial economy to an industrialized economy. It is based on an interpretation, begun in 1929, by the American demographer Warren Thompson, of prior observed changes, or transitions, in

birth and death rates in industrialized societies over the past two hundred years. Most developed countries are beyond stage three of the model; the majority of developing countries are in stage 2 or stage 3. The model was based on the changes seen in Europe, so these countries follow the DTM relatively well.

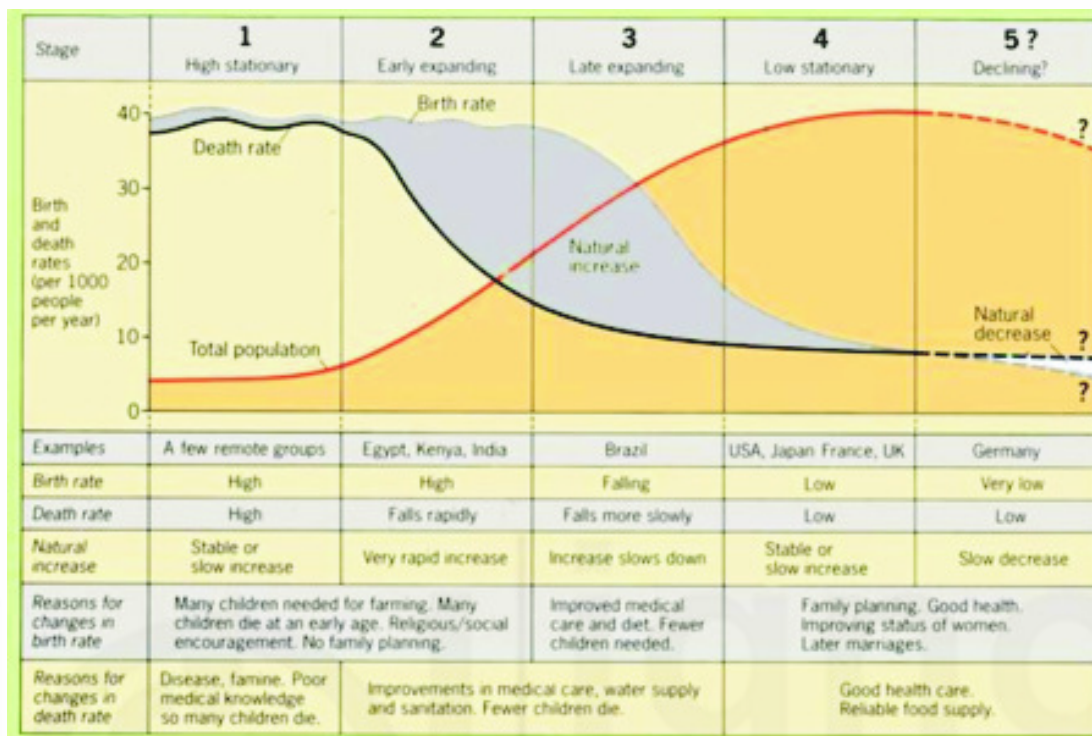


Fig. 1.3 : World's Demographic Transition Model

Source: www.geographyalltheway.com/in/gcse-popn/imagesetc/demographic_transition_detailed.jpg

Many developing countries have moved into stage 3. Traditionally, transition involves four stages, but later on, a fifth stage, called deindustrialization, was added by various theorists to explain the economic transition from manufacturing based industries into service and information based industries.

- In stage one pre-industrial society, death rates and birth rates are high and roughly in balance.
- In stage two, that of a developing country, the death rates drop rapidly due to improvements in food supply and sanitation, which increase life spans and reduce disease. These changes usually come about due to improvements in farming techniques, access to technology, basic healthcare, and education. Without a corresponding fall in birth rates this produces an imbalance, and the countries in this stage experience a large increase in population.
- In stage three, birth rates fall due to access to contraception, increases in wages, urbanization, a reduction in subsistence agriculture, an increase in the status and education of women, a reduction in the value of children's work, an increase in parental investment in the education of children and other social changes. Population growth begins to level off.
- During stage four there are both low birth rates and low death rates. Birth rates may drop to well below replacement level as has happened in countries like Germany, Italy, and Japan, leading to a shrinking population, a threat to

many industries that rely on population growth. As the large group born during stage two ages, it creates an economic burden on the shrinking working population. Death rates may remain consistently low or increase slightly due to increases in lifestyle diseases due to low exercise levels and high obesity and an aging population in developed countries.

