

**ESTIMATES  
AND  
PROJECTIONS**

## Chapter 8. Estimates and Projections

Although vital statistics data on births and deaths for the Northern Mariana Islands are currently reported accurately and completely, migration data are not collected regularly, so that population change between censuses is difficult to measure. The Census Bureau makes yearly estimates of the CNMI population using available data (Series P-25, No. 1009), but must account for migration in an indirect way (Table 8.1). Net migration for the April 1, 1980 to July 1, 1986 period was estimated for the recent report on revised migration estimates for the period 1973 to 1980. The estimates for July 1, 1980 through 1986 were then derived by adding the components of population change to the 1980 census count. Since net migration is computed as a residual and vital statistics are still likely to be slightly underreported, the residual probably includes underreported births and deaths to a much greater extent than in other areas.

Because of the Northern Mariana Islands population's size and composition, it is difficult to develop appropriate estimating procedures. The poor quality and absence of adequate data make it difficult to prepare accurate estimates. For the Northern Marianas, the estimates have been based on a special estimating method which yields point estimates of the various subcategories of the population. This method was in error in 1980 of 1,794 persons more than the census count in 1980; this was about 11 percent of the population. Likely explanations for this error include the lack of accurate migration data as well as conflicting information on persons who were born in the 50 States and on special populations employed in the current methodology. Also, there have been no censuses or surveys during the intercensal period, posing serious problems in estimating the Northern Marianas population.

Table 8.1. Estimates of the Population: 1980 to 1986

Period of Estimate	Beginning Population	Births	Deaths	Residual	
				Net Migration	Ending Population
4/1/80 to 7/1/80...	16,780	148	19	-19	16,890
7/1/80 to 7/1/81...	16,890	585	105	-77	17,293
7/1/81 to 7/1/82...	17,293	639	101	-77	17,754
7/1/82 to 7/1/83...	17,754	632	88	-77	18,221
7/1/83 to 7/1/84...	18,221	591	110	-77	18,625
7/1/84 to 7/1/85...	18,625	670	97	-77	19,121
7/1/85 to 7/1/86...	19,121	732	113	-77	19,663

Source: U.S. Bureau of the Census, unpublished data

Table 8.2 shows the rates derived from the actual births and deaths during the period since the 1980 census. The rates are obtained by dividing the calendar years births by the midyear population estimate. Since the midyear estimate is based on previous years' values, denominator errors are at least additive. The average birth rate over the period was 3.6 percent, and the average death rate was .6 percent, making the annual growth rate 3 percent. The residual net migration was a constant, so the percentage would decrease over time; however, for the period considered here the rate was approximately -.4 percent, indicating that there was net outmigration each year - that more Northern Marianas born persons left the islands than migrants from other places arrived.

Table 8.2 Estimated Rates: 1980 to 1986

Period of Estimate	Beginning Population	Births	Deaths	Residual Net Migration
7/1/80 to 7/1/81...	16,890	3.5	.6	-.5
7/1/81 to 7/1/82...	17,293	3.7	.6	-.4
7/1/82 to 7/1/83...	17,754	3.6	.5	-.4
7/1/83 to 7/1/84...	18,221	3.2	.6	-.4
7/1/84 to 7/1/85...	18,625	3.6	.5	-.4
7/1/85 to 7/1/86...	19,121	3.8	.6	-.4
Average.....	...	3.6	.6	-.4

Source: U.S. Bureau of the Census, unpublished data

We have made crude population projections on the basis of these rates (Table 8.3). The Census Bureau estimated the mid-year 1980 census population to be 16,780, based on the births and deaths, and residual migration between April 1 and July 1, 1980.

We have made a series of projections using different assumptions. In the first data column in Table 8.3, we have assumed no migration for the Commonwealth, and have used the growth rate determined for the 1980 to 1986 period - 3.0 percent. Under these assumptions, the July 1, 1985 population would have been 19,000, and the population would grow to 30,500 by the year 2000.

If we use the same assumptions that the Census Bureau used in making its estimates for 1980 to 1986, a net outmigration of about .4 percent was assumed, with the estimated growth rate of 3.0 percent. In this case the population would have been 19,200 in 1985 (the value differs from that determined by the Census Bureau because we are using averaged rates and the Bureau used actual figures), and by 2000 the population would be 28,200.

The third column gives a series assuming that rather than net outmigration, there will be net immigration at the same rate. That is, rather than more CNMI-born persons leaving than immigrants arriving, that the opposite will be true, that more immigrants will arrive than residents departing. This scenario will happen if the economy of the CNMI invites immigrants to settle and work in the CNMI. There is considerable evidence for this, at least in the late 1970s, since the rate of increase for persons born in the Northern Mariana Islands between 1973 and 1980 was only 6 percent, compared to 46 percent for the migrants. Under these assumptions, again assuming a constant growth rate, the population in 1985 would have been 19,960 in 1985, and would grow to 32,960 in 2000.

The final assumption assumes a declining birth rate to 3.0 percent rather than 3.5 percent; however, the decrease is assumed to be immediate and constant throughout the period (which would represent an average decline). The last column also assumes outmigration of .4 percent per year. The fertility decline assumption without migration would also be approximately be met by column 2, if fertility were substituted for outmigration.

For the 4th assumption, the 1985 population would have been 18,740, and the population in the year 2000 would be 25,600.

