

Course - Bachelor of Population Studies

Year - Ist

Paper Name – Concepts and Theories of Population

Paper No. I

Lecture No. 5

Lecture Title

Theory of Demographic Transition

Academic Script

1. Introduction

Demographic transition (DT) implies the transition from high birth rates and death rates to low birth and death rates, when an economy passes from a pre-industrial economic system to an industrialized economic system. The theory of demographic transition is based on historical interpretation of demographic scenario. It is associated with an American demographer called Warren Thompson. He observed changes in birth rates and death rates in industrialized societies over a period of 200 years. Currently, most of the developed countries are in stage three or four of the DT model. The majority of developing nations have reached stage two or stage three. In this context, some countries are the major exceptions. These are poor countries of sub-Saharan Africa, middle-east countries including Pakistan, Palestinian territories, Yemen and Afghanistan, which are affected by government policy or civil conflict.

DT model predicts ever decreasing fertility rates over the period of time. However, recent data show that beyond a certain level of development, the fertility rates begin to increase again. According to DT theory, it is not certain whether industrialization and higher incomes lead to lower population or if lower populations lead to industrialization and higher incomes. In the present day developed nations, DT began in the 18th century and continues even today. On the other hand, in less developed nations, DT started later and these countries are still at an earlier stage of DT.

2. Phases of Demographic Transition

The demographic transition involves four stages (see figure 1). These are discussed as under:

I. First stage

In first stage, death rates and birth rates are high and roughly in balance. This stage is termed as high stationary stage (see figure 1). This has happened in pre-industrial phase of an economy. All human populations are believed to have had this balance until the late 18th century. Firstly, this balance in death rates and birth rates ended in Western Europe. Historically, population growth rates were less than 0.05% since the Agricultural Revolution over 10,000 years ago. Both the

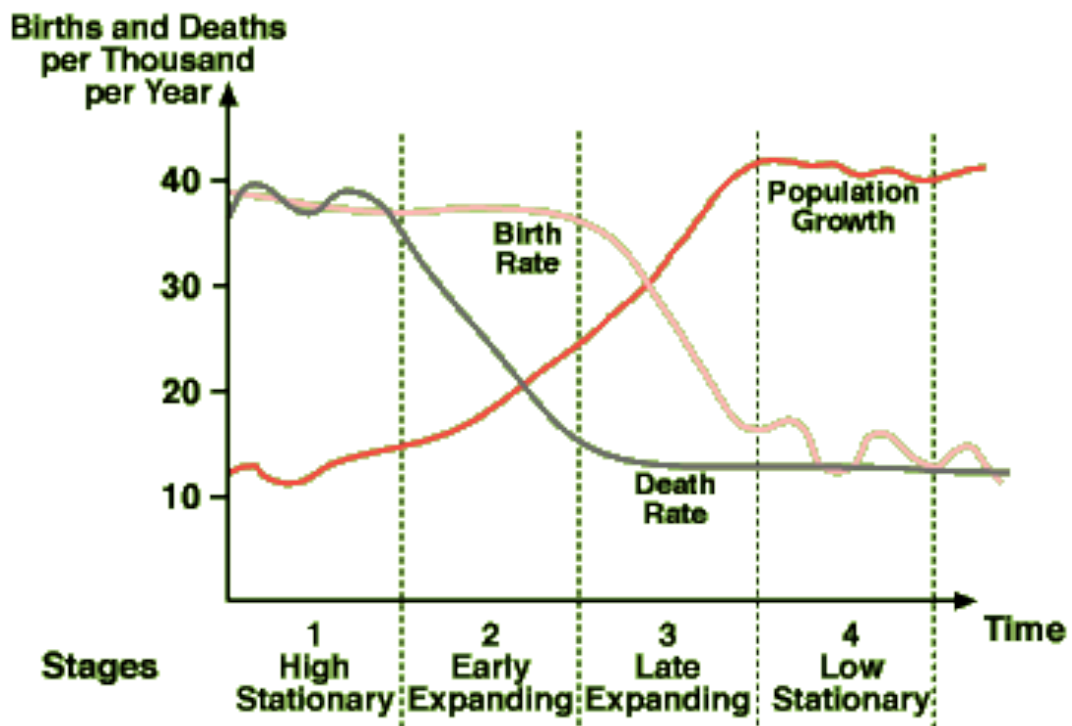
birth rates and death rates tend to be very high in this stage and are approximately in balance. As a result, the population growth is typically very slow in first stage of demographic transition.