- The original DTM has just four stages. However, some theorists consider that a fifth stage is needed to represent countries that have undergone the economic transition from manufacturing based industries into service and information based industries called deindustrialization. Countries such as the United Kingdom (the earliest nation universally recognized as reaching Stage Five), Germany, Italy, Spain, Portugal, Greece, and most notably, Japan, whose populations are now reproducing well below their replacement levels, are not producing enough children to replace their parents' generation.

Criticisms

- **As with all models, this is an idealized picture of population change.** It has to be remembered that the DTM is only a model and cannot necessarily predict the future. It does, however, give an indication of what the future birth and death rates may be for a country, together with the total population size. Therefore, there are limitations to it, as with any model. Most particularly, of course, the DTM makes no comment on change in population due to migration. Following are some of the major criticism about the model.
- **Non-applicability to less developed countries:** DTM has a questionable applicability to developing countries, where information access is limited. For example, the DTM has been validated primarily in Europe and North America where demographic data exists over centuries, whereas high quality demographic data for most developing countries did not become widely available until the mid 20th century. DTM does not account for recent phenomena such as AIDS; in these areas HIV has become the leading cause of mortality.
- **Generalization from European experience:** The DTM is mostly applicable to European countries. It also contains a hypothesis that other countries would follow suit. The DTM assumes that countries will go through all the stages. Some countries may even skip stages. Demographic data for developing countries span about five decades, leading to questionable extrapolation from the experiences of the most developed countries.
- **Economic development not sufficient cause to effect demographic change:** DTM assumes that population changes are induced by industrial changes and increased wealth, without taking into account the role of social change in determining birth rates, e.g., the education of women. In recent decades, more work has been done on developing the social mechanisms behind it. DTM assumes that the birth rate is independent of the death rate. Nevertheless, demographers maintain that there is no historical evidence for society-wide fertility rates rising significantly after high mortality events. Notably, some historic populations have taken many years to replace lives such as the Black Death.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) What is an age-sex pyramid? Describe any two age-sex pyramid.

.....

2) Explain any three criticisms of the Demographic Transition Model.

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1.6 GROWTH OF POPULATION AND DEVELOPMENT- ARGUMENTS IN FAVOUR AND AGAINST

There is a divergence of opinion, about population growth and its implications on development. There are two broad lines of arguments. One group argues that population growth is not the real problem. The other group argues that it is a real problem. The first one is an optimistic view, whereas the latter is a pessimistic view. In the following paragraphs, we will discuss some of the main arguments for and against the idea that rapid population growth is a serious developmental problem.

1.6.1 Population Growth is not a Real Problem

We can identify three general lines of argument on the part of those individuals, primarily from the developing countries, who assert that: (1) the problem is not population growth, but some other issue; (2) population growth is a deliberately created false issue, and (3) for many countries and regions population growth is, in fact, desirable (Todaro & Smith, 2009).

i) The Problem is Not Population Growth but ‘Some Other Issue’

Many knowledgeable people from developed as well as developing nations argue that the real problem is not population growth *per se* but some other aspects. These are:

a) **Underdevelopment:** if correct strategies are pursued which lead to higher levels of living, greater esteem, and expanded freedom, then population will take care of itself. Eventually, it will disappear as a problem, as it has in all

the present-day, economically advanced nations. According to this argument, underdevelopment is the real problem. Economic progress and social mechanisms will, more or less automatically regulate population growth and distribution. As long as the vast majority of people in developing countries remain impoverished, uneducated, and physically and psychologically weak, the large family will constitute the only real source of social security.

