

The Size and Distribution of the American Indian Population: Fertility, Mortality, Migration, and Residence

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## **The size and distribution of the American Indian population: Fertility, mortality, migration, and residence**

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**Abstract.** This paper is a descriptive analysis of the basic demographic characteristics that determine the size and distribution of the American Indian population. The data reported are obtained from the 1990 Census, the National Center for Health Statistics, and the Indian Health Service. Among the findings reported in this paper is that American Indians have higher levels of fertility than other groups, especially whites. Mortality due to accidents, diabetes, and alcohol-related illness is especially high for American Indians. And despite relatively high levels of residential mobility, the distribution of the American Indian population has been relatively stable since 1970.

**Key words:** American Indians, Fertility, Migration, Minorities, Mortality

### **1. Introduction**

Knowledge about the size and distribution of the American Indian<sup>1</sup> population is fundamental for understanding its demography. In particular, such knowledge represents a logical point of departure for any effort to assess other salient characteristics of the population. This paper examines the natural events determining the size of the American Indian population – fertility and mortality – as well as data showing how the American Indian population is distributed and the migration processes responsible for these patterns.

The American Indian population is an especially interesting and challenging subject for demographic research. Data are often sparse and difficult to locate. An even more vexing problem is the fluid boundaries of the population. Over the past 20 years, the American Indian population has grown remarkably as a result of the increased numbers of persons choosing to claim American Indian as their racial identity, as opposed to some other category, such as black or white (Passel 1976; Passel & Berman 1986; Snipp 1989; Harris 1994). Harris (1994) reports the percentages of population growth exceeding natural increase among the American Indian population as 8.5 for 1970, 25.2 for 1980, and 9.2 for 1990. This growth in the population numbers makes temporal comparisons difficult, but it also makes such comparisons imperative

for purposes of understanding how compositional changes may be reflected in statistics for the American Indian population (Eschbach et al. 1995).

The next section reviews briefly the most important literature on patterns of fertility, mortality, and migration among American Indians. This is followed by some observations about the limitations of available data on these patterns. With these limitations in mind, we turn to examine what the data can tell us about the patterns in these three areas. The final section presents concluding remarks.

## 2. Review of the literature

### 2.1 *Fertility*

Modern American Indian fertility patterns are the subject of several publications from the 1930s and 1940s. These studies were carried out by anthropologists working within a single tribe or region (Aberle 1931; Aberle et al. 1940; Wissler 1936). Of course, the findings from this research have limited applicability to other groups of American Indians. After a long hiatus of several decades in the study of American Indian fertility, anthropologists were joined in their study of the subject by demographers and other social scientists (e.g., Kunitz 1976; Rindfuss & Sweet 1977).

A brief report published by Thornton et al. (1991) presents data from the 1910 US Census showing that early in this century, fertility rates for American Indians were relatively low. The mean number of children ever born to so-called 'full-blood' couples was 4.5, notably lower than the number born to interracial couples involving mixed-race and full-blood Indian spouses, with 5.4 and 5.1 children ever born, respectively. Likewise, nearly 11 percent of endogamous full-blood couples were childless in 1910, compared with about 8 percent of full-blood/white couples and 4 percent of mixed-blood/white couples. These decidedly lower rates of fertility among full-blood American Indians led the Census Bureau to predict their eventual disappearance (US Bureau of the Census 1915).

In the absence of data, it is impossible to determine conclusively why endogamous American Indians had lower fertility than those married to whites in the early part of this century. Since that time, however, fertility rates among American Indians have risen apace. In 1940, there was a marked shift in the fertility of endogamous American Indian couples vis-à-vis that of American Indian women with non-Indian spouses – the former now had higher fertility than the latter. This pattern persisted through the baby boom years; indeed, the gap between endogamous and exogamous couples became larger (Thornton et al. 1991).

As in the rest of the nation, American Indian fertility declined noticeably in the 1970s. By the late 1970s, however, it was rising again, and now outstrips by a substantial margin the fertility of either the white or the black populations. In addition, the fertility of endogamous American Indian couples or American Indians residing on reservations was noticeably higher than that of exogamous couples or couples living in urban areas. Predictably, endogamous American Indian couples are more common on reservations (Snipp 1989).

## 2.2 *Mortality*

In the nineteenth century (and earlier), epidemic disease, warfare, and occasionally genocide were recurring events that took a spectacular toll on American Indians (Thornton 1987). Once American Indians had settled on reservations, most were plagued by the loss of traditional subsistence, economic impoverishment, and unsanitary living conditions. Episodes of epidemic disease continued to be a problem on many reservations (Campbell 1991), and the influenza epidemic of 1918 caused an observable decline in the American Indian population between 1910 and 1920.

The Meriam Report (Institute for Government Research 1928) documented the dire conditions and noted the ill health of American Indians. In addition to outbreaks of influenza and dysentery, tuberculosis and alcoholism were widespread. High levels of infant mortality were also noted, no doubt due to poor prenatal and neonatal care, as well as poor sanitation. Indoor plumbing was uncommon in many Indian communities until the 1950s, and it is still uncommon in many Alaska Native villages (Snipp 1989).

Nonetheless, the conditions that contributed to the rise in fertility among American Indians during the middle of this century very likely also contributed to the observed declines in mortality among American Indian populations in the USA, as well as in Canada (Snipp 1989; Young 1994). In 1940, the life expectancy of American Indians was about 52 years, lower than that of either blacks or whites at that time. However, the life expectancy of American Indians improved remarkably in subsequent decades, reaching 71.5 years in 1987–1989 – higher than the 70-year expectancy for blacks and lower than the 75.6-year expectancy for whites (Snipp 1989).

These gains in life expectancy were no doubt the function of a remarkable decline in rates of infant mortality among American Indians (Young 1994). Indeed, of all the changes in patterns of American Indian mortality, the decline in infant mortality has been perhaps most dramatic. In the period 1956–1960, the infant mortality rate for American Indians was 53 per 1000 live births, while that for the rest of the USA was 26 per 1000 live births. However, by 1981–1985, infant mortality among American Indians had declined to 11 per 1000 live births, the same rate as that for the rest of the USA.<sup>2</sup> This

decline coincides with the transfer of the Indian Health Service to the Public Health Service in 1955. Sorkin (1971) argues that this transfer led to an expansion of American Indian healthcare services, and indeed appropriations for such services tripled between 1955 and 1965. The result was a number of improvements in public health measures such as sanitary waste disposal and water supplies, vaccinations, and prenatal and neonatal care. As a consequence, deaths from most infectious diseases declined during this period. Taffel (1987) also documents higher-than-average birth weights for American Indian babies during this same period, no doubt improving their chances for survival.

In a frequently cited article, Omran (1971) describes a shift in mortality patterns that he labels an 'epidemiologic transition'. This transition takes place in a population when degenerative diseases, such as cancer, supplant infectious diseases as the major causes of death. As Sorkin (1988) points out, the public health measures introduced by the Indian Health Service in the 1950s and 1960s succeeded in significantly reducing infectious disease. At the same time, however, the American Indian population has continued to be plagued by violence and substance abuse, health problems rooted deep in conditions stemming from economic disadvantage, family disorganization, and personal malaise (Bachman 1992). Rogers & Hackenberg (1987) extend Omran's model by presenting their concept of the 'hybristic stage' of the transition, in which deaths from causes associated with risky behavior, such as AIDS, drug abuse, and accidents, supplant other causes of death as a major source of mortality. This concept appears to be an apt characterization of the American Indian population, especially among its younger members.

Accidents and violence continue to be major causes of death among the American Indian population. For example, in the years 1989–1991, the suicide rate for American Indians was 16.5 per 100,000 population—85 percent higher than the suicide rate of 11.5 per 100,000 for the rest of the USA (Indian Health Service 1994). Likewise, in 1989–1991, the alcoholism mortality rate for American Indians was 51.8 per 100,000 population—630 percent higher than the total US rate of 7.1 per 100,000.

