

# A HYPOTHETICAL STUDY OF POPULATIONS UNDER CONSTANT MORTALITY AND FERTILITY

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## *Introduction*

Most of the European countries have reached to the final stage of demographic transition. Death rates of these countries have already acquired a more or less constant value, while the fertility rates are still fluctuating, but near to the constant value. On the contrary, the developing countries (Most of the Asian and African countries) are still at the second stage of demographic transition. The death rates in these countries are also acquiring the constant status, but the fertility rates are still high, resulting to very high growth rates.

Having the existing population structure of the countries, it would be of great interest to observe that, how the age distribution, natural rate of growth, natural birth and death rates and populations would behave after long spell of time, if the existing fertility and mortality schedules of the individual country are assumed to be constant. To observe this phenomenon, it would be interesting to introduce the concept of stable population. The stable population can be used to illustrate relationship among demographic variables, since it shows the ultimate implications of a fertility and mortality schedule. The population is said to be stable, when with constant mortality and fertility schedules, its age distribution becomes constant, and remains so for a long time.

In the present article 28 countries of different characteristics have been selected. Fertility and mortality schedules of these countries have been fixed to the existing schedules of each country and the populations of these countries have been projected, till these countries acquired the stable age distributions. At this point the different characteristics of these countries have been studied. The time taken by these different countries to reach stable age distribution have also been observed.

The intrinsic rate of natural increase is an important phenomenon. It is the annual increase in female population, which would be occasioned by the given schedule of fertility and mortality. It is a function of the net reproductive rate and the average age at motherhood,

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