- b) **World Resource Depletion and Environmental Destruction:** was primarily caused by the developed nations. The fact is that the developed countries, with less than 25 per cent of the world's population, consume almost 80 per cent of the world's resources. According to this argument, the developed nations should curtail, or cut back on their excessively high consumption standards, rather than having the less developed nations restrict their population growth. The latter's high fertility is really due to their low levels of living. It is this combination of rising affluence and extravagant, selfish consumption habits in rich countries and among rich people in poor countries which should be the world's major concern, not population growth.
- c) **Population Distribution:** the third line of argument is that it is not numbers of people *per se* which are causing population problems but their distribution in space. Many regions of the world (e.g., parts of sub Saharan Africa) and many regions within countries (e.g., the northeast and Amazon regions of Brazil) are, in fact, under populated in terms of available or potential resources. Others simply have too many people, concentrated in too small an area, (e.g., central Java, or most urban concentrations in developing countries). What is needed, therefore, instead of moderating the quantitative rate of population growth, the governmental efforts should be to reduce rural-urban migration and to bring about a more rational spatial distribution of the population in terms of available land and other productive resources?
- d) **Subordination of women:** according to this line of arguments, population growth is a natural outcome of women's lack of economic opportunity. The argument is that if women's health, education, and economic wellbeing are improved along with their role and status in the family and the community, these empowered women will inevitably lead to smaller families and lower population growth.

ii) A Deliberately Created False Issue

This line of argument is closely allied to the dependence theory of underdevelopment. Basically, it is argued that the frenetic over concern in the rich nations with the population growth of poor nations is in reality an attempt by the former to hold down the development of the latter, in order to maintain the status quo for their own self interest. Rich countries are pressuring poor nations to adopt aggressive population control programmes, even though they themselves went through a period of sizable population increase which accelerated their own development processes. This argument views population control efforts by rich countries and their allied international agencies as racist or genocidal attempts to reduce the relative or absolute size of those poor, largely non-white populations of the world, who may someday pose a serious threat to the welfare of the rich, predominantly white, populations.

iii) Growth is Desirable Phenomena

A more conventional economic argument is that population growth in many developing countries is, in fact, desirable to stimulate economic development. Larger populations provide the needed consumer demand to generate favourable economies of scale in production, to lower production costs and to provide a sufficient and low-cost labour supply to achieve higher output levels. Moreover, it is argued that many rural regions in the developing countries of tropical Africa and Latin America and even parts of Asia are under populated in the sense that there is much unused but arable land that could yield large increases in agricultural output if only more people were available to cultivate it. Three other non-economic arguments put forward by developing countries, also compete this viewpoint. First, many countries claim a need for population growth to protect currently under-populated border regions against any expansionist intentions of neighbouring nations. Second, there are many ethnic, racial and religious groups within developing countries whose differential attitudes towards family size have to be protected both for moral and political reasons. Finally, military and political power is often seen as dependent on a large and youthful population.

1.6.2 Population Growth is a Real Problem

The extreme version of the population-as-a-serious-problem position attempts to attribute almost all the world's economic and social evils to excessive population growth. Unrestrained population increase is seen as the major crisis facing mankind today. It is claimed to be the principal cause of poverty, low levels of living, malnutrition and ill-health, environmental degradation, and a wide array of other social problems. Value-laden and incendiary words, such as the 'population bomb' or 'population explosion' are tossed around at will. Indeed, dire predictions of world food catastrophes and ecological disaster are attributed almost entirely to the growth in numbers.

1.6.3 Empirical Arguments in support of Negative Consequences of Population

Growth researchers has established that population growth has a negative impact on economic development by way of hampering various sectors like education, health, environment, food, economic growth (Todaro & Smith, 2009). Let us discuss some of these areas that are mentioned above.

