

# **The Demographic Transition Model**

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## **Introduction:**

Demographic transition refers to a change of demographic parameters like birth rate and death rate along with the dynamic process of socio- economic scenario. It is a shift from demographic characteristics with high birth rates and high death rates in societies with under developed technology, education and economic development, to demographics with low birth rates and low death rates in societies with advanced technology, education and economic development, including all the stages between these two scenarios.

## **History of the Theory:**

The pioneers of demographic transition theory i.e., Thompson, Landry, Notestein have attempted to construct a model to describe the transition from conditions of high mortality and high fertility to conditions of low mortality and low fertility. The idea emerged in 1929, when Warren Thompson gathered data from some countries for the period 1908-27 and noticed the changing pattern of population is dynamic through time and varies in different countries. Adolphe Landry of France made similar observations on demographic patterns and population growth potential around 1934. Three demographic regimes namely primitive regime, intermediate demographic regime and modern epoch were put forth by Landry. In the 1940s and 1950s Frank W. Notestein developed a more formal theory of demographic transition with explanations for the changes in fertility. In that sense he may be credited with as the expounder of the theory. Notestein depending on demographic evolution mentioned three stages of high growth potential, transitional growth and stage of incipient decline.

## **Basic Concept:**

The model was developed in the mid 20th century based on repeated observation of similar population growth patterns in countries as their economies developed. Originally identifying 4 stages, a 5th stage was added towards the end of the century. The important outlines of the three basic hypotheses of the model:

1. The decline in mortality rate comes before the decline in fertility rate.
2. The fertility rate declines slowly depending on the socio-economic environment.
3. A socio-economic transformation of society is observed along with the demographic changes.

## Major stages of Demographic Transition:

Five stages of demographic transition are as follows:

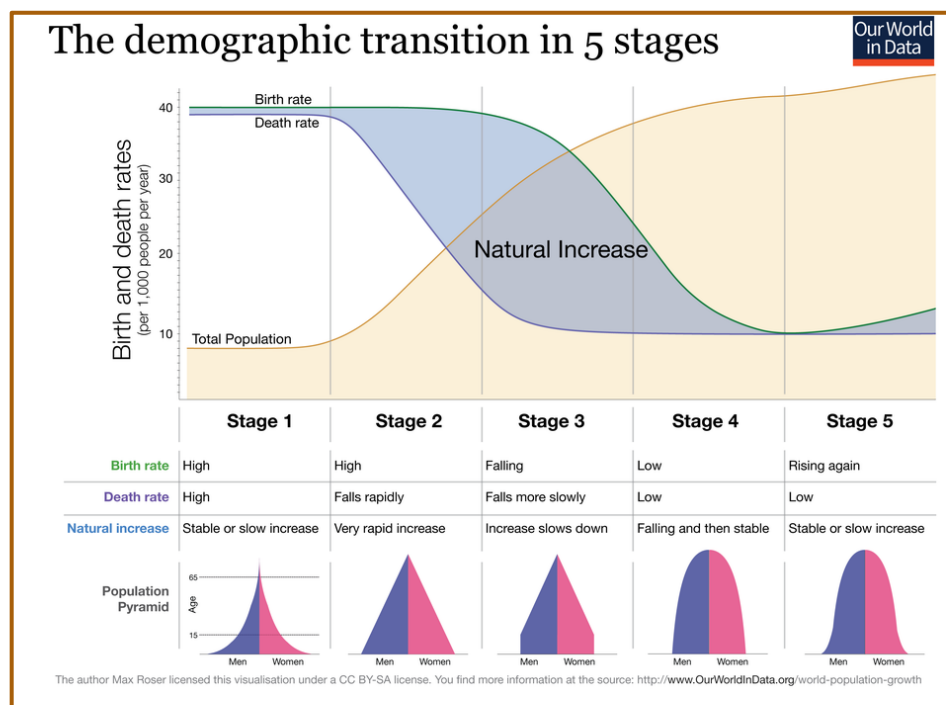
Stage 1- High and fluctuating birth and death rate with very slow population growth

Stage 2- High birth rate and declining death rate with rapid population growth rate

Stage 3- Slowly declining birth rate and low death rate and low declining rate of population growth

Stage 4- Low birth and death rate and slow population growth

Stage 5- Approximately equal birth and death rate that result in zero population growth



Source: en.wikipedia.org

### Stage 1

In the first stage, both fertility and mortality rates are high, in the range of 35-40 per 1000. But the mortality pattern is inconsistent due to prevalence of epidemics, diseases and variability in food supply. This results in stable and slowly growing population. In pre-industrial society, death rates and birth rates were both high, and fluctuated rapidly according to natural events, and produced a high young population. Children contributed to the economy of the household from an early age

and thus the total cost of raising children barely exceeded their contribution to the household which encouraged larger family size. Main causes of high death rate are poor diet, poor sanitation, inadequate hygiene, lack of medical care; whereas causes of high birth rate were high infant mortality, lack of family planning etc. This stage mainly prevails in agrarian societies with low or moderate population density, societies with low economic productivity, low life expectancy, large family size, underdeveloped and primitive agriculture as the main economic activity, low levels of urbanization and technological development and low levels of literacy. During this stage, the society evolves in accordance with Malthusian paradigm, with population essentially determined by the food supply. Famines directly contributed mortality rate. Nearly all the countries of the world were at this stage, but today there is little chance of having a region totally unaffected by expansion in medical facilities. For these reasons, the first stage has also been called the Pre-Industrial or Pre-Modern stage.

