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New Mexico Demographic Trends in the 1990s

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Counting the nation's 281 million people, like counting votes in Florida, is no easy task. No one is ever satisfied with the final census counts. In part the controversy stems from the political and economic importance of the census data. In the political arena, census data are used for redistricting and reapportionment and as a guide to strategy in election campaigns. The data are also used to distribute nearly \$200 billion dollars a year in federal funds and some unknown multiple of that amount in private sector investment spending. The census data and the trends implied by the data are also critical elements in almost all water-related issues.

When this paper was presented at the December, 2000, conference, none of the data from the 2000 Census were available.¹ The main theme of my presentation last December was the possibility of a demographic slowdown in New Mexico during the 1990s. The 2000 Census data indicate that New

Mexico's population grew more rapidly during the last decade than could have been expected from the Census Bureau's annual population estimates. The contrast between the population estimates and the census count is more subtle than it might appear at first glance.

New Mexico Demographic Change: A Long-Term Perspective

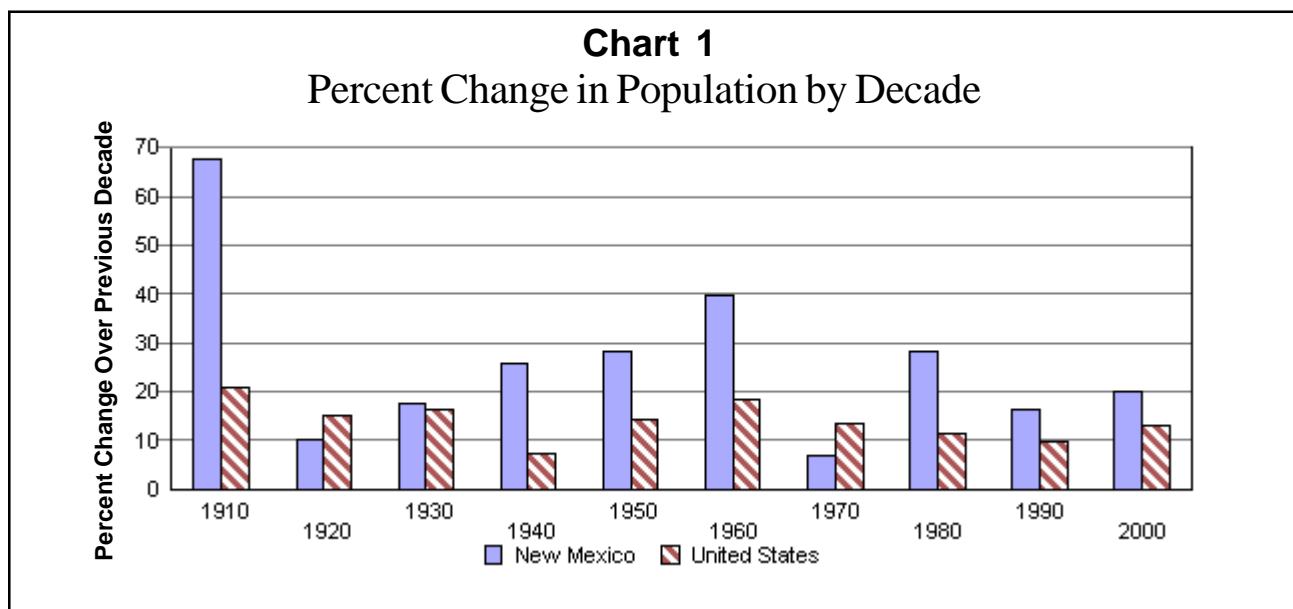
For most of the 20th century, the population of New Mexico grew faster than in the nation as a whole. In the 20th century, New Mexico's population increased ninefold, from 195,000 in 1900 to 1.8 million in 2000. In contrast, the U.S. population increased from 75 million in 1900 to 281 million in 2000, or about 3.5 times its 1900 population.

New Mexico's decade to decade population growth rates have been high compared to the nation

but they have also been highly variable (Chart 1). Between 1910 and 1920 and again in the 1960s, New Mexico's percentage increase in population was lower than in the nation. Since the 1960s, however, New Mexico's population growth rates have been much higher than the national figure. During the 1970s, the state's population increased by 28.4 percent –nearly three times as fast as the nation's growth rate of 10.1 percent. During the 1980s, the state population increased by 16.3 percent –more than 1.5 times the national increase of 9.8 percent.

