

1. Details of Module and its structure

Module Detail	
Subject Name	Sociology
Course Name	Sociology 03 (Class XII, Semester - 1)
Module Name/Title	Demographic Structure – Part 2
Module Id	lesy_10202
Pre-requisites	Theories of Demography- Robert Malthus & Transition
Objectives	After going through this lesson, the learners will be able to understand the following: <ul style="list-style-type: none">• The concepts that help to understand population stability and change.• Types of demography• The importance of demography.• Biography of Malthus• Malthus’s theory of Population.• Theory of Demographic Transition
Keywords	Demography, Malthus, Arithmetic progression, Geometric progression, Birth rate, Death rate, Growth rate, Development, Population explosion, Preventive check, Positive check, Demographic Transition, Developed, Developing, Underdeveloped

2. Development Team

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Let us first understand the concept of Demography-

What is a Demography? The term is of Greek origin and is composed of two words, *demos* (people) and *graphein* (describe), implying description of people. Hence, it is the systematic study of population

According to the medical definition of demography – “it is the statistical study of human population especially with reference to size and density, distribution, and vital statistics”. It studies all aspects related to population. Aspects which includes population distribution, qualitative and quantitative aspects of population, size of population, structure of population, fertility rate, mortality rate, marriage, migration, unemployment and social mobility.

In other words, Demography includes five important population variables--- birth, death, migration, marriage and social mobility, which in turn determines the-----

1. variation in the size of population
2. Composition of the population
3. Distribution of the population

Now, let us understand what is a “Theory”? it is.....

- “A set of statements or principles devised to explain a group of facts or phenomena, especially one, that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena”.

How is this theory important? A **theory** very often presents a systematic way of understanding events, behaviours and/or situations. It is a set of interrelated concepts, definitions, and propositions that explains or predicts events or situations by specifying relations among variables.

Specifically, Demographic theories have helped to study the demography of any place, the trends and processes associated with population including- changes in population size; patterns of births, deaths, and migration; and the structure of population, such as the relative proportions of women, men, and different age groups.

Now, **before we apply and consider the theories of population**, it is **essential to understand the two types of Demography which is an essential part of the theories.**

There are two varieties i.e. **Formal Demography and Social Demography.**

Formal Demography (quantitative)- It is largely a quantitative field with highly developed mathematical methodology suitable for forecasting population growth and the changes in the

composition of the population. It is primarily concerned with measurement and analysis of the components of population change

Social Demography (qualitative)- It focuses on the social, economic or political aspects of populations. It looks into the wider causes and consequences of population change.

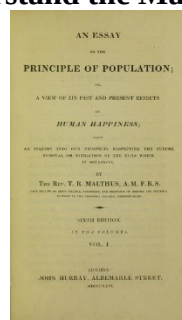
The statistical study of human populations includes size and structure, i.e. their compositions by sex, age, marital status and ethnic origin, and also refers to the changes made to these populations, i.e. changes in their [BIRTH RATES](#), [DEATH RATES](#) and [MIGRATION](#).

The study of the reproduction of population—that is, the replacement of certain groups of people by others—occupies a central place in demography. The reproduction of population proceeds, first of all, through the natural succession of generations—that is, through birth and death, or the so-called natural movement of population. The population of a given territory also changes as a result of the arrival of people from other areas (immigration) and their departure for other areas (emigration), which together constitute migration, or the mechanical movement of population. Finally, population also changes through movement of individuals from one status to another (from one group to another) as age, family situation, or number of children change (demographic mobility), or through changes in level of education, profession, or social position (social mobility). All of which may lead to certain critical demographic changes/problems.

The problems of overpopulation and of under development, which have been examined by various scholars under different perspectives.

Demographic Perspective :

The “Demographic Perspective” is mainly concerned with the ideas of Thomas Robert Malthus. So.... **Let us understand the Malthusian theory of population----**



Who was Thomas Robert Malthus who propounded this theory?