Social pathologies are not the only distinctive characteristic of American Indian mortality. Historically, tuberculosis has been a persistent problem among American Indians, though in recent years infection rates have been low in absolute terms (Young 1994). Nonetheless, according to the Indian Health Service, deaths from tuberculosis are about seven times higher for American Indians than for the general population. Moreover, diabetes mellitus, primarily type II maturity-onset, is a serious problem among American Indians. Young (1994: 145) points out that diabetes increases among populations undergoing urbanization and life-style changes, factors that characterize the American

Indian population. Diabetes rates vary substantially across the American Indian population, but deaths due to this disease are more than 230 percent greater for American Indians than for the US population as a whole (Indian Health Service 1994).

### 2.3 *Migration*

American Indians began their occupation of the western hemisphere by migration approximately 20,000 years ago. In the intervening centuries, they established permanent settlements across the North American continent. The American Indian population also included a substantial number of nomadic societies, especially on the Great Plains, until they were forcibly settled in the late nineteenth century.

The distribution of the American Indian population across the continent was profoundly altered by the arrival of Europeans and most directly by the actions of the US Federal Government. About three-fourths of the American Indian population is concentrated in the western USA, and a relatively small proportion is found in New England or the southeast. This pattern is not a coincidence. The tribes in New England were decimated by disease and warfare with colonial settlers (Thornton 1987; Merrell 1989). American Indians in the south and the Ohio River Valley were subjected to forced migrations that began early in the nineteenth century and culminated when Andrew Jackson signed the Indian Removal Act in 1830. Eventually, the entire American Indian population was resettled on reservations or in the Indian territory of what is now Oklahoma.

American Indians continue to be concentrated not only in the west, but also in rural areas. The purpose of the removal legislation and the creation of reservations was to place American Indians in remote sites distant from the mainstream of American society. These policies were remarkably successful. In 1930, barely 10 percent of the American Indian population lived in urban areas, as compared with slightly over half of all Americans (Snipp 1989). In 1990, after more than half a century of rural-urban migration, nearly half of the American Indian population remained outside of metropolitan areas, while more than three-quarters of all Americans were living in cities.

Two events, one unplanned and the other planned, were responsible for the rapid urbanization of American Indians. The first and obviously unplanned event was the outbreak of World War II. Small numbers of American Indians had participated in World War I, but over 25,000 American Indians were active in military service in World War II, while another 50,000 joined the war effort by working in munitions plants, shipyards and other war-related industries (Hagan 1979; Bernstein 1991). The impact of World War II on American Indians, especially those in the service, is difficult to underestimate. For

many if not most, it was an opportunity to become immersed in non-Indian culture and to learn to adapt to the expectations of the dominant society. For some, it provided job skills that helped them become employed once they left the military. For many others, the GI Bill was an opportunity to acquire an education and job skills that helped them find employment. The upshot was that many of these American Indians chose to remain in urban labor markets instead of returning to the poverty and joblessness of reservation life (Fixico 1986; Bernstein 1991).

Besides World War II, American Indians were affected by federal plans intended to cause the greatest resettlement of American Indians since the Indian Removal Act. Following World War II, the federal government enacted a series of policies that have become known as 'Termination and Relocation'. The objectives of these policies were to settle outstanding claims made by American Indian tribes against the federal government, dissolve the reservation system, and move American Indians to preselected urban locations. It was expected that once American Indians had been relocated from reservations to urban locations, they would become employed and assimilated into the mainstream of American society (Fixico 1986).

It has been estimated that from 1952 to 1972, approximately 100,000 American Indians were relocated to cities such as Los Angeles, San Francisco, and Chicago (Sorkin 1978). Of course, not all of these urban immigrants remained in cities; a substantial number returned to their reservation homes, and this became grounds for criticizing the relocation program (O'Brien 1989). These programs also were criticized for being ineffective, and although some studies showed that some of those who relocated benefited from the program (Clinton et al. 1975), other studies were more equivocal about the prospects for these rural-urban migrants (Gundlach & Roberts 1978; Snipp & Sandefur 1988). The policies of termination and relocation were widely attacked, especially by American Indian advocacy groups. Eventually, these policies were repudiated symbolically by the restoration of the once-terminated Menominee reservation and officially by the passage of the Indian Self-Determination and Educational Assistance Act, both of which took place in 1975.

The impacts of participation in World War II and the relocation program cannot be judged separately. In combination, these two events had a major impact on the settlement patterns of American Indians. By one estimate, fewer than 10,000 American Indians lived in cities in 1926. By 1960, this number had risen to about 160,000, and by 1970, it had risen to 340,000. Between 1960 and 1970, the percentage of American Indians in urban areas climbed from 30 to 45. However, the decreased emphasis on the relocation program in the late 1960s and early 1970s may have slowed this trend. In 1980, 51 percent of the American Indian population lived outside of metropolitan areas, and

in 1990, this number had decreased modestly to 49 percent. Such temporal comparisons are fraught with methodological problems, changing census definitions for urban areas, compositional changes in the Indian population due to changes in self-identification noted earlier, and procedural changes in the census. Nonetheless, it should be beyond question that the American Indian population can be characterized as having experienced recent and rapid urbanization and as still having large numbers concentrated in rural areas.

### 3. Some observations about the data

#### 3.1 *Fertility and mortality data*

Data for studying fertility and mortality are extremely sparse for American Indians as compared with other groups, but there are several sources from which these data can be obtained. The decennial census is the largest and most comprehensive source of demographic information about American Indians. It provides information about social and economic characteristics, as well as details about family and household structure. As noted earlier, in terms of fertility, the census is limited to identifying the number of children ever born to Indian women. However, it is possible to use this information to examine the relationships between total fertility and other characteristics, such as education or labor force participation.

Because the census is conducted only once a decade, it is not useful for calculating annual birth rates, and it contains no data about mortality. Vital statistics produced by the National Center for Health Statistics include birth and death data about American Indians, yet these data provide little additional information about newborns or deceased persons. As a result, it is nearly impossible to use these data for anything except the computation of simple rates. A third source, also produced by the National Center for Health Statistics, is a special data file in which birth and death records are linked (NCHS 1995: 261). Hahn et al. (1992) have used these data very effectively to uncover racial classification errors in birth and death records.

#### 3.1 *Migration data*

It might be accurate to say that migration data for American Indians are plagued by relatively fewer problems than the data for fertility and mortality – but only because there are fewer migration data and because those data have just one source: the decennial census. Although there are a number of case studies dealing with American Indian migration (Price 1968; Hackenburg & Wilson 1972; Weibel-Orlando 1991), the decennial census is the only large-scale source of data about American Indian migration patterns nationwide. In

particular, the Census Bureau provides data about two types of migration, as well as about patterns of residence.

One type of migration data relates to mobility between respondents' current residence and their birthplace. The second and more commonly used type relates to respondents' current place of residence and their residence 5 years earlier, e.g., place of 1985 residence in the 1990 Census. For both of these measures, current residence is defined according to the respondent's 'usual place of residence' and does not refer to temporary quarters, such as labor camps or vacation places.

Place of residence 5 years earlier is an arbitrary reference point for determining residential mobility, though not unreasonable because it does represent the intercensal midpoint. However, this choice does limit the kinds of migration that can be studied, especially relocations of less than 5 years' duration. For American Indians, this is a potential problem because anecdotal evidence suggests that there is a great deal of short-term mobility between reservations and urban labor markets. For example, Mohawk Indian men travel to New York City to work in construction, but keep close ties with their reservation and return during slack work periods (Blumenfield 1965). This kind of short-term circular mobility between reservations and cities is impossible to study using census data.