New Mexico's Disappearing Demographic Slowdown in the 1990s?

The Census Bureau's annual estimates suggested that New Mexico experienced a substantial slowdown in population growth rates during the second half of the 1990s. The estimates indicated New Mexico's population growth rates in the early 1990s were higher than in the 1980s and appeared to be increasing (Chart 2). According to the estimates, the state's annual population growth rate reached

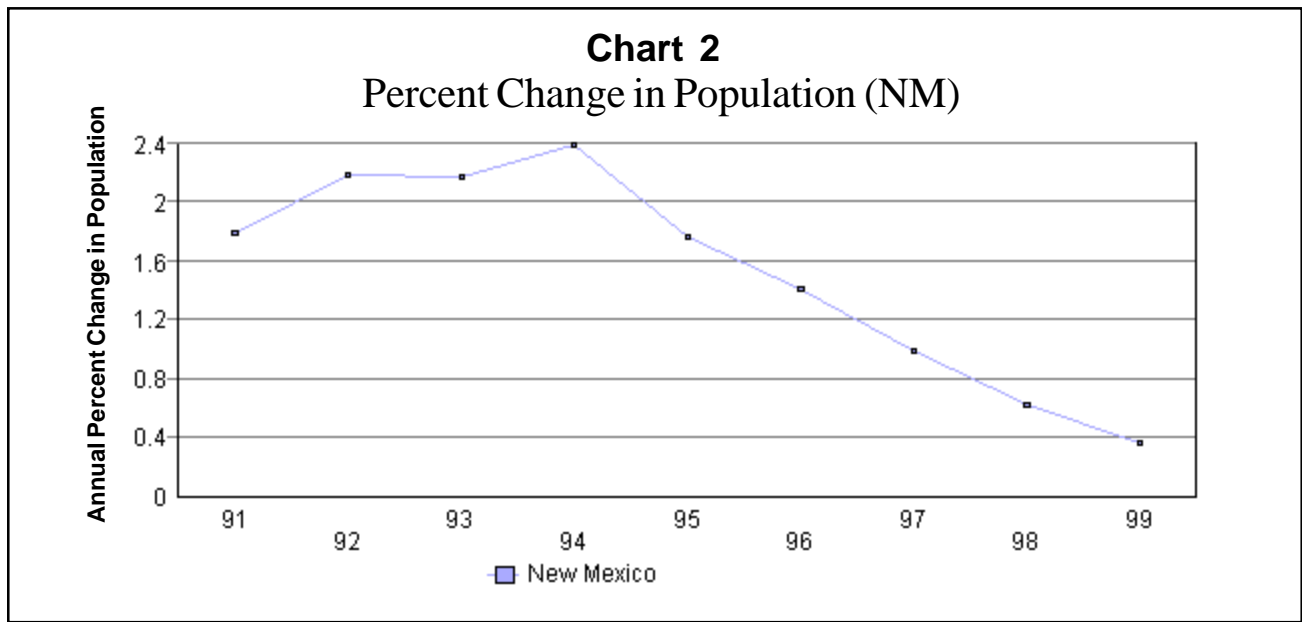


New Mexico's overall population growth rate in the 1990s (20.1 percent) again exceeded the national average (13.2 percent)². Among New Mexico's neighboring states, Arizona (40.0 percent), Texas (22.8 percent), Colorado (30.6 percent), and Utah (29.6 percent) grew more rapidly than New Mexico, while Oklahoma (9.7) percent grew less rapidly than New Mexico or the nation.

New Mexico's county population growth rates (Table 1) have been highly variable as well. Nine New Mexico counties (Catron, Colfax, De Baca, Guadalupe, Harding, Hidalgo, Mora, Quay, and Union) had a smaller population in 2000 than in 1930. From a different perspective, two thirds of the growth in New Mexico's population between 1950 and 2000 occurred in only four counties (Bernalillo, Doña Ana, Santa Fe and San Juan).