## **Stage 2**

The second stage is characterized by high but slowly declining fertility rates (at around 30 per 1000) and a quick reduction in mortality rate of over 15 per 1000. Improvements in the food supply brought by higher yields in agricultural practices and better transportation reduce death. Improvements in water supply, sewerage, food handling, general personal hygiene, expansion in health facilities also contributed in reduction of death rates. But, because education has not reached sufficient levels, birth rates are still high. By the end of the second stage, fertility rates are still high. Consequently, due to decline in mortality in stage Two there is an increasingly rapid growth in population growth as the gap between deaths and births grows wider and wider. This change in population occurred in north-western Europe during the nineteenth century due to the Industrial Revolution. Another characteristic of Stage Two of the demographic transition is a change in the age structure of the population. In Stage One, the majority of deaths are concentrated in the first 5–10 years of life. Therefore, the decline in death rates in Stage Two entails the increasing survival of children and trends towards a growing population. Hence, the age structure of the population becomes increasingly youthful and start to have big families. During the second half of the twentieth century less-developed countries entered this stage, contributing worldwide rapid growth of population. By the end of the second stage, fertility rates start declining gradually and mortality rates start declining sharply. The population now increases at declining rates. Most of the

developed and under developed countries of the world are passing through the explosive stage of demographic transition.

### **Stage 3**

In Stage 3 death rates are low and birth rates diminish, as a result of improved economic conditions, an expansion in women's status and education, increase in social awareness. The decrease in birth rate fluctuates from nation to nation, depending on the changing socio-economic condition. In this stage population moves towards stability through a decline in the birth rate. Several fertility factors contribute to this eventual decline. In rural areas continued decline in childhood death means there is a spread of health care facility and awareness as well as parent's realization of having small family size. As childhood death continues to fall and incomes increase parents can become increasingly confident that fewer children will suffice to help in family business and care for them in old age. Increasing urbanization changes the traditional values placed upon fertility and the value of children in rural society. Urban living also raises the cost of dependent children to a family which ultimately discourages the trend of having a greater number of children. Parents begin to reassess their need for children and their ability to grow them. On the other hand increasing literacy and employment lower the uncritical acceptance of childbearing and motherhood as measures of the status of women. Working women having less time to raise children gradually preferred small family. Fertility decline is also caused by the availability and awareness of using contraceptive technology. The resulting changes in the age structure of the population include a decline in the youth dependency ratio and increasing aging population. There is an opportunity of economic growth through an increase in the ratio of working age to dependent population.

Countries that have witnessed a fertility decline of over 50% from their pre-transition levels include: Costa Rica, El Salvador, Panama, Jamaica, Mexico, Colombia, Ecuador, Guyana, Philippines, Indonesia, Malaysia, Sri Lanka, Turkey, Azerbaijan, Turkmenistan, Uzbekistan, Tunisia, Algeria, Morocco, Lebanon, South Africa, India, Saudi Arabia, and many Pacific islands. Countries that have experienced a fertility decline of 25–50% include: Guatemala, Tajikistan, Egypt and Zimbabwe. Countries that have experienced a fertility decline of less than 25% include: Sudan, Niger, Afghanistan.

#### **Stage 4**

The Fourth Stage is characterized by appreciable decline in death rates and birth rates. As a result, population is either stable or growing slowly. This occurs where birth and death rates are both low, leading to a total population stability. Death rates are low for a number of reasons, primarily lower rates of diseases and higher production of food. The birth rate is low because of increasing awareness of people regarding decision of number of children in a family, increase in standard of living, more work participation by women. Birth rates dropped significantly in many developed countries like Japan, Italy and Germany which have experienced shrinking population. By the late 20th century, birth rates and death rates in developed countries got adjusted at lower rates. Countries belonging to this stage having total fertility rate  $< 2.5$  in 2015 include- Argentina, Bahrain, Bangladesh, Bhutan, El Salvador, Grenada, Guam, India, Indonesia, Libya, Malaysia, Maldives, Mexico, Myanmar, Nepal, Nicaragua, Palau, Peru, Sri Lanka, Suriname, Tunisia, Turkey, Venezuela Etc.

#### **Stage 5**

The original Demographic Transition model has four stages, later additional fifth stage has been Proposed. Some designates it as stage of rising population whereas others think it as stage of less fertility rate and negative growth rate. At this stage, the population has become highly industrialized and urbanized with higher technological development. This stage is evident in West Europe, Australia, New Zealand, Japan, Singapore etc

#### **Criticisms of the Theory of Demographic Transition**

The theory has been criticised by many researchers from different perspectives.

1. It has been criticised that the sequences of the demographic stages have not been uniform. In some East and South European countries, and in Spain in particular, the fertility rates declined even when mortality rates were high. In USA, the growth rate of population was comparatively higher in the second and third stage of demographic transition.

2. It has not even been supported by empirical evidence that birth rate declined initially in urban areas. Sweden and France with predominantly rural populations experienced decline in birth rates to the same extent as countries like Great Britain with predominantly urban populations.
3. The theory fails to give the fundamental explanations of decline in birth rates in Western countries. In fact, the causes of decline in birth rate are so diverse that they differ from country to country.
4. The role of man's technical innovations has been sometimes underrated compared with social change.
5. Influence of migration has also not been given proper weightage.

**Conclusion:**

The theory, inspite of its shortcomings, provides a generalized macro-level framework within which different situational contexts can be placed in order to comprehend the demographic processes in that particular country. It is the most acceptable theory of population growth. It does not lay emphasis on food supply like the Malthusian theory, nor develops a pessimistic outlook towards population growth. It is also superior to the optimum population theory which lays an exclusive emphasis on the increase in per capita income for the growth of population and neglects the other factors which influence it. In this respect the demographic transition theory is complete and more applicable than all other theories of population because it is based on the actual trends of population growth. It may not be universally applicable model but a generalised scientific theory to be considered regarding historical transformation of demographic processes.