Thomas Robert Malthus, (February 1766 – 29 December 1834) [was an English cleric and scholar, influential in the fields of political economy and demography](#). Malthus, an economist looked at the problems of population from the demographic point of view



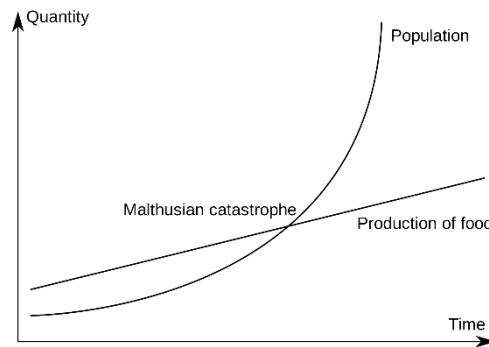
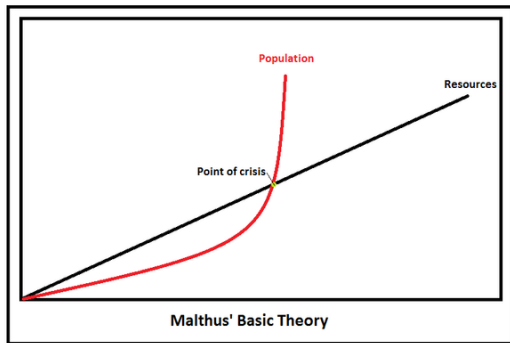
The essence of Malthusian theory of population is found in his book “[An Essay on the Principle of Population](#)”. This, is an empirical work based on various contemporary conditions prevalent, mainly in European countries, during his time.

What are the assumptions of his theory?

The assumptions of his theory are :

- Reproduction is a direct outcome of the sex urge in men and women and is not merely inherent.
- Food is essential for human subsistence.
- There is a strong and direct relationship between Reproduction and Economic prosperity.
- The means of production, mainly land, has a limited capacity for producing subsistence.

Hence, Malthus observed that an increase in a nation's food production improved the well-being of the populace, but the improvement was temporary because it led to population growth. In other words, mankind had a tendency to utilize [abundance](#) for population growth rather than for maintaining a high standard of living, a view that has become known as the "[Malthusian trap](#)". Populations have a tendency to grow until the lower class suffered hardship and become easily susceptible to [famine](#) and [disease](#), a view that is sometimes referred to as a [Malthusian catastrophe](#).



Malthus says Population grows in Geometric Ratio? What does it mean?

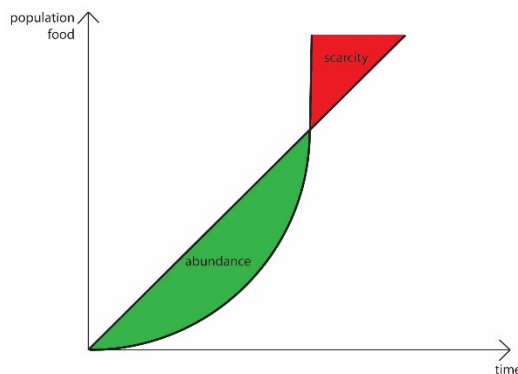
Thomas Malthus argued that there has always been and always will remain the attraction between men and women and because of the natural human urge to reproduce human population increases geometrically (1, 2, 4, 16, 32, 64, 128, 256, etc.). If the population is not controlled he believed, it would double up in 25 years. Since, population has a natural tendency to increase faster than the level of subsistence.

Thus, Thomas Malthus' example of population growth doubling was based on the preceding 25 years of the brand-new [United States of America](#).

Food Production Increases in Arithmetic Ratio? What does it mean?