2.38 percent in 1994, but declined steadily through 1999. The estimates indicated also that the state's 1998 to 1999 growth rate was only 0.36 percent. Why did the estimates indicate such a sharp demographic slowdown in New Mexico? The simple answer is that all three components of demographic change (fertility, mortality, and migration) contributed to the estimated decline in New Mexico's population growth rate.

There is nothing much to gain from worrying about the relative accuracy of the estimates compared to the census. There is ample room for error in either data source. Both data sets provide useful information about New Mexico's changing demographic dynamics. Both the estimates and the census data indicate that natural increase (the excess of births over deaths) will be a less important source of New Mexico's future population growth than in the past.



The Estimates and the Census

The U.S. Census of Population and Housing is a decennial event. The census has been conducted in all years ending in a zero since 1790. In each census year the Census Bureau does its best to count all persons who are residing in the geographic territory of the United States. Errors occur in all censuses, including the U.S. censuses. Some people are not counted. Less frequently, some people are counted twice. The best that any census bureau can do is to report the results of its best efforts and to try to evaluate the size of the errors.

In intercensal years there are no attempts at a complete count of the population. However, the Census Bureau has provided annual estimates of the population since 1900. For the current purpose, what is important is that the Census Bureau now provides population estimates—including details such as age, sex, and components of change—for each of the nation’s 3,141 counties or county equivalents. These estimates along with vital statistics data collected by the National Center for Health Statistics are important indicators of population change in non-census years.

The methods used by the Census Bureau to produce the estimates are complex but the essentials are rather straightforward.³ All of the Bureau’s estimates start with the most recent Census data as a base. Current year estimates of births and deaths are created using vital statistics data compiled by the National Center for Health Statistics. The migration component of the estimates consists of four parts.

Net Domestic Migration is the difference between in and out-migration to a county from other parts of the United States. Net Domestic migration is based on federal income tax return data from the Internal Revenue Service. Net International Migration is based on an allocation of total migration to the U.S. from other countries provided by the Immigration and Naturalization Service. Net Federal Movement reflects U.S. federal government employees returning from overseas assignments. These estimates are derived from a variety of administrative records. Finally, there is a residual component of migration that is used to make the estimates consistent with state and national totals. The latter two components of migration are generally small compared to the first two components.

The estimates of state and county populations always differ from the next census count. This is to be expected for several reasons. First, the estimates are not based on counts of the population. Second, the undercount in the decennial population census varies from decade to decade. The Census Bureau evaluates the annual estimates after each new Census.⁴ Comparing the 1990 Census results to the 1990 estimates for all 3,141 counties, Long (1993) found a mean absolute percentage error (MAPE) of 3.6 percent⁵. The errors varied considerably by the size of the county population. For counties with a population of 100,000 or more, the MAPE was 1.8 percent, while for counties of less than 2,500 persons the MAPE was 7.7 percent. New Mexico had a 4.3 percent error as measured by the MAPE.

Anyone evaluating the estimates should be aware that the estimates of births and deaths are much more likely to be correct than the estimates of migration. The system of vital statistics in the U.S. is virtually 100 percent complete. Remaining errors in the estimates of births and deaths arise mainly because the data are incomplete at the time the estimates are made.

Births in New Mexico

According to the annual estimates, total births in New Mexico remained roughly constant during the 1990s. The estimates indicate that there were 27,649 births in New Mexico between July 1, 1990 and July 1, 1991. Between July 1998 and July 1999, the estimate is that there were 27,855 births in New Mexico. The number of births in New Mexico during the 1990s reported in the annual estimates is fairly consistent with the 271,799 persons under ten years of age reported in the 2000 census. The comparison, however, cannot be exact because the census is reporting the number of persons in particular age categories and not the number of births.

While the annual number of births remained roughly constant during the 1990s, the population of the state had grown by about 220,000 people between 1990 and 1999. What is notable in these figures is that even with 220,000 more people, the number of births remained at roughly the same level during the 1990s.

