

THE POPULATION PYRAMID

Sounds like a game show, or a seriously geeky board game. Population pyramids are a graphical way to visualize the **population structure** of a country or place. More specifically, population pyramids reveal the **gender** and **age distribution** of the population. Like a country's position on the Demographic Transition Model, the shape of the pyramid can tell you a lot about that country's level of economic development.

General Principles

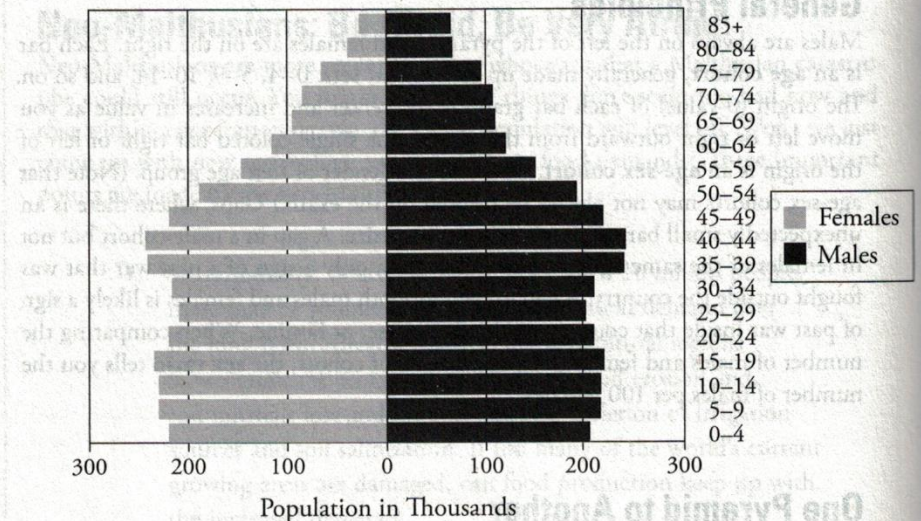
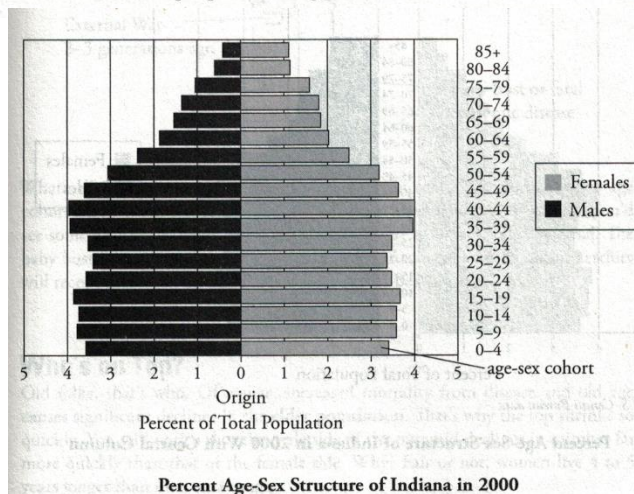
Males are always on the left of the pyramid and females are on the right. Each bar is an **age cohort**, generally made up of five-year sets: 0–4, 5–9, 10–14, and so on. The origin (0-value) of each bar graph is the center and increases in value as you move left or right outward from the center. The single colored bar right or left of the origin is an **age-sex cohort**, with just one gender of that age group. (Note that age-sex cohorts may not always be colored on the exam.) Gaps, where there is an unexpectedly small bar, are important to recognize. A gap in a male cohort but not in females of the same age group is most commonly a sign of a past war that was fought outside the country. A gap in data for both males and females is likely a sign of past war inside that country, epidemic disease, or famine. When comparing the number of males and females in a population of cohort, the **sex ratio** tells you the number of males per 100 females.