## 4. Fertility

### 4.1 *Age at first birth*

A key to explaining the high rates of American Indian fertility is that American Indian women begin their childbearing at a relatively early age. Women who begin childbearing at an early age typically have more children than those who defer motherhood until they are older. The percentages in Table 1 show the age distribution of mothers at the time of their first birth. They also leave no doubt about the differences in fertility behavior between American Indian and white women.

A very high number of American Indian women, about 45 percent, have their first child as teenagers, as compared with about 21 percent of white women. About equal percentages of American Indian and white women become mothers during their 20s. At the other end of the spectrum, it is clear that more white women than American Indian women defer childbearing: only 6.5 percent of American Indian mothers wait until their 30s to have their first child, as compared with about 20 percent of white women.

*Table 1.* Percentage distribution of ages of mothers at first birth by race of mother, 1990

| Age at first birth | American Indians | Whites |
|--------------------|------------------|--------|
| Under 20           | 45.2             | 20.6   |
| 20–24              | 35.1             | 30.7   |
| 25–29              | 13.2             | 29.4   |
| 30–34              | 4.9              | 14.6   |
| 35 and over        | 1.6              | 4.8    |

*Source:* Indian Health Service (1994).

*Table 2.* Mean number of children ever born to women aged 15 to 44, by race in 1970, 1980, 1990

| Year | Age   | American Indians | Blacks | Whites |
|------|-------|------------------|--------|--------|
| 1970 | 15–24 | 0.65             | 0.67   | 0.35   |
|      | 25–34 | 2.93             | 2.77   | 2.12   |
|      | 35–44 | 4.41             | 3.54   | 2.83   |
| 1980 | 15–24 | 0.53             | 0.57   | 0.27   |
|      | 25–34 | 2.04             | 1.86   | 1.40   |
|      | 35–44 | 3.46             | 3.21   | 2.54   |
| 1990 | 15–24 | 0.54             | 0.54   | 0.27   |
|      | 25–34 | 1.95             | 1.62   | 1.31   |
|      | 35–44 | 2.55             | 2.22   | 1.92   |

*Source:* US Bureau of the Census public-use microdata samples.

#### 4.2 *Children ever born*

Children ever born, or parity, is a widely used measure of fertility. It gauges cumulative fertility and allows comparisons of changes in fertility behavior across cohorts of women. Table 2 shows the mean number of children ever born to black, white, and American Indian women aged 15–44. A glance at these numbers makes two conclusions quickly evident.

One is that American Indian fertility equals or exceeds the fertility of either black or white women. In particular, these numbers suggest that young American Indian and black women have about the same fertility levels. In 1970, for example, American Indian women aged 15–24 had 0.65 children ever born, and black women had 0.67, a negligible difference. In 1990, the number of children ever born to black and American Indian women was smaller than in 1970 (0.54), but identical for both groups. A second, related conclusion is that American Indians continue to have children and eventually

to exceed the number of children ever born to black women. Black women appear to curtail their childbearing in their late 20s and early 30s, while American Indian women continue to have children. In 1990, the mean number of children ever born to American Indian women aged 25–34 (1.95) was 20 percent higher than the mean number for black women (1.62).

This gap persists in the older cohort as well. At the same time, while the mean number of children ever born declined for all three groups of women from 1970 to 1990, the decrease was greatest for American Indian women. Among American Indian women aged 35–44, the mean number of children ever born fell from 4.41 in 1970 to 2.55 in 1990, a 42 percent decrease. In the same period, the decrease was 37 and 32 percent for black and white women, respectively. Needless to say, this decrease among American Indian women may reflect changes in population composition due to changing racial identities as much as ‘real’ changes in fertility behavior.

### 4.3 *Tribal differences in children ever born*

Racial differences in fertility are the result of a complex array of social, cultural, and even physiological factors that govern conception, the desirability of children, and normative beliefs about ideal family size. A plausible argument can be made that black and American Indian women have somewhat similar fertility patterns in part because they often share similar economic circumstances, whereas the remaining differences between them may be due in part to differences in cultural backgrounds. By the same token, American Indians do not have a monolithic culture. Indeed, there is a great deal of heterogeneity among tribal cultures that in most cases cannot be considered because the necessary data are not available. However, there is a small amount of data by tribe in the 1990 Census. These data allow comparison of children ever born to determine whether there are significant cultural differences across tribes with respect to childbearing and family size.

The tribes shown in Table 3 are the ten largest, listed in descending order. Perhaps the single most important conclusion that can be drawn from this table is that there are clear tribal differences in this measure of fertility behavior. With respect to childbearing, these data suggest that Sioux women are the most likely to begin their families at a young age, while Lumbee women are least likely to do so: young Sioux women aged 15–24 have an average of 0.65 children ever born, while Lumbee women of the same age have 0.3. One way to visualize this difference is to realize that among 10 young Sioux women, 6 or 7 would have 1 child each, and the others would be childless, whereas among 10 young Lumbee women 3 would have 1 child each, and the others would be childless. Considering that many Sioux women begin their families at an early age, it should not be surprising that older Sioux

*Table 3.* Mean number of children ever born to American Indian women aged 15 to 44, by tribe<sup>a</sup>, 1990

| Tribe    | 15–24 | 25–34 | 35–44 |
|----------|-------|-------|-------|
| Cherokee | 0.48  | 1.77  | 2.26  |
| Chippewa | 0.61  | 2.09  | 2.64  |
| Navajo   | 0.56  | 2.23  | 3.13  |
| Sioux    | 0.65  | 2.18  | 3.05  |
| Apache   | 0.59  | 2.10  | 2.97  |
| Choctaw  | 0.43  | 1.72  | 2.23  |
| Iroquois | 0.46  | 1.68  | 2.05  |
| Pueblo   | 0.52  | 1.82  | 2.57  |
| Lumbee   | 0.30  | 1.81  | 2.52  |
| Creek    | 0.50  | 1.78  | 2.27  |

<sup>a</sup> Ten largest tribes based on self-reports in the census.

Source: US Bureau of the Census, public-use microdata sample.

women have relatively large numbers of children (3.05). However, Navajo women have even higher levels of lifetime fertility, with 3.13 children ever born. Iroquois women have the lowest levels of lifetime fertility, nearly one-third lower than those of Navajo women, with 2.05 children ever born. The reasons for these differences are not readily apparent, but may involve cultural and/or socioeconomic factors; regrettably, a detailed analysis of these issues is beyond the scope of this discussion.

#### 4.4 Residential differences in children ever born

Residential differences in children ever born are important because they underscore the differences between reservation and nonreservation American Indians. Most reservations are located in nonmetropolitan areas, and though not all Indians living in such areas are reservation residents, this distinction still serves as a convenient proxy for reservation residence (see Snipp 1989). The data in Table 4 show the mean number of children ever born to women living in metropolitan and nonmetropolitan areas, over the decades from 1970 to 1990.

Table 4 shows the same declines in fertility over time that are visible in other tables, the result of both compositional changes and real declines. Furthermore, this downward trend is evident in metropolitan and nonmetropolitan areas alike. It is somewhat more pronounced in metropolitan areas, but this may reflect more the influence of compositional changes over time than a real change in fertility, given that changes in racial self-identification have been greatest in urban areas. And as with other groups, the fertility of American

*Table 4.* Mean number of children ever born to American Indian women aged 15–44, by place of residence in 1970, 1980, 1990

| Age   | 1970  |          | 1980  |          | 1990  |          |
|-------|-------|----------|-------|----------|-------|----------|
|       | Metro | Nonmetro | Metro | Nonmetro | Metro | Nonmetro |
| 15–24 | 0.37  | 0.44     | 0.30  | 0.40     | 0.30  | 0.37     |
| 25–34 | 2.11  | 2.31     | 1.39  | 1.74     | 1.24  | 1.70     |
| 35–44 | 2.78  | 3.12     | 2.55  | 2.84     | 1.90  | 2.25     |

*Source:* US Bureau of the Census public-use microdata samples.