In an arithmetic sense, two factors have combined to reduce the importance of births to New Mexico's overall population growth. First, fertility rates declined. In 1980 there were 84.1 births per 1,000 women of child bearing age (15-44) in New Mexico compared to 68.4 in the U.S. By 1999, there were 71.9 births per 1,000 women of child-bearing age in New Mexico compared to 65.0 per 1,000 in the U.S.⁶ The decrease in fertility in New Mexico has been more rapid than the fertility decline in the U.S. Second, the proportion of women in child-bearing ages in New Mexico declined. In 1990 45.6 percent of all women were between the ages of 15 and 44, but that figure decreased to 42.6 percent by 1999.⁷

The importance of these changes can be illustrated with some hypothetical calculations. If the fertility rate of New Mexico women had not declined

during the 1990s, there would have been 14,300 additional births in the state. If the percent of women of child-bearing age had remained constant during the decade, there would have been an additional 9,938 births during the decade. Combined, the decline in fertility rates and percent of women of child bearing ages account for a decrease of about 24,000 births during the first nine years of the decade—or roughly 26,400 fewer births for the entire decade. This is about the same as the annual number of births in the state (27,000).

The arithmetic of New Mexico fertility patterns does not adequately address the more important question of why New Mexico fertility rates have been declining. There are a number of possible answers. Nationally, age at first marriage has been increasing in recent years. In 1970, the median age of women at first marriage was 20.6, while the comparable figure for 1990 was 24.6 (Statistical Abstract of the United States, 1996, p. 105). Also consistent with lower fertility rates are rising education and income levels in New Mexico. There are no doubt many other reasons, but that is another story.

Deaths in New Mexico

The Census Bureau annual estimates also suggested that both the number of deaths and death rates in New Mexico increased during the 1990s. The absolute number of deaths increased from 10,790 in 1990-91 to 13,550 in 1998-99. Death rates in New Mexico also increased. The increase in death rates is not necessarily because New Mexicans are becoming less healthy. Rather, it is mainly because New Mexicans are aging. For example, in 1998 there were 175 deaths per 100,000 males aged 15 to 24 in New Mexico, while the corresponding figure for males aged 65 to 74 was 2,739 (New Mexico Department of Health, October 2000, p. 37).

Using a crude death rate of 7.12 per thousand in 1990 compared to 7.82 per thousand in 1998, New Mexico would have had approximately 1,000 fewer deaths per year during the 1990s. In brief, New Mexico's population would have been about 35,000 higher without the increase in death rates, the decline in fertility rates, and the state's changing age-distribution.

Net Migration

While births and deaths are relatively easy to track during non-census years, migration is not. No agency systematically keeps track of the movement of individuals between or within states on an annual basis. As a result, the annual estimates of net migration to New Mexico probably contained larger absolute and relative errors than did the estimates of births and deaths. Nevertheless, the annual migration estimates are worth a quick look.

According to Census Bureau estimates, net migration to New Mexico during the 1990s peaked in 1994 with 22,496 persons added to the state population. Net migration slowed considerably after 1994 with the net migration figures indicating a loss of nearly 8,000 persons by 1999. Net domestic migration during 1999 indicated out-migration from New Mexico of 12,500 persons. Net Federal Movement (-26 persons) and the residual (+414 persons) were not substantial factors in the state's migration patterns during 1999 (or other years in the late 1990s).

Particularly noticeable in the estimates was a decrease in net-migration in Bernalillo County. Historically, net migration accounted for a substantial portion of Bernalillo County's population growth. In sharp contrast to these historical trends, only 4.1 percent of Bernalillo County's population growth between 1990 and 1999 can be attributed to net migration. This pattern does not hold in Bernalillo County's rapidly growing neighbors, Valencia and Sandoval counties. In those counties, net migration accounted for nearly 75 percent of population increase in the 1990s.

The detailed data from the 2000 Census needed to evaluate the annual net migration estimates are not yet available. Nor, do we have the data to examine the characteristics of those who are moving. However, since the birth and death data are largely based on the vital statistics data, it seems highly likely that the largest errors in the annual estimates are due to an underestimate of net migration to the state.

Conclusions

Both the annual estimates of population and the decennial Census of Population contain useful information about the changing demography of the state. The annual estimates correctly identified the decreasing importance of natural increase as a source of population change in New Mexico. Decreases in crude birth rates and simultaneous increases in crude death rates should be expected with an aging population. Traditionally the median age of New Mexico's population has been considerably lower than the national median. The 2000 Census reported New Mexico's median age as 34.6 years compared to the national median of 35.3 years. New Mexico, like the nation is aging and as a result, New Mexico can reasonably expect a lower population growth rate due to natural increase.