One Pyramid to Another

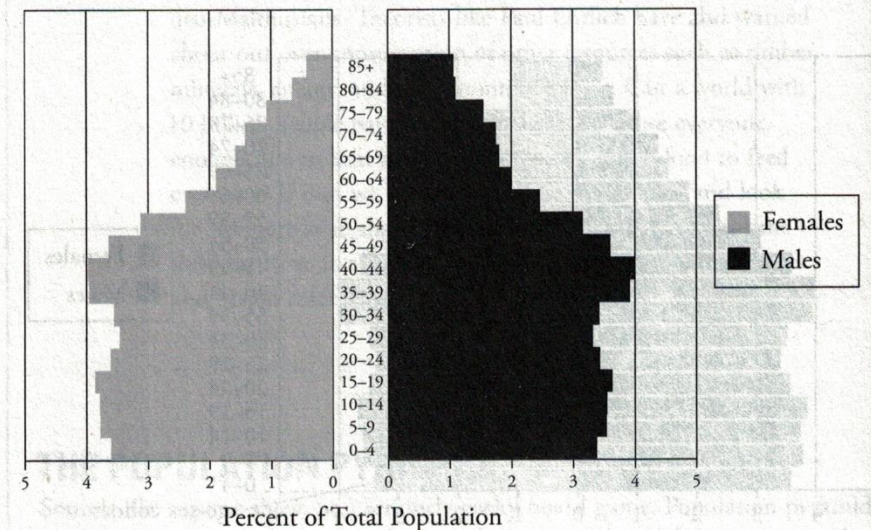
Not all population pyramids look the same. Depending upon who drew them, there may or may not be a column down the middle. Seeing the overall shape of the pyramid is what's important. We'll use both methods here so that you are used to seeing it both ways. You never know what they going to put on the exam.

Check the Type of Data

Be aware of whether the bars on the graph show the *percent* of the total population or the total *number* of people in the age-sex cohort.



While the two pyramids look the same, we need to be sure when referring to the data that we recognize what kind of numbers (percent versus total) we are talking about—this is especially important if asked on the essay section. What about those pyramids with the column down the middle? Here is what the percent data would look like:

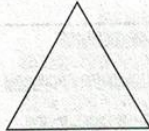
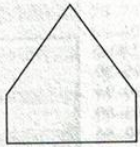


U.S. Census Bureau data

Percent Age-Sex Structure of India in 2000 With Central Column

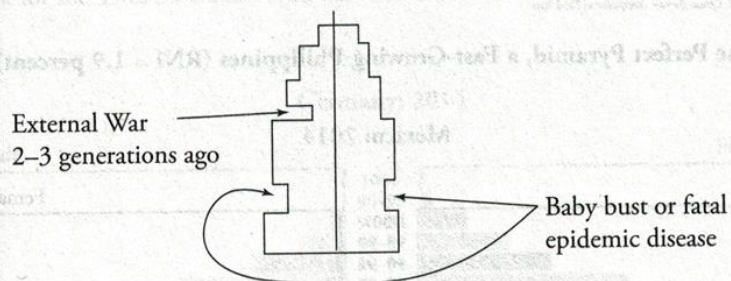
Shape Matters, Big Time

The general shape of the pyramid is what tells you about the character of the country, state, province, or city that is being diagrammed. In the case of countries, pyramid shapes are indicators of growth rates and of the level of economic development. Look at the diagram below to see the generalized differences:

				
Shape:	Triangular	Extended Triangle	Column	Reduced Pentagon
Growth:	Fast-Growing	Moderate Growth	Slow Growth	Shrinking
Examples:	Laos Mozambique	Mexico Brazil	United States Uruguay	Germany Hungary

The Gaps and the Busts!

What does a gap look like and what does it mean? Take a look at this generalized example. See the possible explanations for these gaps:



What's the difference? The war is a given event in that it affected only one age cohort significantly and only men. Had the war happened in this country, you'd see some decline in the women, as well. That's why we refer to it as external. The baby bust followed a likely postwar baby boom. At some point, booming fertility will recede after the war generation exceeds child-bearing age.