- i) **Increasing Poverty:** the negative consequences of rapid population growth effect most heavily to the poor because they are the ones who are landless and suffers first from cuts in government health and education programme, bear the brunt of environmental damage and are the main victims of job cut due to the slower growth of the economy.
- ii) **Retarding Economic Growth:** evidence shows that rapid population growth lowers per capita income growth in most of the developing countries particularly countries that are already poor and mostly agrarian based economy.
- iii) **Problems of Food Scarcity and Security:** rapid increase of population poses serious challenges to provide foods (both, in terms of quantity and quality) to billions of population in developing countries. New technologies have to be invented because fertile lands have already been cultivated and levels of food production have reached a point of saturation.

- iv) **Education:** studies reveal that large family and low income tends to restrict parents to provide education to all the children. In this situation, it has been observed, particularly in developing countries, preference is given male children. Rapid population growth also affects quality of education as the government has less funds to address, equally, the need for all learners, and this directly affects the development of human capital.
- v) **Health:** high fertility harms health of mothers and children. It also increases the health risk of pregnant mothers. It not only affects mothers but also affects newborns, in terms of low birth weight as well as increased infant mortality rate.
- vi) **Environmental Degradation:** the earth's carrying capacity is burdened, not only by the demands of growing population, but also by food requirements by billions of livestock. This leads to the clearing of land for cattle ranching and overgrazing by livestock. While the former is an important factor in tropical deforestation, the latter is a major cause of desertification and soil loss in many countries. Therefore, it has been argued that population growth leads to various environmental degradation like deforestation, desertification and soil erosion, declining fish and animal resources, air and water pollution, etc.

1.7 POPULATION POLICIES

Population policy may be defined as deliberately constructed or modified institutional arrangements and/or specific programs through which governments influence, directly or indirectly, demographic change (Demeny, 2002). In simpler terms, population policy is a strategy for achieving a particular pattern of demographic change. The change could be both quantitative as well as qualitative. Policies can broadly grouped those for under developed countries and other for developing countries.

1.7.1 Population Policy in Developing Countries

Since the 1950's, the population policy in the developing world has become essentially synonymous with family planning programs. Financial and administrative limitations within developing countries necessitated the heavy involvement of foreign assistance in launching and sustaining family planning programs. Declared demand for birth control does not necessarily translate into effective willingness to practice it: conflicting desires may interfere. Weakness of measures of latent demand, or "unmet need," is reflected in the requirements that programmes are supposed to satisfy if they are to be successful. These, typically, included such items as "doorstep accessibility of quality services," "broad choice of contraceptive methods," "forceful IEC [information, education, and communication] programs," "sound financing strategies," "sound management with proper logistics," "evaluation systems," "a continuous process of strategic thinking, planning and management," and "staff leadership for program parameters" (Mahler 1992: 5).

The effectiveness of family planning programs in reducing fertility remains a matter of controversy. According to international guidelines, programs recruit their clients on a strictly voluntary basis. By accepting the service voluntarily,

the individual acceptor demonstrates that they value that service. But some of the more successful programs, notably in Asia, tended to increase acceptance by often heavy-handed methods of persuasion, and, in the especially important case of China, by coercion backed by legal sanctions. Where fertility fell in less developed countries with active family planning programs, it is typically found that program-provided free services account for a large percentage of those practicing contraception. But what would have happened in the absence of the program is conjectural. Some less developed countries that lacked government programs also experienced major falls in fertility. Brazil is a conspicuous example. Similarly, if programs have seemingly only minor success in reducing fertility, this can be taken as evidence that the program is inadequately financed, organized, and managed.

In India, the experience is mixed. India was the first country in the world to introduce a National Family Planning Policy in 1952. It was basically voluntary in nature, except during a short emergency period, and target-based in approach. During the 1991 Census, it was observed that there is a clear cut demographic divide between Northern BIMARU (BI stands for undivided Bihar, MA stands for undivided Madhya Pradesh, R stands for Rajasthan and U stands for undivided Uttar Pradesh) States in comparison to southern states of Kerala and Tamil Nadu. Major factors responsible for this are differences in literacy, particularly female literacy, and health care facilities.

