Population Pyramids

Guatemala, 1990

Sun City, Ariz., 1990
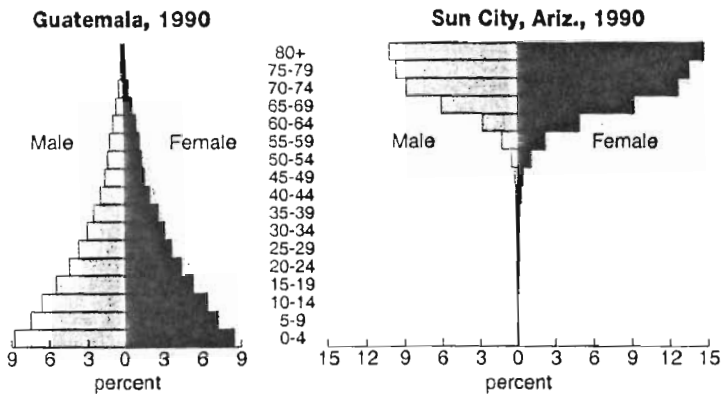

Building Pyramids

By CHERYL STAUFFER

Population pyramids—used by demographers to represent the age and sex distribution of a particular population at a specific point in time—are easy to build.

The Shape Tells the Story

With relatively high fertility, most developing countries exhibit the classic "pyramid" shape (see graph of Guatemala's age and sex distribution, above). Some developed countries, however, have begun to exhibit pillar-like shapes. And graphs for smaller areas, such as states and cities, may show further variation. For example, the above graph representing the age and sex structure of Sun City, Ariz., turns the traditional pyramid upside down. The graph tells the story of a haven for retirees.

Handy Tools

You can build these pyramids with a readily available, commonly used spreadsheet software program like Microsoft Excel.

A population pyramid is a specifically formatted comparative histogram. To create this histogram, you must first enter age and sex data into a spreadsheet, with the number of males and the number of females listed separately either by single years of age or by designated age cohorts. If you are interested in making any comparisons with other populations, you should calculate these data into percentages of the total population, for example, females ages 0-4 as a percentage of the total population.

Here are the steps to take when you use Microsoft Excel:

1. After listing as negative numbers those data pertaining to males—Excel requires these negative numbers to graph the data appropriately—**select** the data for both males and females, as well as age category labels. Under **Insert**, select **Chart**; from the chart type, select the bar chart **Cluster Bar** from the chart wizard and follow the prompts for steps 2 to 4.
2. Click on the vertical axis and select **Format**. From the **Patterns** tab, set major and minor tick marks to "none" and set the tick mark labels option to "low."
3. Click on either data series from the chart and select **Format**. From the **Options** tab, set the **Overlap** to 100 and the **Gap Width** to 0.
4. Click on the horizontal axis and select **Format**. From the **Numbers** tab, select the custom number format and enter in the following: 0;0. Doing this will eliminate the negative signs.
5. Complete the chart by adding the appropriate labels to designate males and females, and by designating that the age and sex distribution is in percent, if appropriate. Apply any other formatting, such as altering the colors of the bars in the pyramid and removing the gridlines.

Data on the current age and sex distribution for the United States can be found on the Census Bureau's Web site for states (http://www.census.gov/population/www/estimates/statepop.html) and counties (http://www.census.gov/population/www/estimates/countypop.html). Age and sex distribution data by race and Hispanic origin can also be downloaded. The Census Bureau's International Data Base provides information on countries and displays pyramids for 1997, 2025, and 2050 (http://www.census.gov/ipc/www/idbnew.html).

Population pyramids can also be generated by using a software utility called "Population Pyramids 98" from HPN Technologies, Inc. (http://www.visitus.com/popsite/software/pyramids/). ■

For more information:

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How to Use MS Excel to Make an Age-Sex Graph

Materials Needed

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- New Pyramid (Excel: 37KB)
- Pyramid Blank (Excel: 35KB)

Instructions

Installing an Autoformat for a Population Pyramid in MS Excel

Copy the files above "Pyramid Blank" and "New Pyramid" to a floppy disk or to the desktop of your computer.

1. Open the "Pyrblank" file in your own copy of Excel. Then select "Save As" from the **File** menu. Under "Save as Type," select "Template."

   This will add the pyramid spreadsheet template to your copy of Excel.

2. Open the saved "New Pyramid" in your own copy of Excel.

   Under **Chart**....

   - select **Chart type**
   - select **"Custom types"**
   - select **"User defined"**
   - select **"Add"** then type a "format name": **population pyramid** and click **ok**

   This will add the custom format for a pyramid to the list of options in your program.

Constructing a Population Pyramid Using Excel

Follow the steps below carefully and accurately to convey age-sex data into a five-year cohort population pyramid.

Click on the "Start" button (lower left). From "Programs,"

1. Open Excel. Under File, select **"New."** Open the template "Pyramid Blank."

2. In Col. E, cells2-17*, type the population for each male cohort.

3. In Col. F, cells 2-17*, type the population for each female cohort.

4. In Col. B, cell 24, type the total population for the country.

5. Select Col. B, cell 2. Then click on the Formula Bar just above the column letters and type: **=E2/$B$24*-100**

   Press Enter. Select Col. B, cell 2 again; then point to the small black box in the lower right corner of cell B2; click and drag down through cell B19. Release. [Note: All percents are negative order to make the bars representing the male cohorts to appear to the left of the center axis).

6. Repeat step 5 for Col. C, using the formula: **=F2/$B$24*100**

7. Highlight Col. A, B, and C, cells 1-19.

8. Under Insert, select "Chart." Select the tab "Custom Types" and then the option "User-defined." From the User-defined options, select "New Pyramid." At the on-screen prompt, click on "Next" until you reach "Step 4." Select the option "As a new sheet," then click "Finish."

9. Use the "text box" tool (on the tool bar at the bottom of the page) to add an appropriate title, include "where, what, and when." Also use the text box tool to add a source note in the lower left corner below the pyramid. Save your work; then print.