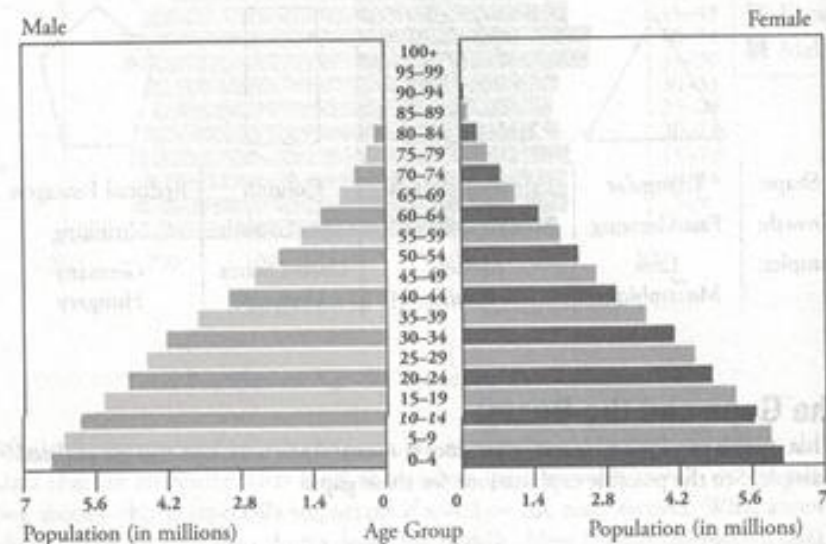
Who's on Top?

Old folks, that's who. Of course, increased mortality from disease and old age causes significant declines in the **elder population**. That's why the top shrinks so quickly. You will notice that the male side of the pyramid declines in number far more quickly than that of the female side. Why? Fair or not, women live 4 to 5 years longer than men on average.

Countries, States, and Cities, Oh My!

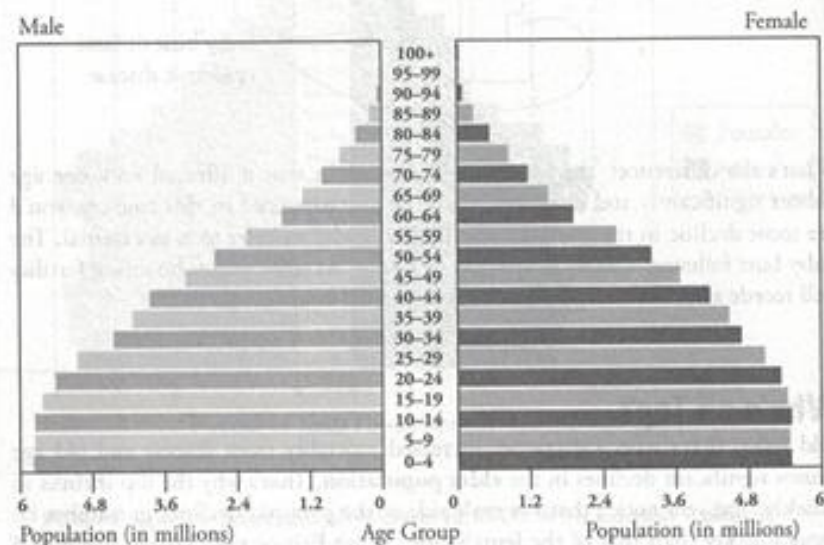
You can have population pyramids for many different scales of population. Most commonly countries are shown, but states and cities may also show up on the exam. Let's first look at some country examples:

Philippines: 2014



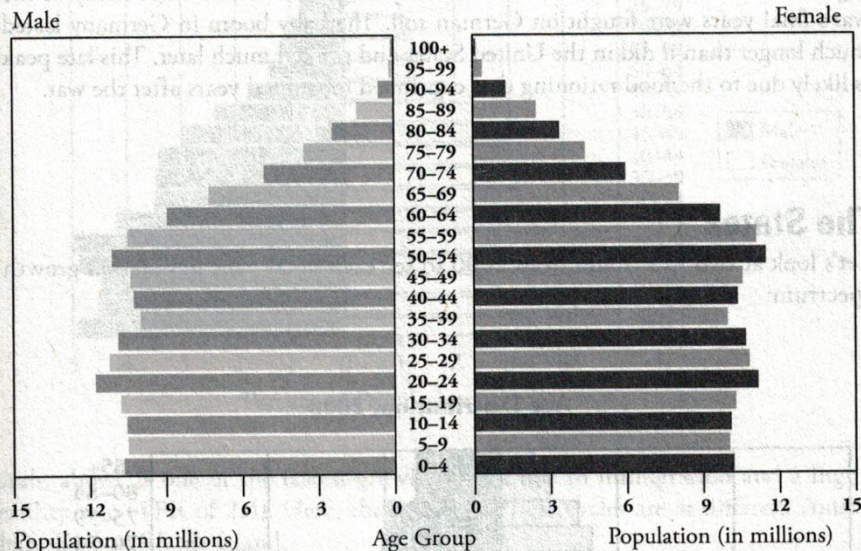
The Perfect Pyramid, a Fast-Growing Philippines (RNI = 1.9 percent)