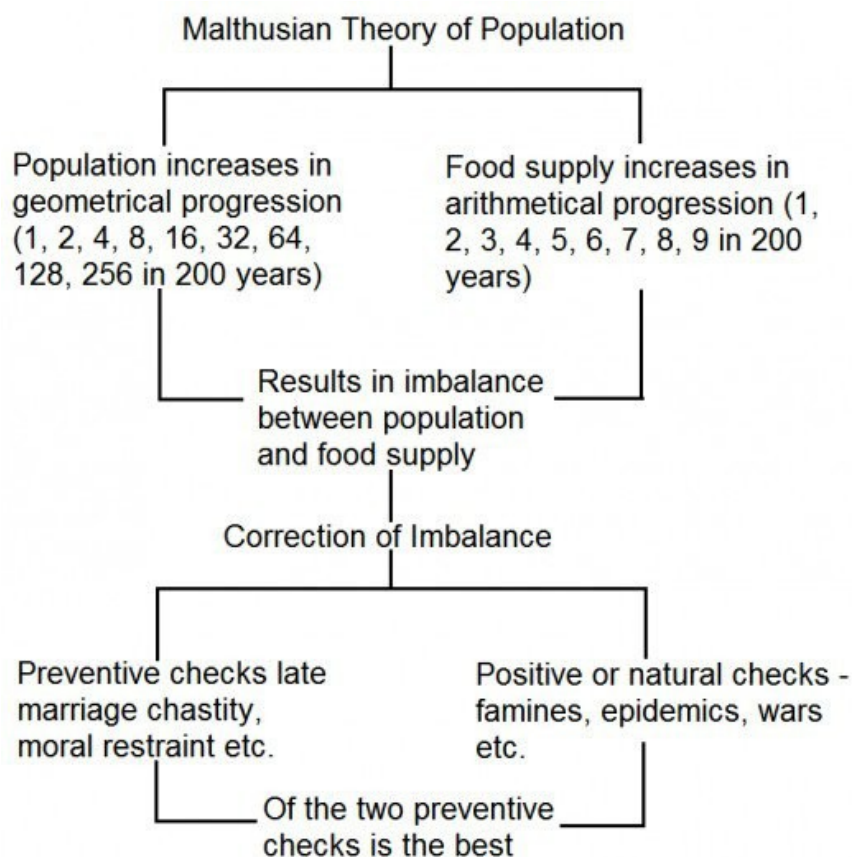
Malthus felt that a young country with fertile soil like the U.S. would have one of the highest birth rates around. He liberally estimated **an arithmetic increase** in agricultural production.

Food supply (agricultural production), that will only increase arithmetically (1, 2, 3, 4, 5, 6, 7, 8, etc.). Therefore, since food is an essential component to human life, population growth in any area or on the planet, if unchecked, would lead to starvation.



Existence of Imbalance between Population growth (arithmetic progression) and Food Production (geometric progression)

Although Population and Food production increase, there is a significant difference in its rate of growth. Population multiplies in geometric progression whereas means of subsistence grows in arithmetic progression. That is if food production increases in five years in the ratio of 1,2,3,4,5 which means in five years it increases five times, population increases 16 times in five years, 2,4,8,16. A wide gap occurs in due course of time and this gap leads to drastic consequences. Thus, mankind is doomed to live in poverty forever.



Look at the above chart which shows the reasons for imbalance and the “**Correction of Imbalance**” through certain **positive and preventive checks that can control population**.

What are Positive and Preventive checks?

Positive checks are those, according to Thomas Malthus, that increase the death rate. These include disease, war, disaster, etc, which are **nature’s ways** of dealing with the imbalance between population and means of subsistence and finally when other checks don’t reduce population, famine does. Malthus felt that the **fear of famine** or the **development of famine** was also a major push factor to reduce the birth rate. He indicates, for example, that potential parents are less likely to have children when they know that their children are likely to starve.

Preventative checks are those that affect the birth rate and include marrying at a later age (moral restraint), abstaining from procreation, birth control. Malthus professed population control by moral restraints rather than artificial means.

Criticisms to Malthus's Theory

Malthus's theory was popular for a very long time. But, in due course of time the **Malthusian Theory** was criticized by many people. These **criticisms** were based on the following premises:

- ✓ Malthus' pessimistic conclusion which was not a part of the Western European countries.
- ✓ it is based on law of diminishing returns.
- ✓ it is also compared with increase in food production.

Following were the criticisms:

- He placed **undue emphasis on the limitation of the supply of land**. The agricultural revolution of the nineteenth century, which brought in its wake the system of rotation of crops, chemical fertilisers, plant and animal breeding and improvements in the quality of livestock, brought about a tremendous increase in agricultural production. The gloomy predictions of Malthus, therefore, did not come true.
- Malthus **under-estimated the importance of industrial development**, and did not take into consideration the faster and more reliable modes of transport which helped colonial empires to provide additional raw materials, an exploitable land supply and new markets for manufactured products.
- His religious beliefs prevented him from grasping the possibility of the widespread use of contraceptives.
- Historical experience of European countries provided for a strong refutation to Malthus's theory. The pattern of population growth began to change in the latter half of nineteenth century, and by the end of the first quarter of the twentieth century these changes were quite dramatic. **Birth rates declined**, and **outbreaks of epidemic diseases were being controlled**.
- Malthus's predictions were proved false because both **food production and standards of living continued to rise** despite rapid growth in population.
- Liberal and Marxist scholars asserted that poverty was caused not due to rise in population only but due to the unequal distribution of economic resources. The critics