Net migration, of course, is the wildcard in the population trends game. It is reasonably clear that the annual population estimates failed to capture state migration flows adequately. This is not surprising: migration is a complex, multi-dimensional process. Adequate migration data are difficult to collect in a free society. Yet, it is migration that is the critical factor in understanding future population growth in New Mexico.

Table 1
The Population of New Mexico

County/Area	1990 Census	2000 Census	1990-2000 Percent Change
Bernalillo	480,577	556,678	15.84
Catron	2,567	3,543	38.24
Chaves	57,849	61,382	6.11
Cibola	23,794	25,595	7.57
Colfax	12,925	14,189	9.78
Curry	42,207	45,044	6.72
DeBaca	2,252	2,240	-0.53
Doña Ana	135,510	174,682	28.91
Eddy	48,605	51,658	6.28
Grant	27,676	31,002	12.02
Guadalupe	4,156	4,680	12.61
Harding	987	810	-17.93
Hidalgo	5,958	5,932	-0.44
Lea	55,765	55,511	-0.46
Lincoln	12,219	19,411	58.86
Los Alamos	18,115	18,343	1.26
Luna	18,110	25,016	38.13
McKinley	60,686	74,798	23.25
Mora	4,264	5,180	21.48
Otero	51,928	62,298	19.97
Quay	10,823	10,155	-6.17
Rio Arriba	34,365	41,190	19.86
Roosevelt	16,702	18,018	7.88
Sandoval	63,319	89,908	41.99
San Juan	91,605	113,801	24.23
San Miguel	25,743	30,126	17.03
Santa Fe	98,928	129,292	30.69
Sierra	9,912	13,270	33.88
Socorro	14,764	18,078	22.45
Taos	23,118	29,979	29.68
Torrance	10,285	16,911	64.42
Union	4,124	4,174	1.21
Valencia	45,235	66,152	46.24
New Mexico	1,515,069	1,819,046	20.06

Source: U.S. Bureau of the Census, PL94-171 data, (www.census.gov) April, 2001.

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Endnotes

¹After each U.S. Census, the first data released are the so-called reapportionment and redistricting data required under PL94-171. The PL94-171 data includes the total population by sex and 63 race and ethnicity categories. The only age breakdown in the PL94-171 data is the population 18 years old and older. The PL94-171 data were released in April, 2001. In July, 2001, Summary File 1 data containing additional detail on the demographic characteristics of the population were released. Additional data from the 2000 Census containing even more detailed social and economic characteristics of the population will be released during 2002 and 2003.

²The figures cited in this paragraph are growth rates from 1990 to 2000 based on the Censuses in those years. The data may be obtained from (www.census.gov/census2000).

³The Bureau has two basic methods: the component method II and the ratio-correlation method. The currently preferred method is the ratio-correlation method in which various indicators are used to infer current population characteristics. The details may be found in: U.S. Bureau of the Census, "Methodology for Estimates of State and County Total Population" available on the web at: www.census.gov/population/methods/stco99.txt.

⁴The comparisons provided here are from John F. Long "Postcensal Population Estimates: States, Counties and Places," U.S. Bureau of the Census, Population Division Working Paper No. 3, August, 1993.

⁵The Mean Absolute Percentage Error takes the absolute value of each error before computing the percentage. This method is generally preferred over a simple percentage error because it eliminates the possibility of "doing well" by missing in both directions. For example, if one estimate were 5 percent over the census count and another estimate was 5 percent under, the ordinary percentage error would be zero.

⁶These are general fertility rates expressed as births per 1,000 women. The Total Fertility Rate (TFR) is a more informative measure. A TFR is a hypothetical number that represents the number of children a woman would have if she were subject to the age-specific rates at a point in time. In New Mexico, the 1998 TFR was 2.24. The year 2000 TFR for the U.S. is estimated to be 1.93. The so-called replacement level TFR is 2.08.

⁷The 1999 estimate of the proportion of women aged 15-44 (42.6 percent) is very close to the 2000 Census figure of 42.3 percent.