Mexico: 2014



Starting to Slow, an NIC Mexico (RNI = 1.4 percent)

United States: 2014

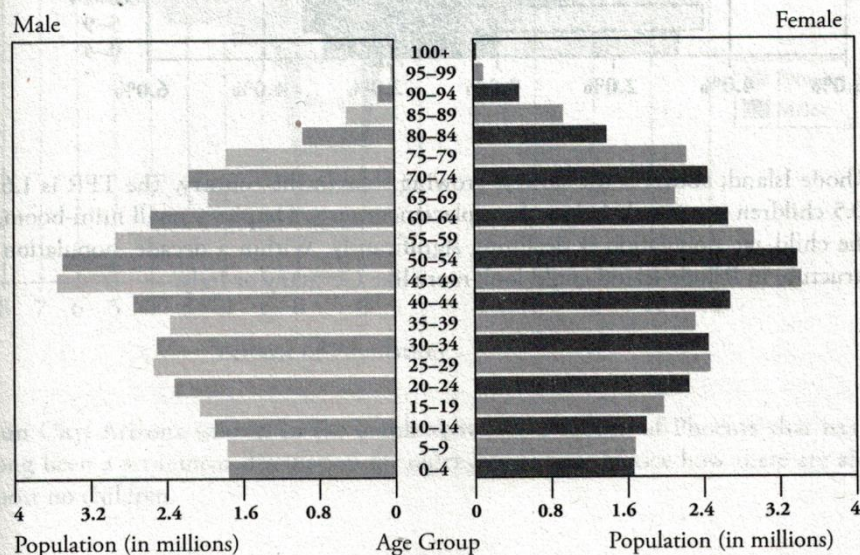


Source: U.S. Census Bureau, International Data Base

The Column-Shape of the United States (RNI = 0.5 percent).

Note the “baby boom” peak for the 50 to 54 cohort. Then the “baby bust” low point for the 35 to 39 cohort. And then the “mini-boom” 20 to 24 cohort.

Germany: 2014



Source: U.S. Census Bureau, International Data Base

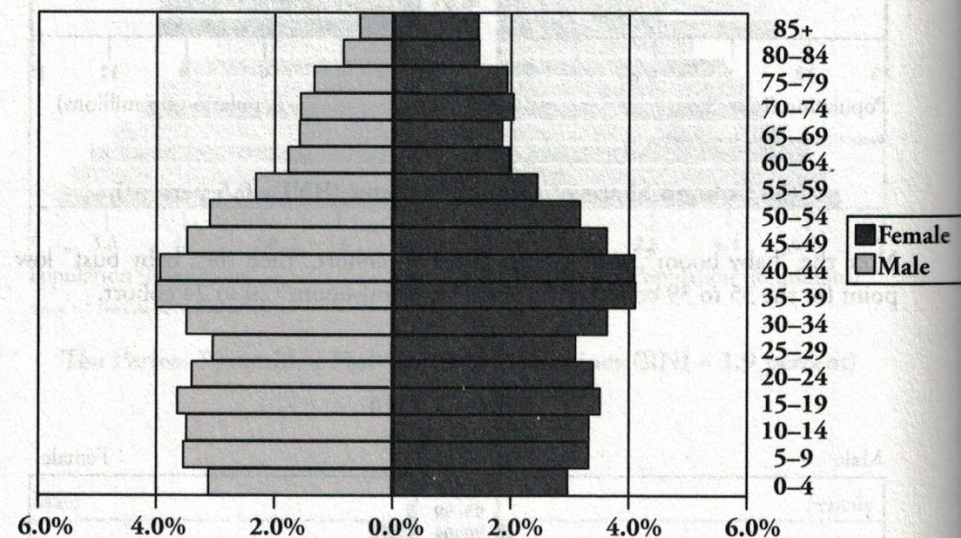
The Reducing Pentagon of Germany (RNI = -0.3 percent)

See those gaps? The 65 to 69 cohorts (both male and female) lived in Germany during World War II. Women suffered mortality in great numbers since many of the war's final years were fought on German soil. The baby boom in Germany lasted much longer than it did in the United States and peaked much later. This late peak is likely due to the food rationing that continued for several years after the war.