II. Second stage

In second stage, the death rates dropped rapidly in developing country due to improvements in food supply and sanitation. This has increased the life expectancy and reduced the diseases. There have been improvements in food supply due to selective breeding, crop rotation and improved farming techniques. Besides, there has been improvement in access to technology, basic healthcare, and education. The improvements in public health have reduced mortality, especially childhood mortality. Before the mid-20th century, these improvements in public health were primarily in the areas of food handling, water supply, sewage, and personal hygiene. There has also been an increase in female literacy combined with public health education programmes in the late 19th and early 20th centuries. In Europe, the death rate decline started in the late 18th century in north-western Europe. It spread to the south and east over approximately the next 100 years. Without a corresponding fall in birth rates, this produces an imbalance in death rates and birth rates. As a result, the countries in this stage experience a large increase in population. This stage is termed as early expanding phase.

Figure 1

Demographic Transition Model



III. Third stage

In third stage, birth rates fall due to access to birth spacing devices like contraception, high wages, more urbanization, decline in subsistence agriculture, increase in women education and their status, decline in the value of children's work, increase in parental investment in the education of children and host of other social changes. As a result, population growth begins to level off. This stage is called late expanding phase. The decline in birth rates started in developed countries in the late 19th century in northern Europe. The improvements in contraception do play a role in birth rate decline. However, contraceptives were not generally available and less used in the 19th century. Therefore, their role in decline in birth rates was not significant. The birth rate has also declined due to change in social and religious values.

IV. Fourth stage

In fourth stage, both birth rates and death rates are low. Birth rates may drop to well below replacement level. This leads to fall in population growth rate significantly. This stage is called low stationary phase. This has happened mostly in Germany, Italy and Japan. The shrinking of population has been considered as a threat to many industries that rely on population growth. Death rates may remain consistently low or increase slightly due to increases in lifestyle diseases due to low exercise levels and high obesity. As a result, the process of an aging population in developed countries has occurred. By the late 20th century, birth rates and death rates in developed countries leveled off at lower rates.

3. Features of the Stages of Demographic Transition

I. First stage

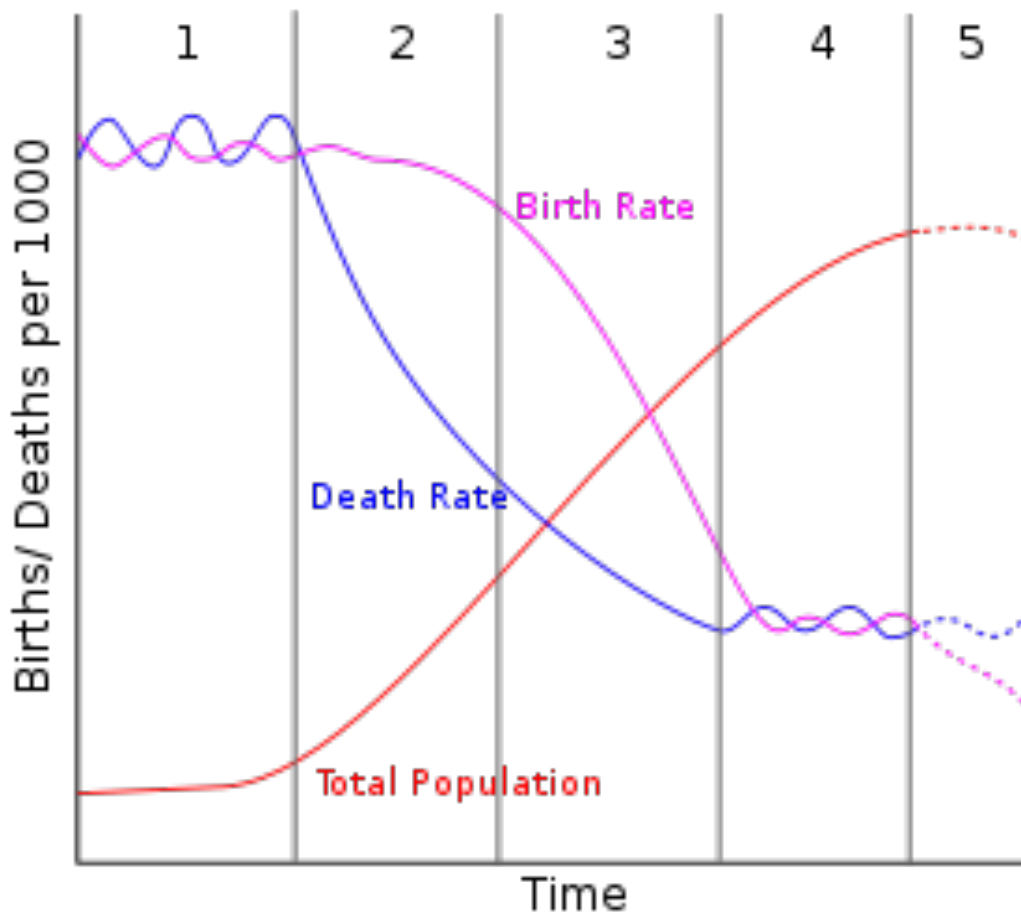
In pre-industrial society, death rates and birth rates were both high and fluctuated rapidly. The natural events, such as drought and disease were responsible for a relatively constant and young population. Family planning and contraception were virtually non-existent. Birth rates were determined by the ability of women to bear children. Emigration depressed death rates in Europe and the Eastern United States during the 19th century. Overall, death rates tended to match birth rates. These rates were often exceeding 40 per 1000 per year. Children contributed to the family economy at an early age by carrying water, firewood, caring for younger siblings, sweeping, washing dishes, preparing food, and working in the fields. The child rearing cost was very little. There were no education expenses. Thus, the total cost of child upbringing barely exceeded their contribution to the household. Children were the primary form of insurance for adults in old age. Death rates remained high. The population essentially was determined by the food supply. Any fluctuations in food supply tend to translate directly into population fluctuations. Mortality is frequent due to famine.