FIGURE 8.1'

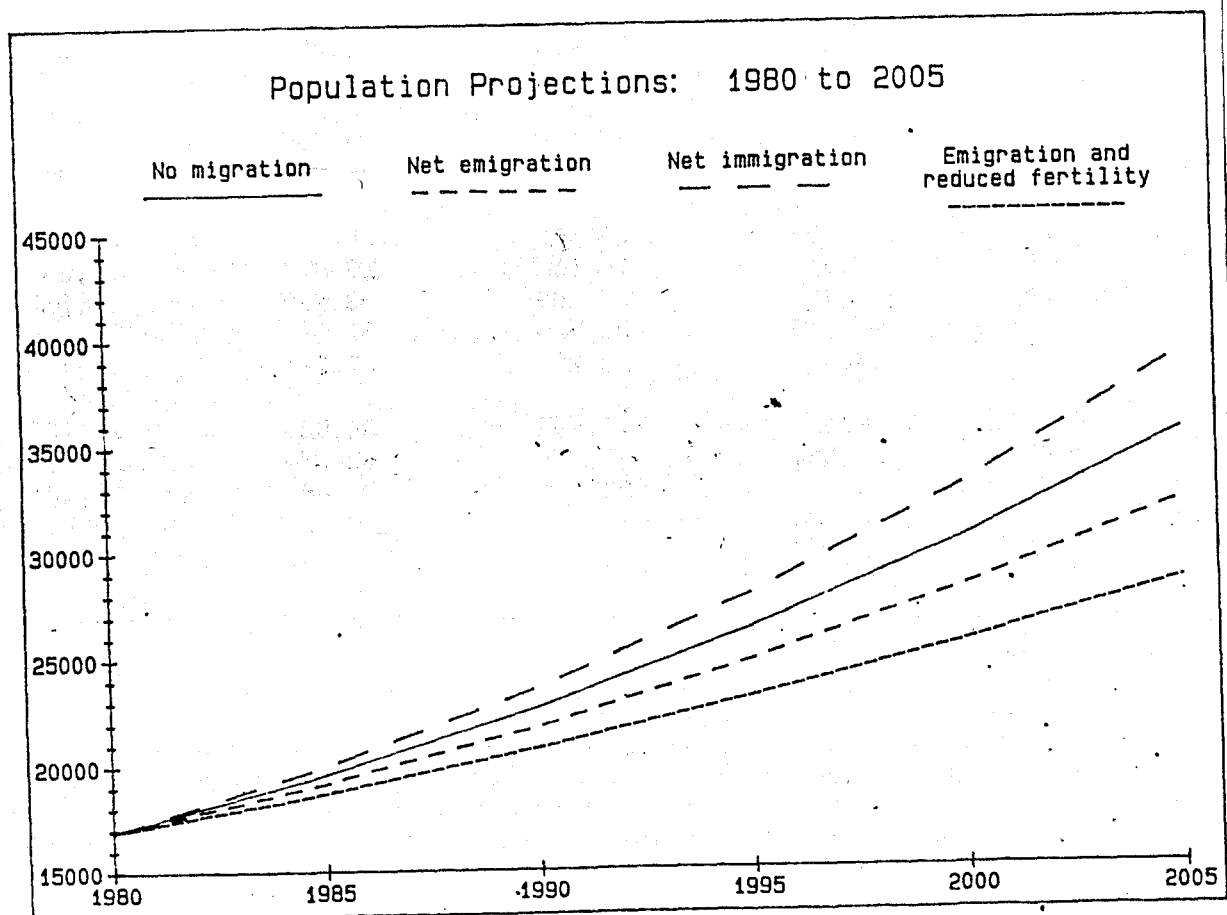


Table 8.3 Projected Populations: 1980 to 2005

Midyear Estimate	Assuming Current Vital Rates and no Migration	Assuming Residual Net Migration of -0.4 %	Assuming Net Immigration of 0.4 %	Assuming Net Out-migration and 2.5 % Fertility
1980	16,890	16,890	16,890	16,890
1981	17,397	17,329	17,464	17,245
1982	17,919	17,780	18,058	17,607
1983	18,456	18,242	18,672	17,977
1984	19,010	18,716	19,307	18,354
1985	19,580	19,203	19,963	18,740
1986	20,168	19,702	20,642	19,133
1987	20,773	20,214	21,344	19,535
1988	21,396	20,740	22,070	19,945
1989	22,038	21,279	22,820	20,364
1990	22,699	21,832	23,596	20,792
1991	23,380	22,400	24,398	21,228
1992	24,081	22,983	25,228	21,674
1993	24,804	23,580	26,085	22,129
1994	25,548	24,193	26,972	22,594
1995	26,314	24,822	27,889	23,068
1996	27,103	25,468	28,838	23,553
1997	27,917	26,130	29,818	24,047
1998	28,754	26,809	30,832	24,552
1999	29,617	27,506	31,880	25,068
2000	30,505	28,221	32,964	25,594
2001	31,420	28,955	34,085	26,132
2002	32,363	29,708	35,244	26,681
2003	33,334	30,480	36,442	27,241
2004	34,334	31,273	37,681	27,813
2005	35,364	32,086	38,962	28,397

Source: Authors projections

These projections are crude, at best, and make generous assumptions about changes in the Northern Marianas population. In the absence of continuing surveys, it is difficult to obtain intercensal estimates which are vital in making anything more than the rough estimates and projections presented here.