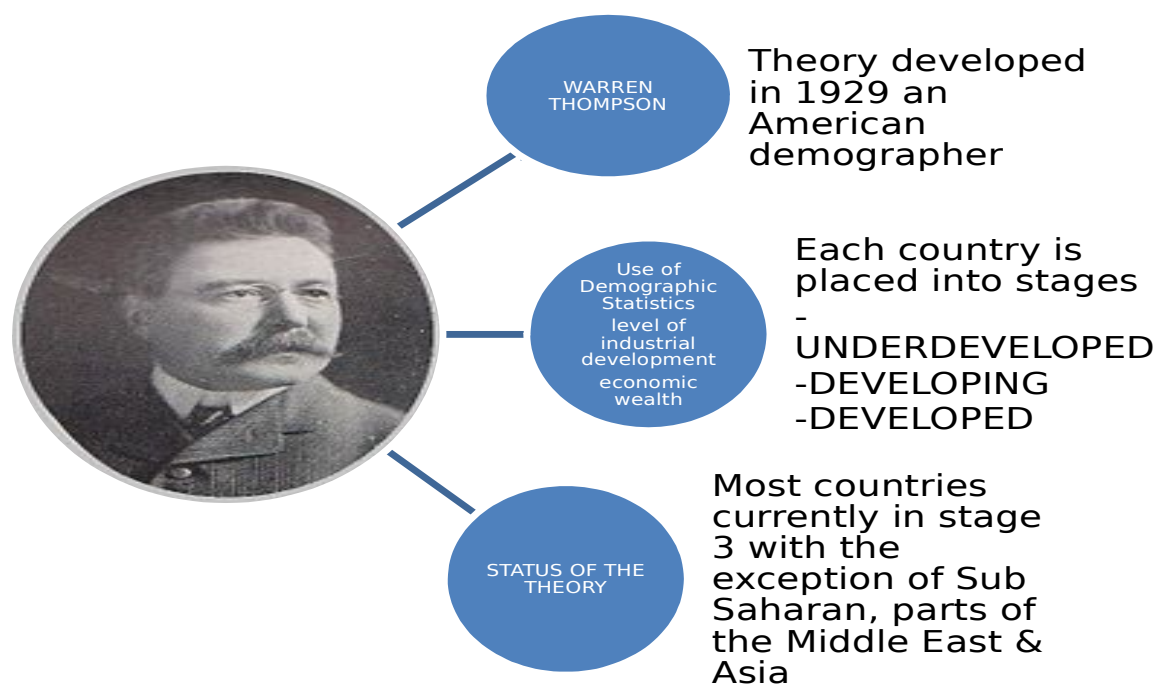
argued that problems like poverty and starvation were caused by the unequal distribution of economic resources rather than by population growth. An unjust social system allowed the wealthy and privileged minority to live in luxury while the vast majority of the people were forced to live in poverty.

Theory of Demographic Transition

Another significant theory in demography is **the theory of demographic transition**. The theory was **proposed in 1929 by the American demographer Warren Thompson**, who observed changes, or transitions, in birth and death rates in industrialized societies over 200 years.