II. Second stage

In this stage, there is a fall in death rates, which causes an increase in population. In the 20th century, the decline in death rates tended to be substantially faster. The changes leading to this stage in Europe were initiated by the Agricultural Revolution of the 18th century. Countries in this stage include developing countries like Yemen,

Afghanistan, Bhutan and much of Sub-Saharan Africa. It excludes South Africa, Zimbabwe, Botswana, Swaziland, Lesotho, Namibia, Kenya and Ghana. These African nations have begun to move into stage three. The main factors responsible for decline in the death rate were the improvements in the food supply due to higher yields in agricultural practices and better transportation, which prevent death due to starvation and lack of water. There have been significant improvements in public health, which reduced mortality, particularly infant and child mortality. Besides, there have also been improvements in water supply, sewerage, food handling, and general personal hygiene due to growing scientific knowledge and the improved education and social status of mothers. Due to the decline in mortality in stage two, there is an increasingly rapid rise in population growth, which is termed as population explosion due to wider gap between deaths and births. The population explosion occurs not due to an increase in birth rates but due to a decline in death rates. This change in population occurred in north-western Europe during the 19th century due to the Industrial Revolution. During the second half of the 20th century, less-developed countries entered stage two and created population explosion.

Figure 2



III. Third stage

In stage three, there is population stability due to a decline in the birth rate. In rural areas, there has been decline in childhood death. Parents realize that they need not require so many children to ensure a comfortable old age. Parents become

increasingly confident that fewer children will suffice to help in family business and care for them in old age. There have been changes the traditional values placed upon fertility and the value of children in rural society due to impact of urbanization. Urban living also raises the cost of dependent children to a family. In both rural and urban areas, the cost of children to parents is increased by the introduction of compulsory education. Children are increasingly prohibited under law from working outside the household. School going children now need to be clothed, and may even require school uniforms. Parents begin to consider it a duty to buy children books and toys. A major factor in reducing birth rates in stage three developing countries such as Malaysia is the availability of family planning facilities. Increasing female literacy and employment lowers the uncritical acceptance of childbearing and motherhood as measures of the status of women. Working women have less time to raise children. Valuation of women beyond childbearing and motherhood becomes important. Improvements in contraceptive technology are now a major factor. Fertility decline is caused as much by changes in values about children and availability of contraceptives and knowledge of how to use them.

IV. Fourth stage

In the fourth stage, birth rates and death rates are low. Therefore, the total population is high and stable. There is a low death rate due to control of diseases and famines. The food security is assured. The birth rate is low as people have more opportunities to choose if they want children. This is possible by improvements in contraception. Women are gaining more rights, independent and work as opposed to just bearing children. Some demographers consider that there are only four stages of demographic transition. The DTM is only a suggestion about the future population levels of a country. It is not a prediction. Countries in the fourth stage include the United States, Canada, Argentina, Australia, New Zealand, European nations, Bahamas, Sri Lanka, South Korea, Iran, China, Turkey, Thailand and Mauritius.