Indian women is higher in nonmetropolitan than in metropolitan areas. There are various explanations for why fertility levels are typically higher in rural areas, and they are just as plausible for American Indian as for other women. For example, traditional values that reinforce the desirability of large families are often more prevalent in rural areas. Perhaps more important, correlates of fertility such as education and labor force participation also tend to be lower in rural areas.

## 5. Mortality

The largest and most comprehensive source of data about American Indian mortality is that available from the Indian Health Service, which obtains data for its reports from special tabulations produced by the National Center for Health Statistics. The most significant limitation of these data is that they are tabulated only for those areas served by the Indian Health Service. The coverage of these tabulations for 1990 included an estimated 1.21 million persons, or about 62 percent of the total American Indian population of 1.96 million. It is important to note that the population served by the Indian Health Service is heavily concentrated on reservations in rural areas. Some urban areas are included; nonetheless, the American Indian population represented by these data is more rural, has a lower standard of living, and has more health problems than the complete population enumerated by the census. Still, these data illustrate the mortality and health problems experienced by the majority of American Indians and accurately represent the mortality experience of the most economically disadvantaged segment of the American Indian population.

### 5.1 *Summary measures of mortality*

Table 5 shows data for American Indians and whites for several measures that reflect mortality patterns. Life expectancy at birth is one such measure. Table

5 shows that here the gap between American Indians and whites was greatest about 20 years ago; in earlier decades, it was even larger (see Snipp 1989). In the period of 1972–1974, the life expectancy of American Indians was 61.0 years as compared with 72.2 years for whites, a difference of over 11 years or 18 percent. Fifteen years later, this gap had narrowed considerably. In 1988, American Indians had a life expectancy at birth of 71.5, while for whites the figure was 75.6, a gap of just 5 years or 6 percent. Some of this relative improvement in life expectancy is probably due to compositional changes resulting from the changes in racial self-identification discussed earlier. However, based on data yet to be discussed, this increase can also be attributed to significant declines in infant mortality.

*Table 5.* Summary measures of mortality, American Indians and Whites

| Race/year        | Life expectancy | YPLL <sup>a</sup> | Age-adjusted mortality |
|------------------|-----------------|-------------------|------------------------|
| American Indians |                 |                   |                        |
| 1987–1989        | 71.5            | 93.1              | 60.0                   |
| 1980–1982        | 68.5            | 119.1             | 71.0                   |
| 1972–1974        | 61.0            | 188.3             | 100.7                  |
| Whites           |                 |                   |                        |
| 1988             | 75.6            | 49.2              | 51.3                   |
| 1981             | 74.8            | 57.4              | 54.5                   |
| 1973             | 72.2            | 70.8              | 65.9                   |

<sup>a</sup> Years of productive life lost.

Source: Indian Health Service (1993).

Another useful measure of mortality is years of productive life lost (YPLL) – the difference between age 65 and age at death, summed over all deaths in a given year. This measure especially capture the impact of mortality among younger adults. For American Indians in 1972–1974, years of productive life lost (YPLL) was over 188, about 166 percent higher than for the white population. However, 15 years later, this number had decreased significantly to 93.1, or less than half its previous value; YPLL had also declined for whites, from 70.8 to 49.2, about a 31 percent reduction. Despite these improvements in both populations, YPLL was still about 89 percent higher for American Indians than for whites.

Age-adjusted mortality is a third way of describing mortality. This measure allows comparisons between populations with substantially different age distributions. In particular, it takes into account the differences in mortality that may arise because of differences in age structure. Specifically, because of high rates of fertility and mortality, the American Indian population is relatively young, with a median age of 26.2 years. In contrast, the non-Hispanic

white population has lower fertility and mortality and a correspondingly older population, with a median age of 34.9. Table 5 shows that, age differences aside, the American Indian population still experiences substantially higher mortality than other Americans, notably the white population. In 1973, the age-adjusted mortality rate for American Indians was 53 percent higher (100.7) than the rate for whites (65.9). Fifteen years later, the gap between whites (51.3) and American Indians (60.0) had diminished significantly, but American Indians continued to have persistently high rates of mortality.

### 5.2 *Infant mortality*

High levels of socioeconomic distress are frequently accompanied by high levels of infant mortality. This is because poverty-stricken areas have limited access to medical care, prenatal and neonatal care is limited, and the nutrition of mothers is poor, among other problems. In this regard, American Indians are an anomaly. There is no question that American Indians are one of the poorest groups in American society. About 32 percent of American Indians in Indian Health Service areas have incomes below the official poverty threshold, compared with 13 percent for the total US population. Yet remarkably, American Indians have relatively low infant mortality rates.

Figure 1 shows trends from two sources of data. The longer lines, labeled '(VS)', are based on vital statistics reports. These reports are widely used and have the virtue of being available for lengthy periods in the past. However, there is some evidence that American Indian infant deaths are underreported (Hahn 1992; Hahn et al. 1992). In contrast, the special National Center for Health Statistics data file in which birth and death records are linked (National Center for Health Statistics 1995) significantly reduces reporting errors, but has the disadvantage of being available only for the period since 1983. Infant mortality rates from this special data file are shown in Figure 1 as lines labeled '(L)'.

The infant mortality rates from vital statistics show a downward trend from 1979 to 1990. As suggested earlier, this trend can be traced back to 1955, when the Indian Health Service was transferred to the Public Health Service (Sorkin 1988). Around 1979, American Indian infant mortality was about 16.5 per 1000 live births, approximately 45 percent higher than the rate of 11.4 among the white population. Within five years, American Indian infant mortality had continued its decline and leveled off at about 11 deaths per 1000 live births – very near the rate of 8.5 among whites, though still about 29 percent higher.

Overall, American Indian infant mortality has declined steeply over the last four decades, and the Indian Health Service undoubtedly deserves a great deal of credit for the care it provides to expectant mothers and newborns. Without

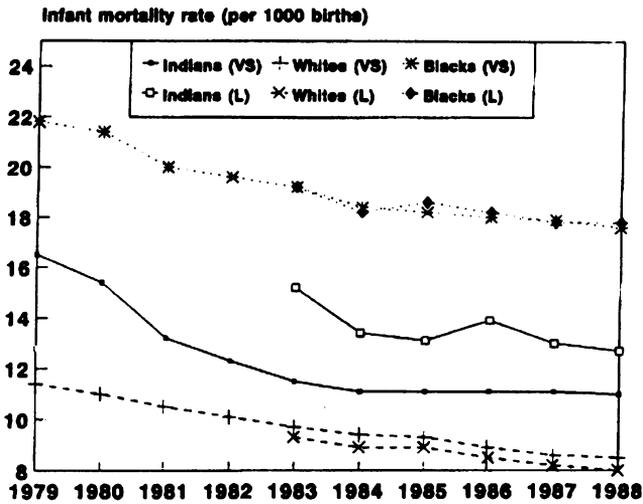


Figure 1. Infant mortality rates per 1000 births.

this care, it is very likely that American Indians would have much higher numbers of infant deaths and infant mortality rates more closely resembling those found among other impoverished groups. As shown in Figure 1, blacks in particular have substantially higher rates of infant mortality. At the same time, as discussed below, there are good reasons to believe that these declines are not as great as they appear. Furthermore, it is important to underscore the regional variation in these rates, lest it be assumed that infant mortality is universally low for all groups of American Indians.