Warren Thompson's Observations then were: ----

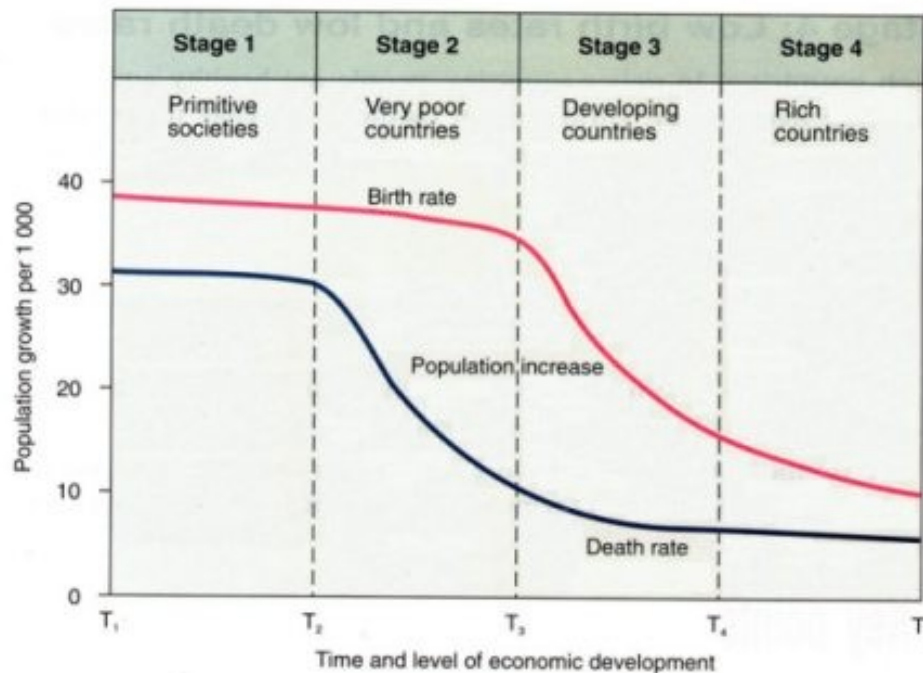
- Most **developed countries** have completed the demographic transition and have low birth rates;
- most **developing countries** are in the process of this transition.
- The major (relative) exceptions were some poor countries, mainly in sub-Saharan Africa and some **Middle Eastern** countries, which were poor or affected by government policy or civil strife, notably, Pakistan, **Palestinian territories**, **Yemen**, and **Afghanistan**.



Why Demographic Transition? The above observations suggest that population growth is linked to overall levels of economic development and that every society follows a typical pattern of development related population growth. Hence, It refers to the transition from high

birth and death rates to lower birth and death rates as a country develops from a pre-industrial to an industrialized economic system.

Let's look at the Theory of Demographic Transition diagram below-----



Population growth is linked to overall levels of economic development and that every society follows a typical pattern of development related to population growth.

- **STAGE 1:** In stage one, [pre-industrial society/primitive societies](#), death rates and birth rates are high and roughly in balance. All human populations are believed to have had this balance until the late 18th century, when this balance ended in Western Europe. In fact, growth rates were less at least since the Agricultural Revolution over 10,000 years ago. Population growth is typically very slow in this stage, because the society is constrained by the available food supply; therefore, unless the society develops new technologies to increase food production (e.g. discovers new sources of food or achieves higher crop yields), any fluctuations in birth rates are soon matched by death rates.
- **In stage two**, that of a [developing countries](#), the death rates drop quickly due to improvements in food supply and sanitation, which increase life expectancies and reduce disease. The improvements specific to food supply typically include selective breeding and crop rotation and farming techniques. One of the variables often cited is

the increase in female literacy combined with public health education programs which emerged in the late 19th and early 20th centuries. In Europe, the death rate decline started in the late 18th century in northwestern Europe and spread to the south and east over approximately the next 100 years. [Without a corresponding fall in birth rates this produces an imbalance](#), and the countries in this stage experience a large increase in [population](#).

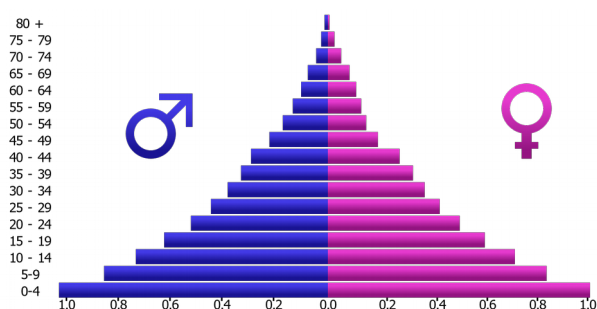
Distinct characteristics of stage two:

Population explosion :

firstly A consequence of the decline in mortality in Stage Two is an increasingly rapid growth in population growth ("[population explosion](#)") as the gap between deaths and births grows wider and wider. This growth is not due to an increase in fertility (or birth rates) but due to a decline in deaths. 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, creating the worldwide rapid growth of number of living persons that has become the cause of concern for demographers today.