On the eve of the 1994 International Conference on Population and Development, a review on the importance of fertility decline for successful development, reached the guarded conclusion that the data on the subject “mostly supports the view that rapid population growth in poor countries under conditions of high fertility is inimical to many development goals” (Cassen, 1994). Accordingly, the development rationale of family planning programs was gradually dropped and was replaced by the argument that the programs satisfy important health needs and help people exercise a fundamental human right. The Cairo conference formalized this shift. Family planning programs were redefined, instead, as reproductive health programs, responding to a broader range of women’s health needs, such as prevention of unsafe abortions and sexually transmitted diseases, including HIV/AIDS. But beyond this, new emphasis was put on some requirements that would contribute to women’s empowerment: reduction of infant and maternal mortality and improvement in girls’ education and women’s opportunities for employment and political participation. These are conditions that are likely to help reduce the birth rate through stimulating the demand for smaller family size.

1.7.2 Population Policy in Developed Countries

In developed countries, though birth control measures have been universally adopted for a long time, yet, there are very few countries that have formulated an explicit national policy on population growth. On the other hand, there are many European countries that still follow pro-natalist policy due to their concern about declining population. But, indirectly population-related issues are reflected in various other policies enacted for economy, health and welfare measures. Some of those laws relate to the availability of contraceptives, sterilizations, abortions, marriage, divorce, income taxes, family allowances, and immigration (Chandna, 2008).

In developed countries a quite different demographic phenomenon has begun to attract increasing attention: fertility levels that are inadequate for the long term maintenance of the population. This fertility trend was detected earlier also, especially in Europe, in the 1920s and 1930s. But, in the decades immediately following World War II, the baby boom seemed to make the issue of low fertility moot. The baby boom was, however, a temporary interruption of the downward trend in fertility. By the 1970s, the net reproduction rate was at, or below, unity in most countries in Europe, and also in the United States. In the US, fertility stabilized at, or very close to, that rate, but in Europe, fertility continued to decline. If continued, in the absence of large compensatory immigration this would not only lead to rapid population decline, but also result in very high proportions of the population at old ages. Surprisingly, most governments as well as the general public tend to view below-replacement fertility with equanimity quite unlike the alarmed reaction that the same phenomenon elicited between the two World Wars. And, explicit pro-natalist policies, common in the 1930s, are conspicuous by their absence.

Among the factors explaining the low level of fertility despite general material affluence, many observers point to the double burden on women of both raising children and working outside the home. To the extent that higher birth rates are seen to be socially desirable, the derived policy prescription is to adopt measures that make motherhood and women's labour force participation more compatible. The higher fertility in countries, notably in Scandinavia, where such measures are strongly applied, compared to countries of Southern Europe, where they are largely absent, suggests that enhanced compatibility (through day care services, flexible work hours, liberal sick leave allowances, and the like) is an effective pro-natalist policy, even if motivated by other considerations. But it is far from clear whether the fertility differential so generated is high enough to bring the total fertility rate back to replacement level.

Check Your Progress 3

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Why does a certain group consider that population growth is a deliberately contrived and false issue? Give any two reasons.

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2) Explain the shift in population policy in developing countries after the International Conference on Population and Development (1994).

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1.8 LET US SUM UP

Population and development have a very close relationship because human beings are at the centre of concerns for any developmental activities, and people are the most important and valuable resource of any nation. Therefore, to understand the complex relationship between population and development, there is a need to study various aspects of population and its related theories and policies. There are two widely debated theories and models that establish close links between population and development. Malthusian theory is an example of population affecting development, whereas the Demographic Transition Model is an example of how development affects population. There is a divergence of opinion, about population growth and its implications on development. There are two broad lines of arguments. One group argues that population growth is not the real problem and the other group argues that it is a serious problem. The former argument is mainly propounded by developing countries, whereas the later is advocated by developed countries. Similarly, population policies of developed and developing countries have distinct emphasis, depending upon their socioeconomic and demographic history

