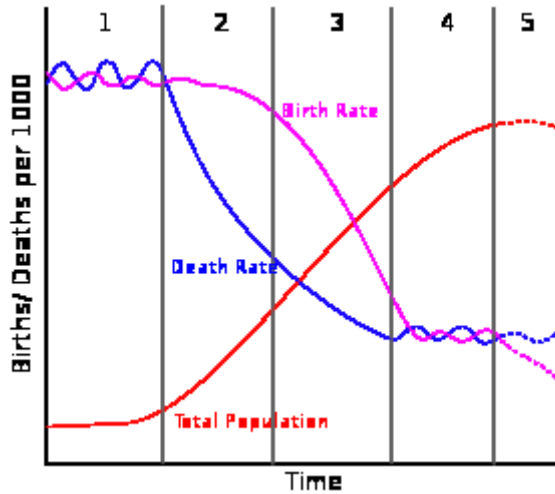


Demographic transition

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Before reading, answer these questions.

1. What is demographic transition, what does it represent?
2. How many stages are there in the Demographic transition model?
3. How is the model different for developed and developing countries?
4. Can this model predict future development in fertility rates?
5. What is a population pyramid?

Read the text and check your answers.

The **Demographic transition model** (DTM) is a model used to represent the transition from high birth and death rates to low birth and death rates as a country develops from a pre-industrial to an industrialized economic system. The theory is based on an interpretation of demographic history developed in 1929 by the American demographer Warren Thompson. Thompson observed changes, or transitions, in birth and death rates in industrialized societies over the previous 200 years.

Most developed countries are in stage 3 or 4 of the model; the majority of developing countries have reached stage 2 or stage 3. The major (relative) exceptions are some poor countries, mainly in sub-Saharan Africa and some Middle Eastern countries, which are poor or affected by government policy or civil strife, notably Pakistan, Palestinian Territories, Yemen and Afghanistan.

Although this model predicts ever decreasing fertility rates, recent data show that beyond a certain level of development fertility rates increase again.

Summary of the theory

Try to put these five steps into order.

Check whether you understand these words.

replacement level shrinking population sanitation life span imbalance

subsistence contraception economic burden stagnant development

The transition involves four stages, or possibly five.

- During this stage 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.
- In this stage, 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 this stage, 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.
- In this stage, pre-industrial society, death rates and birth rates are high and roughly in balance.

As with all models, this is an idealized picture of population change in these countries. 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 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.

Now try to draw population pyramids representing 4 stages of the model.

1.

2.

3.

4.

Stage One

Read about stage one of the model and try to fill in the missing words.

famines drought clothing nonexistent destitution paradigm
fluctuated siblings mortality exceeding

In pre-industrial society, death rates and birth rates were both high and rapidly according to natural events, such asand disease, to produce a relatively constant and young population. Family planning and contraception were virtually; therefore, birth rates were essentially only limited by the ability of women to bear children. Emigration depressed death rates in some special cases (for example, Europe and particularly the Eastern United States during the 19th century), but, overall, death rates tended to match birth rates, often 40 per 1000 per year. Children contributed to the economy of the household from an early age by carrying water, firewood, and messages, caring for younger, sweeping, washing dishes, preparing food, and working in the fields.

Raising a child cost little more than feeding him; there were no education or entertainment expenses and, in equatorial Africa, there were no expenses either. Thus, the total cost of raising children barely exceeded their contribution to the household. In addition, as they became adults they become a major input to the family business, mainly farming, and were the primary form of insurance for adults in old age. In India, an adult son was all that prevented a widow from falling into While death rates remained high there was no question as to the need for children, even if the means to prevent them had existed.

During this stage, the society evolves in accordance with Malthusian, with population essentially determined by the food supply. Any fluctuations in food supply (either positive, for example, due to technology improvements, or negative, due to droughts and pest invasions) tend to translate directly into population fluctuations. resulting in significant are frequent. Overall, the population dynamics during stage one is highly reminiscent of that commonly observed in animals.

Now work with your neighbour. One of you has got stage two, another stage three. Try to find as many differences as you can.

Birth and death rates

Countries in this stage.....

Population growth.....

Age structure of the population.....

Factors influencing decline in birth and death rate.....

.....

Stage Two

This stage leads to a fall in death rates and an increase in population. The changes leading to this stage in Europe were initiated in the Agricultural Revolution of the 18th century and were initially quite slow. In the 20th century, the falls in death rates in developing countries tended to be substantially faster. Countries in this stage include Yemen, Afghanistan, the Palestinian territories, Bhutan and Laos and much of Sub-Saharan Africa (but do not include South Africa, Zimbabwe, Botswana, Swaziland, Lesotho, Namibia, Kenya and Ghana, which have begun to move into stage 3).

The decline in the death rate is due initially to two factors:

- First, improvements in the food supply brought about by higher yields in agricultural practices and better transportation prevent death due to starvation and lack of water. Agricultural improvements included crop rotation, selective breeding, and seed drill technology.
- Second, significant improvements in public health reduce mortality, particularly in childhood. These are not so much medical breakthroughs (Europe passed through stage two before the advances of the mid-20th century, although there was significant medical progress in the 19th century, such as the development of vaccination) as they are improvements in water supply, sewerage, food handling, and general personal hygiene following from growing scientific knowledge of the causes of disease and the improved education and social status of mothers.

A consequence of the decline in mortality in Stage Two is an increasingly rapid rise in population growth (a "population explosion") as the gap between deaths and births grows wider. Note that this growth is not due to an increase in fertility (or birth rates) but to a decline in deaths. This change in population occurred in northwestern 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 population explosion that has demographers concerned today.

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 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, accelerating population growth. The age structure of such a population is illustrated by using an example from the Third World today.

Stage Three

Stage Three moves the population towards stability through a decline in the birth rate. Several factors contribute to this eventual decline, although some of them remain speculative:

- In rural areas continued decline in childhood death means that at some point parents realize they need not require so many children to be born to ensure a comfortable old age. 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. A recent theory suggests that urbanization also contributes to reducing the birth rate because it disrupts optimal mating patterns. A 2008 study in Iceland found that the most fecund marriages are between distant cousins. Genetic incompatibilities inherent in more distant outbreeding make reproduction harder.
- In both rural and urban areas, the cost of children to parents is exacerbated by the introduction of compulsory education acts and the increased need to educate children so they can take up a respected position in society. Children are increasingly prohibited under law from working outside the household and make an increasingly limited contribution to the household, as school children are increasingly exempted from the expectation of making a significant contribution to domestic work. Even in equatorial Africa, 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. Partly due to education and access to family planning, people begin to reassess their need for children and their ability to raise them.
- Increasing female literacy and employment lower the uncritical acceptance of childbearing and motherhood as measures of the status of women. Working women have less time to raise children; this is particularly an issue where fathers traditionally make little or no contribution to child-raising, such as southern Europe or Japan. 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 sex as by the availability of contraceptives and knowledge of how to use them.

The resulting changes in the age structure of the population include a reduction 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.

However, unless factors such as those listed above are allowed to work, a society's birth rates may not drop to a low level in due time, which means that the society cannot proceed to Stage Four and is locked in what is called a demographic trap. Countries that have experienced a fertility decline of over 40% from their pre-transition levels include: Costa Rica, El Salvador, Panama, Jamaica, Mexico, Colombia, Ecuador, Guyana, Surinam, Philippines, Indonesia, Malaysia, Sri Lanka, Turkey, Azerbaijan, Turkmenistan, Uzbekistan, Egypt, Tunisia, Algeria, Morocco, Lebanon, South Africa, India, Saudi Arabia, and many Pacific islands.