

Summary

Population structure and growth is viewed as resulting from the influence of a number of parameters, including,

- Natality (birth rates)
- Mortality (death rates)
- Age structure
- Immigration
- Emigration

In most cases natality, mortality and age structure are the most important elements.

- **Natality** determines the number of new individuals introduced into the population
- **Mortality** determines the number of individuals lost from the population
- **Age structure** determines the number of reproducing individuals in the population as well as the number of reproducing individuals that will be present in the next generation

Deaths at each age are related to the size of the population in that age group usually estimated from population censuses, or continuous registration of all births, deaths and migrations. The resulting age-sex-specific death rates are then used to calculate a life table. However, life tables contain a lot of information and can be difficult to interpret directly. One solution is to graph the data in the form of a survivorship curve. Survivorship curves allow for quick visual assessments of differences in age specific mortality between populations.

Change is measured by the differences between population sizes at different dates. The absolute amount of change is obtained by subtracting the population at the earlier date from that at the later date. Using the population at the earlier census as the base of period of change is dictated partly by logic and partly by convenience.

Population growth is the change in a population over time, and can be quantified as the change in the number of individuals of any species in a population using "per unit time" for measurement. In biology, the term population growth is likely to refer to any known organism, but this article deals mostly with the application of the term to human populations in demography.

A "natural population increase" occurs when the birth rate is higher than the death rate. While a country's population growth rate depends on the natural increase and on migration, global population growth is determined exclusively by the natural increase.

Population growth is determined by four factors,

- Births(B)
- Deaths(D)
- Immigrants(I)
- Emigrants(E)

Using a formula, it is expressed as a ΔP is equal to (birth minus Death) plus (immigrants minus emigrants)

In measuring population change one should be sure that the population of the area or group is comparable over the period in question. The area should be constant, the group should be defined on a consistent basis, and the accuracy of coverage or classification should not vary appreciably. And yet as a practical matter, adjustments are rarely practical; unless the modification is fairly extreme, the change is usually computed on the basis of the published figures. Knowledge of these differences is important for analysis.

In demographics and ecology, **population growth rate (PGR)** is the rate at which the number of individuals in a population increases in a given time period as a fraction of the initial population. Specifically, PGR ordinarily refers to the change in population over a unit time period, often expressed as a percentage of the number of individuals in the population at the beginning of that period. This can be written as the formula: PGR is equal to Individuals (In) at the time period t_2 minus the individuals (In) at the time period t_1 divided by t_2 minus t_1 . The most common way to express population growth is as a percentage, not as a rate. The change in population over a unit time period is expressed as a percentage of the population at the beginning of the time period. That is: Percentage growth is equal to growth rate into 100.

For small time periods and growth rates, the added population is the growth rate multiplied by the time period.

A positive growth ratio (or rate) indicates that the population is increasing, while a negative growth ratio indicates the population is decreasing. A growth ratio of zero indicates that there were the same number of people at two times—net difference between births, deaths a growth rate may be zero even when there are significant changes in the birth rates, death rates, immigration rates, and age distribution between the two times.