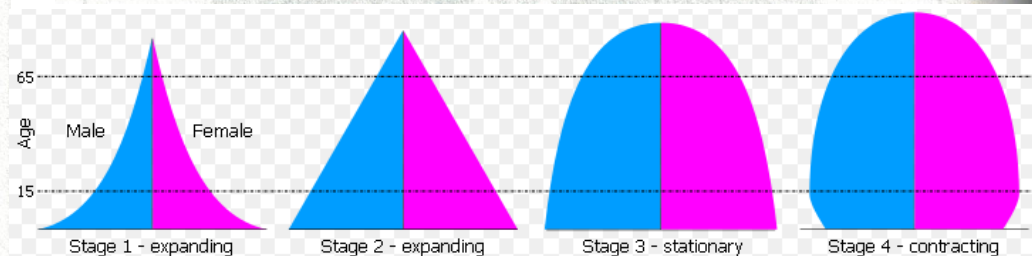
The States

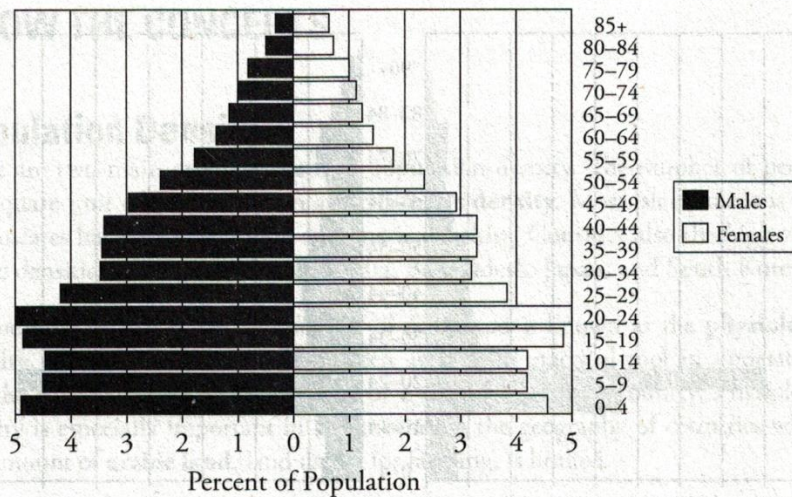
Let's look at two U.S. states from 2000 to see each end of the population growth spectrum:

Age Distribution, 2000



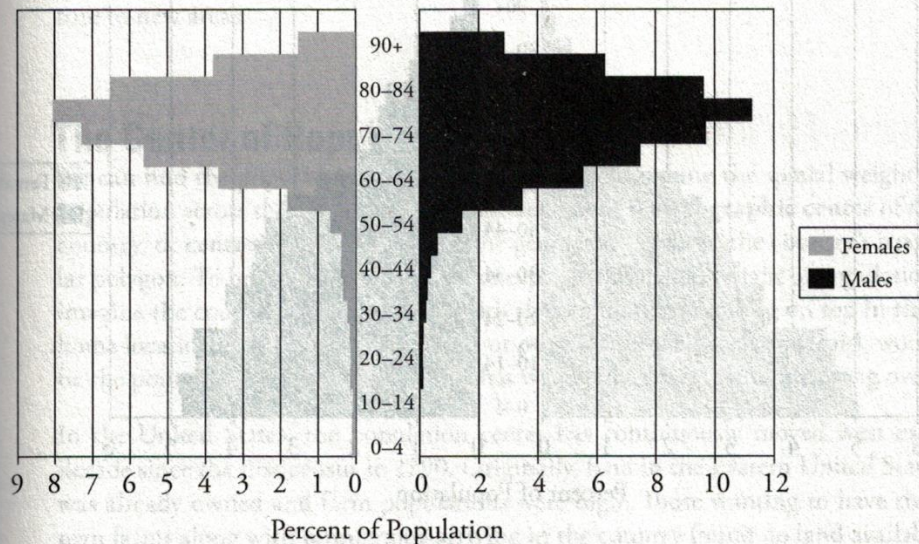
Rhode Island, above, is the slowest-growing state in the country. The TFR is 1.6 (0.5 children per female below the replacement rate). Despite a small mini-boom, the child-age population is declining significantly. Within a decade, population structure in Rhode Island could look more like Germany or Italy.