1.9 KEYWORDS

- Age-sex Pyramids** : Age-sex pyramids display the percentage, or actual amount of a population, broken down by gender and age. This is also known as a population pyramid.
- Demographic Transition Model** : This is a model used to represent the process of explaining the transformation of countries from high birth rates and high death rates to low birth rates and low death rates as part of the economic development of a country from a pre-industrial economy to an industrialized economy.
- Dependency Ratio** : This is an age-population ratio of those typically not in the labour force (the dependent part) and those typically in the labour force (the productive part).
- Migration** : Migration is only that movement of people which may involve a change in the place of normal residence of people from one settlement to another.
- Natural Growth Rate** : This shows the difference between the birth rate and the death rate.
- Population Policy** : Deliberately constructed or modified institutional arrangements, and/or specific programs through which governments influence, directly or indirectly, demographic change.

1.10 REFERENCES AND FURTHER SUGGESTED READINGS

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1.11 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress 1

- 1) Describe briefly, what would be the tentative population scenario in 2050.

Answer. In 2050, Asia will still have the largest share of global population, but it would decline from about 60 per cent to 57 per cent. The major increase of population would take place in Africa, i.e., 12.7 per cent to 22.4 per cent and the major decline in population would take place in Europe, i.e., 7.2 per cent to 4.1 per cent. The share of those living in the more developed countries is projected to drop from about 18 per cent in 2008 to less than 14 per cent in 2050.

- 2) World population is not evenly distributed-Comment.

Answer. The density and structure of population around the world is spread unevenly. On one hand, there is a very low concentration of population like deserts, dense forests, mountainous areas and on the other hand coastal and deltaic plain, moderate climate region, fertile soil areas, industrial areas and urban centers have higher concentration of population. The distribution is diverse, not only in population density rather it may be observe in terms of age-sex ratio, growth with time and migration.

Check Your Progress 2

- 1) What is the age-sex pyramid? Describe any two age-sex pyramid.

Answer. The age–sex pyramid is a graphical illustration that shows the distribution of various age groups in a population which normally forms the

shape of a pyramid. It typically consists of two back-to-back bar graphs, with the population plotted on the X-axis and age on the Y-axis, one showing the number of males and one showing females in a particular population in five-year age groups. Males are conventionally shown on the left and females on the right, and they may be measured by raw number or as a per cent age of the total population. The age–sex structure reflects the demographic and socioeconomic history of a population over a period of time and even their prospects for the future.

- 2) Explain any three criticisms against the Demographic Transition Model.

Answer. Major criticisms about the Demographic Transition Model are (i) non-applicability to less-developed countries; (ii) generalization from European experience; and (iii) economic development not sufficient cause to effect demographic change.

Check Your Progress 3

- 1) Why does a certain group consider population growth as a deliberately contrived and false issue? Give any two reasons.

Answer. The two arguments given for the issue are:

(i) It is argued that the frenetic over concern in the rich nations with the population growth of poor nations is in reality an attempt by the former to hold down the development of the latter in order to maintain the status quo for their own self-interest. (ii) Rich countries are pressuring poor nations to adopt aggressive population control programmes were viewed as racist or genocidal attempts to reduce the relative or absolute size of those poor, largely non-white populations of the world who may someday pose a serious threat to the welfare of the rich, predominantly. white populations.

- 2) Explain the shift in population policy in developing countries after the International Conference on Population and Development (1994).

Answer. After ICPD, 1994 the rationale of family planning programs was gradually dropped and replaced by the programs that satisfy important health needs and help people to exercise a fundamental human right. Family planning programs were redefined, instead, as reproductive health programs, responding to a broader range of women's health needs. New emphasis was put on requirements that would contribute to women's empowerment: reduction of infant and maternal mortality and improvement in girls' education and women's opportunities for employment and political participation.