

2001 Methodology

2001 PUERTO RICO MUNICIPIO POPULATION ESTIMATES METHODOLOGY

The U.S. Census Bureau produces yearly estimates of population totals for all counties in the United States and Puerto Rico. Puerto Rico is not subdivided into counties per se but does have an administrative subdivision very close in definition called a municipio. The following documentation outlines the work that was carried out in the production of the July 1, 2001 estimates for the municipios of Puerto Rico.

During the 1990s, the Puerto Rico municipio estimates were produced using a ratio-correlation technique. The algorithm used to estimate the distribution of the commonwealth population across municipios was comprised of three indicators: births, deaths, and housing stock.

For the post Census 2000 period, an agreement was reached between the U.S. Census Bureau and the Puerto Rico Planning Board to explore alternative methods for producing the municipio estimates. Until this research was complete, the plan was to produce the annual municipio estimates by updating the method used in the 1990s with information from Census 2000. When this update was complete, however, the implied changes were found to deviate unreasonably from the change observed during the 1990s. Therefore, after testing several alternatives, the final estimates were produced by extrapolating the growth trends of each municipio between 1990 and 2000 and then controlling the results to the change in estimated commonwealth total.

More specifically, the final July 1, 2001 municipio estimates of total population were produced in the following manner:

1. For each municipio, the 10-year growth rate between 1990 and 2000 was calculated under the assumption of a log linear curve.
2. The resulting growth rates were applied to the totals from Census 2000 for each municipio in order to estimate the change in the population for two periods: April 1, 2000 to July 1, 2000, and July 1, 2000 to July 1, 2001.
3. The estimates of change were raked to the corresponding change in the commonwealth total population estimates (released December 2001).
4. These change estimates were applied to the population totals at the beginning of the estimation period to arrive at the final population estimates.
5. The components of population change for the municipios were estimated as follows:
 - a. Births and deaths were taken directly from vital registration data. Births and deaths for the period April 1, 2000 to June 30, 2000 were assumed to be equal to one-fourth the total for calendar year 2000. Births and deaths between July 1, 2000 and June 30, 2001 were assumed to be equal to one-half the total for calendar year 2000 and the sum of the first six months of 2001.
 - b. Net migration for both time periods was calculated as the difference between the estimate and natural increase for the period, i.e. the residual.

In the future, two things are being considered in order to improve the municipio estimates for Puerto Rico. First, the Puerto Rico Planning Board has begun to collect data on tax filings, school enrollment, Medicare enrollment, residential electric energy service, group quarters population, etc., that may be helpful in producing a more accurate algorithm for the ratio correlation model. In addition, a collaborative effort between the Bureau and the Planning Board has begun to obtain Puerto Rico income-tax data. This would allow us to adopt the method used to estimate county and state totals in the United States.