Tools of the Trade:

POPULATION PYRAMIDS

There are many different ways to graphically present population data. However, the use of a population pyramid is considered the best way to graphically illustrate the age and sex distribution of a given population. A population pyramid, using a paired bar chart-type graphic, shows the numbers or percentages of males and females in each age group. This type of graphic provides a very clear picture of a population's age-sex composition. It can also be used for displaying future trends in a population.

The fertility rate of a population is the single most important influence on the shape of a population pyramid. The more children per parent, the broader will be the base of the pyramid. The median age of the population will also be younger. Mortality will also have an influence on the shape; however, it will be far less important an influence than fertility but also somewhat more complex. One would assume that lower mortality rates in a population would result in an older age distribution. However, just the opposite is true -- a population with lower mortality rates will display a slightly younger age distribution. This is due to the fact that any -disparities in the mortality rates of a population are more likely a result of variations within the younger age groups (usually infants and children).

There are generally three types of population pyramids created from age-sex distributions-- expansive, constrictive and stationary. Examples of these three types of population pyramids appear at the end of this report. Definitions of the three types follow:
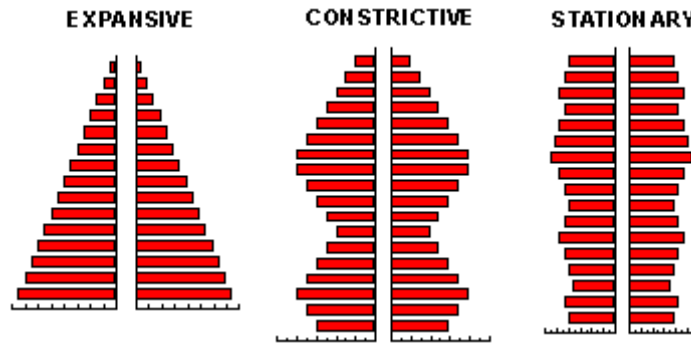
1. EXPANSIVE population pyramids show larger numbers or percentages of the population in the younger age groups, usually with each age group smaller in size or proportion than the one born before it. These types of pyramids are usually found in populations with very large fertility rates and lower than average life expectancies. The age-sex distributions of Latin American and many Third World countries would probably display expansive population pyramids.
2. CONSTRICTIVE population pyramids display lower numbers or percentages of younger people. The age-sex distributions of the United States and Pennsylvania fall into this type of pyramid.
3. STATIONARY or near-stationary population pyramids display somewhat equal numbers or percentages for almost all age groups. Of course, smaller figures are still to be expected at the oldest age groups. The age-sex distributions of some European countries, especially Scandinavian ones, will tend to fall into this category.

Population projections (or percentages of population growth or decline over periods of time) can also be plotted and displayed on a pyramid along with the current or historical population figures, thus allowing for easy comparison of future or-historical trends. This type of pyramid is especially dramatic when large, consistent increases or decreases occur. On the next page is an example of this type of population age pyramid. The age-sex distribution of the Hispanic population in the United States according to 1970 census figures are shown along with the increase for each age-sex population segment according to 1990 census figures. The increases

are quite dramatic. Also, one should note that the 1970 Hispanic population pyramid is an expansive type whereas the 1990 pyramid is more of a constrictive type.

Population pyramids are quite handy tools when working with age-sex distributions and should be used as often as possible. They provide very effective graphic presentations. Probably their greatest asset is that they are so easily understandable to almost everyone, regardless of statistical skills.

TYPES of POPULATION PYRAMIDS

EXPANSIVE   CONSTRICTIVE   STATIONARY

Hispanic Population of the United States by Age and Sex, 1970 and 1990

Males   Age   Females

1970 Hispanic Population

1990 Increase

75+
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4

1,500 1,000 500 0   0 500 1,000 1,500

Thousands