Evidence indicating that American Indian infant deaths are underreported is clearest when one compares infant mortality rates from vital statistics with those from the linked special file. While the estimates for blacks and whites are fairly consistent across data sources, estimates of American Indian infant mortality from vital statistics are substantially lower than those from the linked file. For example, for 1986, vital statistics show an infant mortality rate of 11.1 per 1000 births, while for the same year, the rate derived from the linked file is 13.9, or 25 percent higher.

In its own estimates, the Indian Health Service cautions that American Indian infant deaths are underreported for its Portland, Oregon, service area, covering the states of Oregon, Washington, and Idaho; for its Oklahoma service area, covering the states of Oklahoma, Kansas, and Texas; and for its California service area. Notably, the Oklahoma and California service areas have the two lowest reported rates of infant mortality – 5.1 and 4.8 per 1000 live births, respectively. When these three service areas are excluded, the 1990 American Indian infant mortality rate rises to about 12 per 1000 live births.

Furthermore, it is important to point out that infant mortality continues to be a serious problem in the northern plains. Some of the poorest reservations in the nation are located in this region, including Shannon County, South Dakota, the poorest county in the nation and the site of the Pine Ridge reservation. In this region, infant mortality rates are in the range of 16 to 18 per 1000 live births, well above the 8.5 rate for whites.

### 5.3 *Leading causes of death*

The numbers in Table 6 chronicle the main causes of death among American Indians in 1988 and show the corresponding rates for the white population. Note that these are not necessarily the leading causes of death among whites. In addition, it should be no surprise that the major causes of death change as the population becomes older. For this reason, the figures in Table 6 show the leading causes of death for young adults (aged 15 to 24), early adulthood (aged 25 to 44), and older adulthood (aged 65 and older).

Examination of the death rates in Table 6 makes it clear that the overwhelming majority of these deaths were preventable, at least in principle. In 1988, younger American Indians aged 15–24 had a death rate from all causes of 221 per 100,000 persons – 133 percent higher than the death rate among whites of the same age. The tragedy of this figure is that so many of these deaths need not have happened: 85 percent were the result of accidents, suicide, and homicide. Although suicides are 172 percent higher for young American Indian adults than for young whites, and homicides kill nearly three times more American Indians than whites per capita, accidents, especially car accidents, are the true scourge of American Indians at this age. Tribal leaders could reduce deaths among their young people by a third or more if they simply could successfully encourage safe driving and seat belt use and discourage drunk driving – the major causes of auto fatalities. This would certainly not be easy, but would have enormous benefit in many Indian communities; for this age group, it would save more lives than finding a cure for cancer.

Although accidents and violent deaths are the most lethal agents of American Indian mortality, liver disease is also a deadly but possibly avoidable problem for American Indians aged 25–44. In this age group, liver disease claims nearly six times more American Indian than white lives. The reason so many of these deaths are unnecessary is because they no doubt reflect the aftermath of chronic alcoholism and alcohol abuse. Of course, liver disease is not always the result of alcohol consumption. But the problem of alcohol abuse is well known among American Indians, and to find so many deaths due to this disease in a relatively young population is both extraordinary and alarming.

*Table 6.* Five leading causes of adult deaths, 1988

| Age          | Cause                   | American Indians | Whites |
|--------------|-------------------------|------------------|--------|
| 15–24        | All causes              | 221.0            | 95.1   |
|              | All accidents           | 125.4            | 52.0   |
|              | Vehicular accidents     | 90.0             | 41.3   |
|              | Suicide                 | 38.3             | 14.1   |
|              | Homicide                | 23.3             | 7.8    |
|              | Cancer                  | 4.8              | 5.1    |
|              | Heart disease           | 2.5              | 2.4    |
| 25–44        | All causes              | 304.7            | 150.6  |
|              | All accidents           | 112.2            | 34.7   |
|              | Vehicular accidents     | 69.2             | 21.0   |
|              | Liver disease           | 27.8             | 4.9    |
|              | Suicide                 | 26.2             | 16.1   |
|              | Homicide                | 25.8             | 8.0    |
|              | Heart disease           | 21.9             | 17.1   |
| 45–64        | All causes              | 968.0            | 797.8  |
|              | Heart disease           | 248.2            | 246.5  |
|              | Cancer                  | 180.4            | 291.4  |
|              | All accidents           | 97.4             | 31.2   |
|              | Vehicular accidents     | 45.3             | 15.5   |
|              | Liver disease           | 84.1             | 24.2   |
|              | Diabetes                | 64.9             | 16.0   |
| 65 and older | All causes              | 4067.5           | 5127.6 |
|              | Heart disease           | 1368.8           | 2088.1 |
|              | Cancer                  | 738.6            | 1066.5 |
|              | Cerebrovascular disease | 299.7            | 427.1  |
|              | Diabetes                | 234.0            | 90.9   |
|              | Pneumonia and influenza | 232.5            | 231.7  |

*Note:* Rates are per 100,000 population.

*Source:* Indian Health Service (1993).

Ironically, for American Indians who reach middle age, the chances of survival improve significantly, especially as compared with the white population. While younger American Indians die at a much higher rate than whites of the same age, the death rate from all causes for American Indians aged 45–64 is only about 21 percent higher than the death rate for whites of the same age – 968 and 798, respectively. In this age group, heart disease and cancer are the major killers, but the number of deaths due to heart disease is about the same for American Indians and whites, and cancer is noticeably less common among American Indians, by about 38 percent. Indeed, the total death rate for

American Indians in this age group is higher than for whites, mainly because of excessive deaths due to accidents and liver disease. As noted earlier, American Indians are also susceptible to mature-onset (Type II) diabetes, another reason for the excess of American Indian deaths. Indeed, there are more than four times as many deaths due to diabetes among American Indians aged 45–64 as among whites of the same age.

Finally, it may be surprising, but American Indians who reach old age actually enjoy a small advantage over whites of the same age. This may reflect some selectivity in the factors that contribute to survival and the fact that so many American Indians die at younger ages. Yet American Indians who reach age 65 are less likely than whites to die from cancer, stroke, or heart disease. In fact, only diabetes stands out as a unique cause of excessive deaths for these American Indians, causing about 2.6 times more deaths than for whites. However, another plausible explanation is that mortality for older American Indians, like infant mortality, is underestimated as a result of racial misclassification on death certificates. Similarly, there is evidence that for nonwhites, there is a tendency to underestimate the age of decedents on death certificates, and this would artificially lower mortality rates for older American Indians (Hambright 1968).

## 6. Population distribution and migration

### 6.1 *Regional distribution*

The Census Bureau uses a standard set of geographic regions that are subdivided into multistate divisions. The percentages in Table 7 show the geographic distribution of the American Indian population across these areas between censuses since 1970. The distributional changes shown in Table 7 should be interpreted with caution, however. Some of these differences may be due to the movement of persons around the country or to differential rates of natural increase among areas. Yet there is also another, less obvious source of change: the changing patterns of self-identification noted earlier. Regional variations in racial self-identification have been described as ‘implied migration’. Harris (1994) found that rates of implied migration ranged from as little as 0.4 percent in the Mountain Division to 37.5 percent in the East South Central Division. Hence, what may appear to be a significant demographic shift may reflect changing ideas about racial identity more than the actual mobility of the population.