Secondly, 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, more than anything else, the decline in death rates in Stage Two entails the increasing survival of children and a growing population. Hence, the age structure of the population becomes increasingly youthful and start to have big families and more of these children enter the reproductive cycle of their lives while maintaining the high fertility rates of their parents. The bottom of the "[age pyramid](#)" widens first where children, teenagers and infants are here, accelerating population growth rate. The age structure of such a population is illustrated by using an example from the [Third World](#) today.

As can be seen in this figure of a third world country below:



Population pyramid of Angola 2005

- **In stage three**, birth rates fall due to various [fertility factors](#) such as 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. Birth rate decline was caused also by a transition in values and not just because of the availability of contraceptives.

The **resulting changes in the age structure of the population** include a decline in the youth [dependency ratio](#) and eventually [population aging](#). The population structure becomes less triangular and more like an elongated balloon. During the period between the decline in youth dependency and rise in old age dependency there is a [demographic window](#) of opportunity that can potentially produce economic growth through an increase in the ratio of working age to dependent population; **the demographic dividend**.

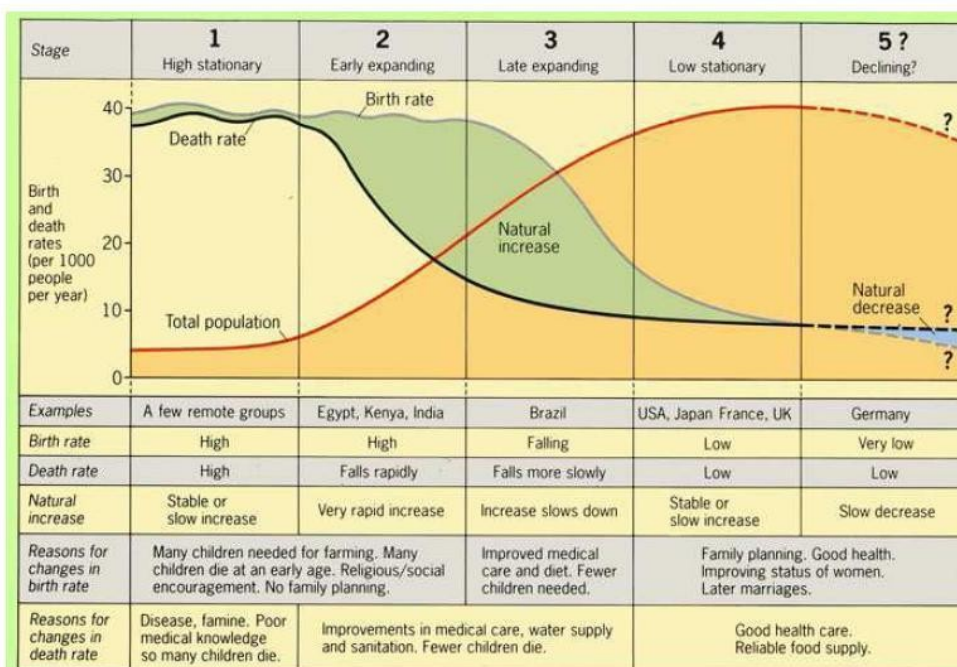
- **During stage four** there are both low birth rates and low death rates. This occurs where birth and death rates are both low, leading to a total population stable. Death rates are low for several reasons, primarily lower rates of diseases and higher production of food. The birth rate is low because people have more opportunities to choose if they want children; this is made possible by improvements in contraception or women gaining more independence and work opportunities. Countries that are at this stage include: United States, Canada, Argentina, Australia, New Zealand, the majority of Europe, [Bahamas](#), [Puerto Rico](#) (US territory), [Trinidad and Tobago](#), Brazil, Sri Lanka, South Korea, Singapore, Iran, [China](#), Turkey, Thailand, and [Mauritius](#).
- Some scholars talk of, a "stage five" of below-replacement fertility levels. Others hypothesize a different "stage five" involving an increase in fertility. Many European and East Asian countries now have higher death rates than birth rates. [Population aging](#) and [population decline](#) may eventually occur, assuming that the fertility rate does not change and sustained mass immigration does not occur.

Criticism to the theory :

- As with all models, this is an idealized picture of population change.

- The model is a generalization that applies to these 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 through the Demographic Transition Model (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](#).

The Demographic Transition theory



A major factor in reducing birth rates in stage 3 countries such as Malaysia is the availability of family planning facilities/association, like the one in the picture, Kuala Terengganu, Terengganu, Malaysia.