

THEORY OF DEMOGRAPHIC TRANSITION

Objectives

The learner should be able to explain the stages of demographic transition.

Demography

Demography is the study of human populations – their size, composition and distribution across place – and the process through which populations change. Births, deaths and migration are the ‘big three’ of demography, jointly producing population stability or change. A population’s composition may be described in terms of basic demographic features – age, sex, family and household status – and by features of the population’s social and economic context – ethnicity, religion, language, education, occupation, income and wealth. The distribution of populations can be defined at multiple levels (local, regional, national, global) and with different types of boundaries (political, economic, geographic). Demography is a central component of societal contexts and social change. What demographers do goes well beyond this broad definition and draws extensively from related disciplines – sociology, economics, statistics, history, political science, anthropology, psychology, public health and environmental sciences.

Stages of demographic transition

The model of demographic transition over the span of recent decades has been the most thoroughly discussed theme of socio-demographic science. The theme has been the object of a large number of scientific works and monographs that examine both particular indicators and the entire conception as a whole. Nonetheless, the problem remains relevant today.

Demographic transition (DT) refers to 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](#). This is typically demonstrated through a **demographic transition model**. The theory is based on an interpretation of [demographic](#) history developed in 1919 by the American demographer Warren Thompson (1887–1973). Thompson observed changes, or transitions, in birth and death rates in industrialized societies over the previous 200 years. Most [developed countries](#) are in stage 4 of the model; the majority of [developing countries](#) have reached 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](#)

A [correlation](#) matching the demographic transition has been established; however, it is not certain whether industrialization and higher incomes lead to lower population or if lower populations [lead to](#) industrialization and higher incomes.¹ In [countries that are now developed](#) this demographic transition began in the 18th century and continues today. In [less developed countries](#), this demographic transition started later and is still at an earlier stage.

The transition involves four stages, which include:

- In stage one, [pre-industrial society](#), death rates and birth rates are high. Birth and death rates both tend to be very high in this stage. Because both rates are approximately in balance, population growth is typically very slow in stage one.
- 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. The improvements specific to food supply typically include selective breeding and crop rotation and farming techniques. Other improvements generally include access to technology, basic healthcare, and education. For example, numerous improvements in public health reduce mortality, especially childhood mortality. Prior to the mid-20th century, these improvements in public health were primarily in the areas of food handling, water supply, sewage, and personal hygiene. Interestingly, 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. 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. While improvements in contraception do play a role in birth rate decline, it should be noted that contraceptives were not generally available nor widely used in the 19th century and as a result likely did not play a significant role in the decline then. It is important to note that

birth rate decline is caused also by a transition in values; not just because of the availability of contraceptives.

- 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](#). By the late 20th century, birth rates and death rates in developed countries leveled off at lower rates.

Demographic Dynamics and Sustainability

Demographic trends and factors and sustainable development have a synergistic relationship. Existing plans for sustainable development have generally recognized demographic trends and factors as elements that have a critical influence on consumption patterns, production, lifestyles and long-term sustainability. But in future, more attention will have to be given to these issues in general policy formulation and the design of development plans. To do this, all countries will have to improve their own capacities to assess the environment and development implications of their demographic trends and factors. They will also need to formulate and implement policies and action programmes where appropriate. Policies should be designed to address the consequences of population growth built into population momentum, while at the same time incorporating measures to bring about demographic transition. They should combine environmental concerns and population issues within a holistic view of development whose primary goals include the alleviation of poverty; secure livelihoods; good health; quality of life; improvement of the status and income of women and their access to schooling and professional training, as well as fulfillment of their personal aspirations; and empowerment of individuals and communities. Recognizing that large increases in the size and number of cities will occur in developing countries under any likely population scenario, greater attention should be given to preparing for the needs, in particular of women and children, for improved municipal management and local government.

The growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet. These interactive processes affect the use of land, water, air, energy and other resources. Rapidly growing cities, unless well-managed, face major environmental problems. The increase in both the number and size of cities calls for greater attention to issues of local government and municipal management. The human dimensions are key elements to consider in this intricate set of relationships and they should be adequately taken into consideration in comprehensive policies for sustainable development. Such policies should address the linkages of demographic trends and factors, resource use, appropriate technology dissemination, and development. Population policy should also recognize the role played by human beings in environmental and development concerns. There is a need to increase awareness of this issue among decision makers at all levels and to provide both better information on which to base national and international policies and a framework against which to interpret this information.

There is a need to develop strategies to mitigate both the adverse impact on the environment of human activities and the adverse impact of environmental change on human populations. The world's population is expected to exceed 8 billion by the year 2020. Sixty percent of the world's population already lives in coastal areas, while 65 per cent of cities with populations above 2.5 million are located along the world coasts; several of them are already at or below the present sea level. (<http://www.unep.org>).

Microeconomic Household Theory of Fertility

Microeconomic Theory of Fertility views children as consumer durables. The more expensive children become, the fewer will be demanded. It is often assumed that the reason why families in developing countries have so many children is due to the lack of education. This seems to be a blatant myth, and the microeconomic theory spells this out in terms of the rational decision-making that a family goes through. In non-welfare states, families often prefer to invest in children as a form of old-age security and insurance rather than rely on money savings or social security programs that provide these benefits in other societies.

The microeconomic theory of fertility is useful here because it asks the question why a family would decide to rear children in the first place. The economics of the family asks what kinds of

incentives are involved. After all, the decisions being made are often not based on society's natural capital, or local wage levels. Family decisions are often made at the microeconomic rather than the macroeconomic level.

We can use the micro theory to explain the behavior of families in developing countries, where children are seen as an investment good, in the absence of markets for insurance and institutions like social security schemes. The first calculation is, of course, the direct costs of rearing children, i.e. the private costs in this activity, first of which are the costs of food and other subsistence goods. The other sort of costs is, more obviously, the opportunity costs.

If children are expected to die in infancy, and 15% of infants die within a year in developing countries, the parents may be expected to *target* children, choosing to wait until the child lives to have another child. If the uncertainty resides in the overall probability that a child will look after the parents in old age, they may be expected to *hoard* children as an appropriate insurance policy.

Economic theories of fertility assume that parents have the number of children they do because they desire approximately that number, given the cost of birth control. This demand for children at a household level is affected by many socio-economic factors such as the level of human capital of family members, family income and assets and the experience on the child mortality. In the early stages of economic development, in most countries women averaged six to seven births during their reproductive years, but as development progresses, this number falls to two or even fewer births per woman.