Despite the substantial increase in the number of American Indians since 1970, especially that due to changes in racial self-identification, the basic distribution of the American Indian population has remained surprisingly

*Table 7. Regional distribution of the American Indian and Alaska Native population, 1970–1990 (percentage of totals in parentheses)*

| Region and division | 1970           | 1980           | 1990           | Percent change |         |
|---------------------|----------------|----------------|----------------|----------------|---------|
|                     |                |                |                | 1970–80        | 1980–90 |
| Northeast region    | 45,720 (5.8)   | 79,038 (5.6)   | 125,148 (6.4)  | 72.9           | 58.3    |
| New England         | 10,362 (1.3)   | 21,597 (1.5)   | 32,794 (1.7)   | 108.4          | 51.9    |
| Mid-Atlantic        | 35,358 (4.5)   | 57,441 (4.0)   | 92,354 (4.7)   | 62.5           | 60.8    |
| Midwest region      | 144,254 (18.2) | 248,413 (17.5) | 337,899 (17.3) | 72.2           | 36.0    |
| East North Central  | 54,578 (6.9)   | 105,927 (7.4)  | 149,939 (7.7)  | 94.1           | 41.6    |
| West North Central  | 89,676 (11.3)  | 142,486 (10.0) | 187,960 (9.6)  | 58.9           | 31.9    |
| South region        | 194,406 (24.5) | 372,825 (26.2) | 562,731 (28.7) | 91.8           | 50.9    |
| South Atlantic      | 65,367 (8.2)   | 118,938 (8.4)  | 172,281 (8.8)  | 82.0           | 44.9    |
| East South Central  | 8,708 (1.1)    | 22,472 (1.6)   | 40,839 (2.1)   | 158.1          | 81.7    |
| West South Central  | 120,331 (15.2) | 231,410 (16.3) | 349,611 (17.8) | 92.3           | 51.1    |
| West region         | 408,350 (51.5) | 722,769 (50.8) | 933,456 (47.6) | 77.0           | 29.2    |
| Mountain            | 229,669 (29.0) | 366,291 (25.7) | 480,516 (24.5) | 59.5           | 31.2    |
| Pacific             | 179,681 (22.5) | 356,478 (25.1) | 452,940 (23.1) | 99.5           | 27.1    |
| US Total            | 792,730        | 1,423,045      | 1,959,234      | 79.5           | 37.7    |

Sources: US Bureau of the Census (1992); Snipp (1989).

stable for the past two decades. In 1990, as in 1970 and 1980, the West Region had the largest number of American Indians. Similarly, the Northeast Region had the fewest numbers of American Indians over the 20-year period. This pattern clearly reflects the impact of the Indian Removal Act, which targeted American Indians east of the Mississippi River. The latter area includes the entire Northeast Region and the East North Central, South Atlantic, and East South Central divisions. As history suggests, there are relatively few American Indians living in this area: approximately 488,000 or about one-quarter of the total US American Indian population.

One additional observation that can be made about the population changes shown in Table 7, is that the rate of growth in all areas was smaller in the 1980s than in 1970s, reflecting in part changes in racial self-identification. In the 1980s, the total growth of the American Indian population was about 38 percent, with natural increase accounting for about 22 percent. Natural increase was higher in the 1970s, about 28 percent, but shifting patterns of racial self-identification raised the total growth to nearly 80 percent. These intercensal differences are reflected across regions and divisions with percentage changes ranging from 59 to 158 percent in the 1970s and 27 to 82 percent in the 1980s. Predictably, those places with the smallest numbers of Indians (e.g., the East South Central Division) also had the largest increases,

*Table 8. Residential distribution of the American population by race and Hispanic origin, 1990 (%)*

| Race/origin                       | Inside MSAs*          |                        |       | Outside MSAs | Inside and Outside MSAs |
|-----------------------------------|-----------------------|------------------------|-------|--------------|-------------------------|
|                                   | Inside central cities | Outside central cities | Total |              |                         |
| American Indian and Alaska Native |                       |                        |       |              |                         |
| 1990                              | 23.3                  | 28.0                   | 51.3  | 48.7         | 100                     |
| 1980                              | 20.9                  | 28.1                   | 49.0  | 51.0         | 100                     |
| Asian and Pacific Islander        | 46.5                  | 47.4                   | 93.9  | 6.1          | 100                     |
| Black                             | 57.3                  | 26.4                   | 83.7  | 16.3         | 100                     |
| Hispanic <sup>a</sup>             | 51.5                  | 38.9                   | 90.4  | 9.6          | 100                     |
| White                             | 24.5                  | 50.3                   | 74.8  | 25.2         | 100                     |
| Total US population               | 31.3                  | 46.2                   | 77.5  | 22.5         | 100                     |

<sup>a</sup> Hispanics may be of any race.

\* MSA = Metropolitan Service Area.

Sources: US Bureau of the Census (1993); Snipp (1989).

and vice versa for areas with large numbers of American Indians, such as the divisions of the West.

## 6.2 *Place of residence: Urban and rural population*

The percentages in Table 8 show the distribution of the US population, including American Indians and Alaska Natives, by metropolitan residence (metropolitan statistical areas or MSAs). Comparing American Indians with other groups makes it abundantly clear that American Indians continue to be heavily concentrated outside of urban areas. In 1990, about 78 percent of all Americans resided in MSAs, as compared with slightly over half (51.3 percent) of all American Indians. Other minority groups, such as Asians or Hispanics, were concentrated in cities at rates of 90 percent or higher. Furthermore, most minority populations living in metropolitan areas were concentrated in 'downtown' central city locations. This was not the case for American Indian city dwellers, about 55 percent of whom lived outside of central city areas.

Table 8 also shows a change in the urbanization of American Indians between 1980 and 1990: the numbers suggest a slight increase in metropolitan residence, from 49.0 to 51.3 percent. However, it would be a mistake to read too much into this shift. One reason is that these numbers are influenced not only by changes in racial self-identification, but also by changes in the

*Table 9.* Metropolitan statistical areas with 15,000 or more American Indians and Alaska Natives, 1970–1990

| MSA                            | 1970    | 1980    | 1990    |
|--------------------------------|---------|---------|---------|
| Tulsa, OK                      | 15,183  | 38,463  | 48,348  |
| Oklahoma City, OK              | 12,951  | 24,695  | 46,111  |
| Los Angeles-Long Beach, CA     | 23,908  | 47,234  | 43,689  |
| Phoenix, AZ                    | 19,996  | 27,788  | 38,309  |
| Seattle-Tacoma, WA             | 8,814   | 15,162  | 32,980  |
| Riverside-San Bernadino, CA    | 5,941   | 17,107  | 25,938  |
| New York City, NY              | 9,984   | 13,440  | 24,822  |
| Minneapolis, MN                | 9,911   | 15,831  | 23,338  |
| San Diego, CA                  | 6,007   | 14,355  | 21,509  |
| San Francisco-Oakland, CA      | 12,041  | 17,546  | 21,191  |
| Tucson, AZ                     | 8,704   | 14,880  | 20,034  |
| Dallas-Fort Worth, TX          | 5,500   | 11,076  | 19,933  |
| Detroit-Ann Arbor, MI          | 5,203   | 12,372  | 19,331  |
| Sacramento, CA                 | 3,548   | 10,944  | 18,164  |
| Chicago, IL                    | 8,203   | 10,415  | 16,513  |
| Albuquerque, NM                | 5,822   | 20,721  | 16,008  |
| Total in MSAs                  | 161,716 | 312,029 | 436,218 |
| Total US Indian population (%) | 20.4    | 21.9    | 22.3    |

*Source:* US Bureau of the Census (1993); Snipp (1989).

Census Bureau's metropolitan definitions, with some places being designated as metropolitan in 1990 but not in 1980. Given the small difference involved, it is probably reasonable to conclude that the rapid urbanization of American Indians that took place in the 1940s, 1950s, and 1960s reached a point of stasis, and there is little reason to believe that the American Indian population of 1990 was significantly more urbanized than that of 20 years before.

Although American Indians are one of the least urbanized groups in American society, they are nonetheless concentrated in a relatively small number of cities. In fact, roughly half of all urban American Indians can be found in as few as 16 cities. These cities and their numbers of American Indian inhabitants are shown in Table 9. These figures reflect the aftermath of the urban relocation programs that were winding down by 1970: eight of the cities shown in Table 9 – Tulsa, Oklahoma City, the Los Angeles area, the San Francisco Bay area, Dallas, Seattle, and Chicago – were officially designated relocation sites for American Indians desiring to leave the reservations with Bureau of Indian Affairs sponsorship.