V. Fifth stage

The original theory of demographic transition has just four stages, but additional stages have been proposed. Both more-fertile and less-fertile futures have been claimed as a stage five. Some countries have sub-replacement level of fertility (below 2.1 children per woman). European and many East Asian countries now have higher death rates than birth rates. There has been rapid population aging and population decline. In 2009, Myrskylä, Kohler and Billari show a negative relationship between national wealth and birth rates. The economic development promotes fertility decline at low and medium human development levels. At advanced human development levels, fertility rebound. In many countries with very high levels of economic development, fertility rates are now approaching two children per woman with exceptions of Germany and Japan. Currently, most advanced countries have increased fertility. Rich people are willing and able to convert plentiful resources into plentiful fertile descendants

4. Experiences of Demographic Transition

I. Britain

England experienced the transition from high levels of both mortality and fertility to low levels during 1750 to 1975. This has happened due to the sharp decline in the death rate for infectious diseases. The agricultural revolution and the development of transport, also led to greater availability of food and coal. The industrial revolution has also caused improvement in the standard of living. The decline in fertility occurred before efficient contraception became available.

II. Ireland

In the 1980s and early 1990s, the Irish demographic status converged to the European norm. Mortality rose above the European Community average. In 1991, Irish fertility fell to replacement level.

III. France

France displays real divergences from the standard model of Western demographic evolution due to its historic cultural values and its internal regional dynamics. France's demographic transition was unusual. The mortality and the fertility decreased at the same time. There was no demographic boom in the 19th century.

IV. Asia

In Asia, demographic change can be seen as a byproduct of social and economic development together with, in some cases, strong governmental pressures. The transition sequence entailed the establishment of an effective, typically authoritarian, system of local administration, providing a framework for promotion and service delivery in health, education, and family planning. Subsequent economic liberalization offered new opportunities for upward mobility.

V. India

Currently, India is in later half of third stage of demographic transition with more than 1.23 billion population. India is nearly 40 years behind in demographic transition process compared to European countries. The present demographic transition stage along with its higher population base will yield rich demographic dividend in future.

VI. Korea

In Korea, income growth and public investment in health caused mortality to fall, which suppressed fertility and promoted education. Industrialization, skill premium, and closing gender wage gap further induced parents to opt for child quality. Expanding demand for education was accommodated by an active public school building programme. The interwar agricultural depression aggravated traditional income inequality, raising fertility and impeding the spread of mass schooling. Landlordism collapsed in the wake of de-colonization. There was consequent reduction in inequality, which accelerated human and physical capital accumulation and economic to growth in South Korea.

VII. Russia

In the 1980s and 1990s, Russia underwent a unique demographic transition, which is termed as a "demographic catastrophe". The number of deaths exceeded the number of births. Life expectancy fell sharply especially for males. The number of suicides increased. From 1992 to 2014, the number of deaths exceeded the number of births.

VIII. United States

From 1800 to 1940, there was a demographic shift in United States. In rural areas, there was a shift from high fertility, with an average of seven children born per white woman to low fertility, with an average of two births per white woman. This shift resulted from technological progress. A six-fold increase in real wages made children more expensive in terms of forgone opportunities to work. Increases in agricultural productivity reduced rural demand for labour, a substantial portion of which traditionally had been performed by children in farm families. A simplification of the DTM theory proposes an initial decline in mortality followed by a later drop in fertility. The changing demographics of the U.S. in the last two centuries did not parallel this model.

Critical Evaluation

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 an underdeveloped country, together with the total population size. Most particularly, of course, the DTM makes no comment on change in population due to migration. It is not applicable for high levels of development, as it has been shown that after a high human development index of 0.9 the fertility increases again.

The main criticisms of the theory are discussed as under:

- I. DTM is less applicable to least developed nations. DTM has been validated primarily in Europe, Japan and North America where demographic data exists over centuries. High quality demographic data for most of least developed nations did not become widely available until the mid-20th century. DTM does not account for recent phenomena such as mortality due to AIDS, climate change impacts. The DTM also did not include government interventions, for example, one child policy of China.
- II. DTM assumes that population changes are induced by industrial changes and increased wealth. It does not consider the role of social change in determining birth rates. 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. DTM does not explain the early fertility declines in much of Asia in the second half of the 20th century or the delays in fertility decline in parts of the Middle East.

5. Conclusions

DTM presents an idealized picture of population change in developed countries. The model is a generalization that applies to developed countries as a group and may not

accurately describe all individual cases. The extent to which it applies to less-developed societies today remains to be seen. Many countries such as China, Brazil and Thailand have passed DTM very quickly due to fast social and economic change. Some countries, particularly African countries, appear to be stalled in the second stage due to stagnant development and the effect of AIDS. I hope you have enjoyed today's lecture. Thanks for watching.