

# TOOLS OF DEMOGRAPHY

## What is a 'RATE'?

- defined as *the frequency of demographic events in a population during a specified time period divided by the population in question*
- rates tell how common it is for a given event to occur
- *Crude Rates* are rates computed for an entire population
- *Specific Rate* are rates for a subgroup of the population (e.g. age, gender, race, labout)

## COMPONENTS OF POPULATION CHANGE

- involve changes in *fertility, mortality, and migration*

### 1. Fertility

*Fertility* refers to the actual reproductive performance of a population. It is the number of live births occurring in a population.

**Birth Rate:** indicates the number of live births per 1,000 population in a given year

$$= \frac{\text{Number of Births}}{\text{Total Population}} \times 1000$$

### 2. Mortality

*Mortality* refers to deaths that occur within a population.

**Death Rate:** indicates the number of deaths per 1,000 population in a given year

$$= \frac{\text{Number of Deaths}}{\text{Total Population}} \times 1000$$

### 3. Migration

*Migration* is the movement of people; more exactly, the movement of people across a specified boundary for the purpose of establishing a new residence.

**Immigration Rate:** the number of immigrants arriving at a destination per 1,000 population at that destination in a given year

$$= \frac{\text{Number of Immigrants}}{\text{Total Population at Destination}} \times 1000$$

**Emigration Rate:** the number of emigrants departing an area of origin per 1,000 population at that area of origin in a given year

$$= \frac{\text{Number of Emigrants}}{\text{Total Population at Origin}} \times 1000$$

**Net Migration Rate:** shows the net effect of immigration and emigration on an area's population, expressed as increase or decrease per 1,000 population of the area in a given year

$$= \text{Immigration Rate} - \text{Emigration Rate}$$

### POPULATION CHANGE

**Natural Increase:** the surplus or deficit of births over deaths in a population in a given time period

$$= \text{Number of Births} - \text{Number of Deaths}$$

**Rate of Natural Increase:** the rate at which a population is increasing or decreasing in a given year as it relates to births and deaths. It DOES NOT INCLUDE the effects of immigration or emigration. Expressed as a percent

$$= \frac{\text{Birth Rate} - \text{Death Rate}}{10}$$

**Growth Rate:** the rate at which a population is increasing or decreasing in a given year due to NATURAL INCREASE and NET MIGRATION, expressed as a **percentage** of the base population

- take into account all components of population change – births, deaths, and migration

**Doubling Time:** calculates how long, at its current growth rate, a population would take to double in size

- a country with a constant growth rate of 1 percent would double its population in 70 years; 2 percent, in 35 years; 3 percent, in 23 years
- a quick way to estimate doubling time is to divide 70 by the growth rate expressed as a percent, called THE RULE OF 70

$$= \frac{70}{\text{Growth Rate}}$$