The three sets of population estimates for 1970, 1980, and 1990 shown in Table 9 make it tempting to reach conclusions about changes in urban settlement. Though these data are interesting, it would be a mistake to place much emphasis on the changes over time. These changes reflect not only changes in the physical boundaries of these places, but also the changing definitions of what constitutes a metropolitan area noted above. Thus, it appears that Los Angeles and Albuquerque lost American Indian population between 1980 and 1990, but there is no way of determining whether this loss reflects a real decline in the number of people in these places or these other changes.

### *6.3 Place of residence: Reservation populations*

Reservations, along with the former Indian nations of Oklahoma, make up the majority of territory known as 'Indian Country'. Reservations were once places where American Indians were quarantined from the mainstream of the dominant society, but have since become places whose importance cannot be overestimated. Reservations represent the last remaining lands belonging to people who once claimed all of North America. For most American Indians, including many urban residents, they are also the touchstones of cultural identity – places with sacred sites, the locus of ceremonial activity, and an essential symbol of tribal life.

There are 279 federal and state reservations located around the nation, and for reasons already mentioned, most are in the west (see Figure 2). A quick glance at Figure 2 also makes clear that reservations vary enormously in size, ranging from a few acres, such as the small rancherias scattered around California, to the Navajo reservation in the Four Corners area, which is about the same size as the state of West Virginia or the nation of Ireland.

As important as reservations are to American Indian tribal life, it is not true that most American Indians live in these places. In fact, as Figure 3 shows, many more American Indians live off reservation than on. For the 1990 census, the Census Bureau introduced a new set of geographic designations to delineate 'Indian Country'; these are shown in Figure 3.

In 1990, about 438,000 American Indians lived on state and federally recognized reservations and trust lands. In absolute numbers, there were more American Indians living on reservations then than at any time in the past; roughly 370,000 American Indians occupied reservations and trust lands in 1980. In relative terms, however, the percentage of Indians living on reservation land declined, from about 27 percent in 1980 to slightly less than 22 percent in 1990.

Tribal Jurisdiction Statistical Areas (TJSAs) and Tribal Designated Statistical Areas (TDSAs) were newly defined in the 1990 census. TJSAs correspond

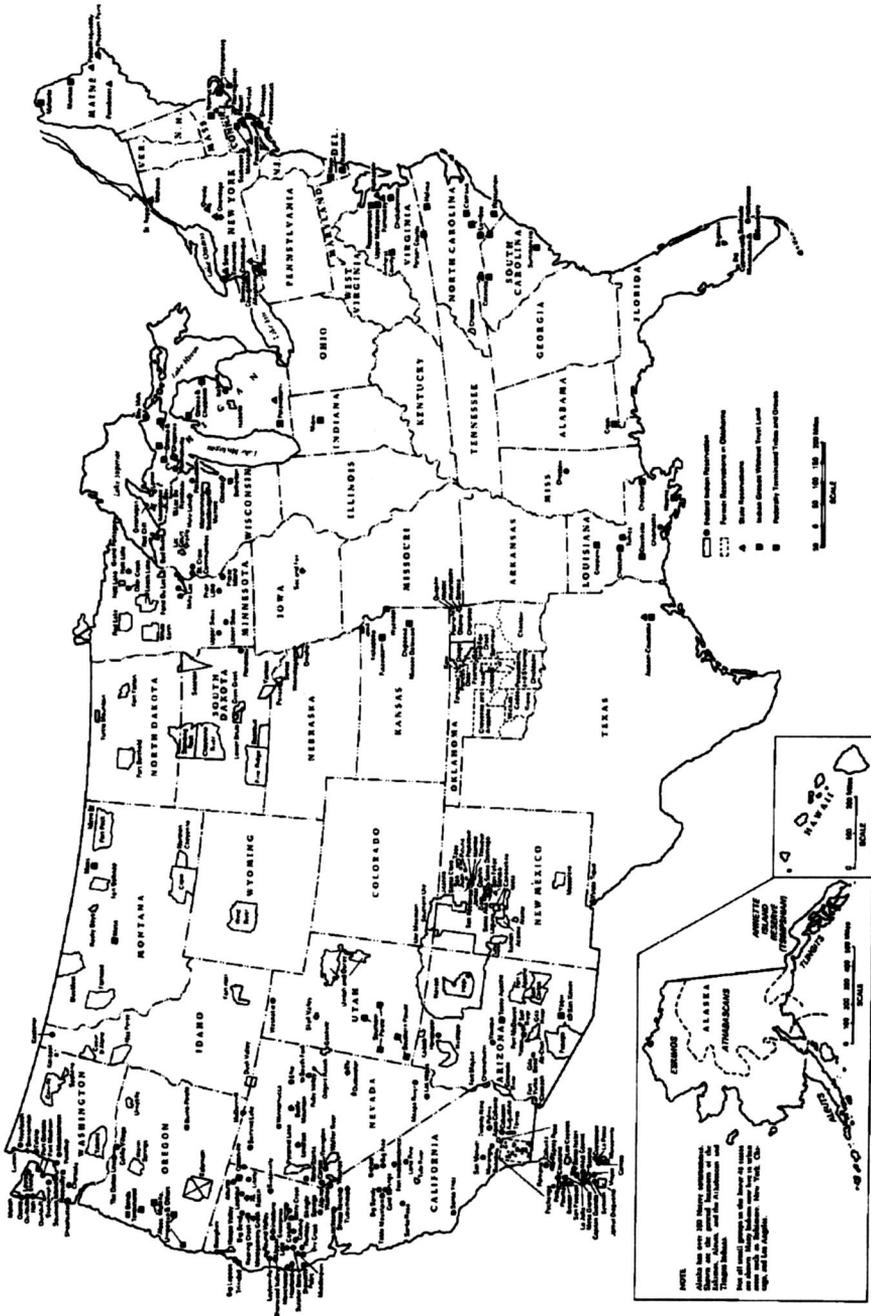
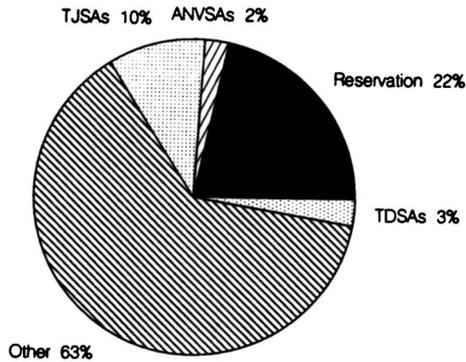


Figure 2. Indian lands and communities. Source: Snipp (1989). Reprinted with permission.



*Figure 3.* American Indian places of residence.

to areas designated as the Oklahoma Historic Areas in the 1980 census, and they follow approximately the boundaries of the Indian nations that existed in Oklahoma before statehood in 1907. Collectively, these areas contain a significant number of American Indians – over 200,000 – and they are areas in which tribal governments have a major responsibility for providing services and benefits to tribal members. TDSAs constitute a much smaller group of about 54,000 persons in 17 locations, mostly on state-recognized reservations. Alaska Native Village Statistical Areas (NVSAs) were a third innovation in the 1990 census, designating villages that were recognized in the Alaska Native Claims Settlement Act of 1972. About 47,000 persons lived in these places in 1990. Overall, about 37 percent of the total US Indian population lived within the boundaries of areas served by tribal governments in 1990.