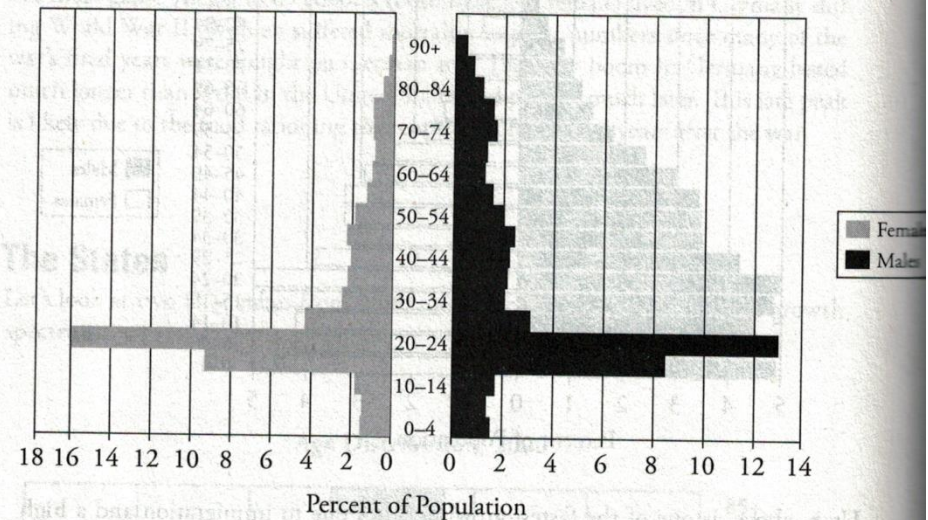


Utah, above, is one of the fastest-growing states due to immigration and a high fertility rate (TFR of 2.4). Here, the boom and bust cycles are at different times than those in Rhode Island.

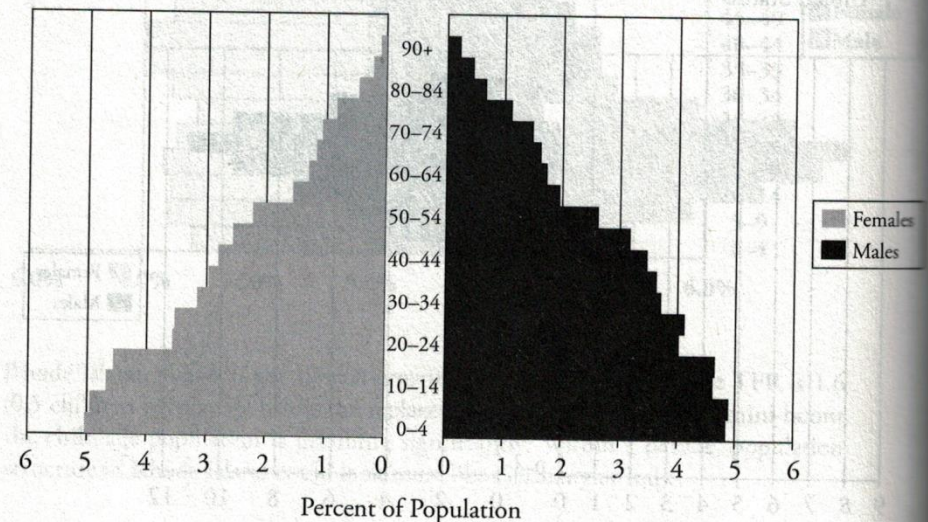
Cities also have some interesting patterns. Here are three cities from around the United States:



Sun City, Arizona (shown in the graph above), is a suburb of Phoenix that has long been a retirement destination for older Americans. Notice how there are almost no children.



Morgantown, West Virginia (shown in the graph above), is a university town. Home to WVU, the city's structure is cross-shaped because of the large college-age cohorts.



Brownsville, Texas (shown in the graph above), has an age structure similar to that of Mexico (which lies just across the Rio Grande). Immigrant communities in border towns can have a great effect on population growth.