TDSAs, TJSAs, and Alaska NVSAs are in many respects a significant improvement over past efforts by the Census Bureau to demarcate the boundaries of Indian Country, and especially the areas for which tribal governments have some form of jurisdiction or obligation. Yet these designations have one serious shortcoming: they exclude the numbers of persons who live within close proximity of these areas, participate regularly in tribal affairs, have extensive social ties to the tribe, and possibly even receive services. Tulsa, Oklahoma, has nearly 20,000 American Indians living within a 2- or 3 hour drive to several TJSAs, but this population is considered outside of Indian Country. In 1980, the Census Bureau reported that nearly 15 percent of the total American Indian population lived near but outside reservation land. The point to be made is that while 63 percent of American Indians live outside of lands served by tribal governments, it would be a mistake to assume that this statistic represents the number of persons outside of tribal life.

*Table 10.* Population sizes of reservations with 5000 or more American Indians and Alaska Natives, 1970–1990

| Reservation                       | 1970         | 1980    | 1990    | Percent change |               | Percent<br>in different<br>house in<br>1985 |
|-----------------------------------|--------------|---------|---------|----------------|---------------|---|
|                                   |              |         |         | 1970–<br>1980  | 1980–<br>1990 |   |
| Navajo                            | 56,949       | 104,968 | 143,405 | 84.3           | 36.6          | 25.9  |
| Pine Ridge                        | 8,280        | 11,882  | 11,182  | 43.5           | –6.0          | 36.5  |
| Fort Apache                       | 5,903        | 6,880   | 9,825   | 16.6           | 42.8          | 41.0  |
| Gila River                        | 4,573        | 7,067   | 9,116   | 54.5           | 29.0          | 38.1  |
| Papago                            | 4,879        | 6,959   | 8,480   | 42.6           | 21.9          | 17.5  |
| Rosebud                           | 5,656        | 5,688   | 8,043   | 0.6            | 41.4          | 49.1  |
| San Carlos                        | 4,525        | 5,872   | 7,110   | 29.8           | 21.1          | 38.4  |
| Zuni Pueblo                       | 4,736        | 5,988   | 7,073   | 26.4           | 18.1          | 18.0  |
| Hopi                              | 7,726        | 6,601   | 7,061   | <sup>b</sup>   | 7.0           | 35.9  |
| Blackfeet                         | 4,757        | 5,080   | 7,025   | 6.8            | 38.3          | 36.8  |
| Turtle Mountain                   | 3,386        | 3,955   | 6,772   |                | 71.2          | 46.1  |
| Yakima                            | 2,509        | 4,983   | 6,307   | 98.6           | 26.6          | 43.1  |
| Osage                             | <sup>a</sup> | 4,749   | 6,088   | <sup>a</sup>   | 28.2          | 42.7  |
| Fort Peck                         | 3,182        | 4,273   | 5,782   | 34.3           | 35.3          | 54.2  |
| Wind River                        | 3,319        | 4,150   | 5,676   | 25.0           | 36.8          | 48.1  |
| Eastern Cherokee                  | 3,455        | 4,844   | 5,388   | 40.2           | 11.2          | 24.9  |
| Flathead                          | 2,537        | 3,504   | 5,130   | 38.1           | 46.4          | 53.3  |
| Cheyenne River                    | 3,440        | 1,557   | 5,100   | –54.7          | 227.6         | 53.9  |
| Reservation Total                 | 128,812      | 199,000 | 264,563 | 54.5           | 33.0          |   |
| Total US Indian<br>Population (%) | 16.3         | 14.0    | 13.5    |                |               |   |

<sup>a</sup> Not reported for 1970 and not included in Reservation total.

<sup>b</sup> Figures for 1970 and 1980 are not strictly comparable because of administrative changes in reservation boundaries.

Sources: US Bureau of the Census (1993); Snipp (1989).

As Figure 3 shows, about one-third of all American Indians live on reservations, and it is worth noting that in most instances, these reservations are very small communities or collections of small communities by modern standards. Of the 279 recognized reservations, only 18 had populations of 5000 or more in 1990. Table 10 shows these reservations and their populations in 1970, 1980, and 1990.

Several interesting observations can be made about Table 10. Very clearly, the Navajo reservation stands out as the most populous (as well as the physically largest) reservation. With 143,000 persons, it is nearly 13 times larger

than the next-largest reservation, the Pine Ridge Sioux reservation in South Dakota. Another observation is that these reservations grew substantially in the 1970s and 1980s, more than doubling in population size. Yet in relative terms, they represent a slowly declining share of the total US Indian population. Evidence of enumeration problems are also noticeable in this table. In 1980, the Cheyenne River experienced a very steep (and improbable) population loss, followed by an even steeper population recovery in 1990. Similarly, the Turtle Mountain population was virtually unchanged between 1970 and 1980, but experienced a very sharp increase in 1990. The population decline at the Pine Ridge reservation between 1980 and 1990 may also reflect an undercount in 1990, but in the absence of corroborating evidence, this is impossible to determine with certainty.

#### 6.4 *Migration*

Data from the 1980 census provide evidence that the contemporary American Indian population was highly mobile (Snipp 1989). The data for migration in the 1990 census are more limited, but they do not contradict the 1980 findings. One indication of this mobility appears in the last column of Table 11. The percentages in this column are for persons aged 5 and older who were living in a different house in 1990 than the one they inhabited in 1985. These numbers range from a low of 18 percent for the Papago reservation and the Zuni Pueblo in the southwest to a high of 54 percent for the Fort Peck and Cheyenne River reservations in the northern plains.

These remarkably high rates of mobility are even more noteworthy because to a large extent they probably represent mobility to and from the reservation and not intra-reservation migration. This is impossible to determine beyond doubt, but is likely for two reasons. One is that housing stocks on these reservations are extremely limited, and overcrowding is a persistent housing problem on most reservations (Snipp 1989). There is simply not enough housing available to allow persons to move freely within the reservation, and indeed the lack of housing often limits migration to reservations. A second, related point is that new housing might foster neighborhood mobility or an influx of migrants, but during the 1980s, housing construction and especially federally subsidized housing came to a virtual halt. In sum, whatever neighborhood mobility occurred during the 1980s was not in response to housing availability and thus was probably much less common than mobility between the reservation and nearby towns and cities, where housing was more plentiful.

The residential mobility of persons living on reservations may seem high, but the residential mobility of urban American Indians is even higher. Figure 4 shows the percentage of American Indians who lived in a different house in

*Table 11.* Migration rates between 1985 and 1990 place of residence for American Indians and Alaska natives

| Region/division    | In migration | Out migration | Net migration |
|--------------------|--------------|---------------|---------------|
| Northeast          | 14.2         | 12.0          | 2.1           |
| New England        | 16.5         | 14.6          | 1.9           |
| Mid-Atlantic       | 13.3         | 11.0          | 2.2           |
| Midwest            | 11.9         | 11.0          | 0.9           |
| East North Central | 10.3         | 9.5           | 0.8           |
| West North Central | 13.3         | 12.3          | 0.9           |
| South              | 12.3         | 11.7          | 0.5           |
| South Atlantic     | 16.9         | 13.1          | 3.7           |
| East South Central | 16.2         | 15.1          | 1.1           |
| West South Central | 9.3          | 10.6          | -1.3          |
| Mountain           | 10.6         | 10.0          | 0.6           |
| Pacific            | 10.7         | 9.2           | 1.6           |

*Note:* The data in this table are for persons age 5 and older.

*Source:* US Bureau of the Census public-use microdata sample (1990).

1990 than in 1985, by place of residence – metropolitan or nonmetropolitan area and central city or not. About 45 percent of American Indians living in nonmetropolitan areas changed residences between 1985 and 1990. This is consistent with the percentages in Table 11 for reservations and not surprising because most reservations are located in nonmetropolitan areas. Residential mobility was highest for American Indians living in central cities, where about 65 percent of this population changed residences between 1985 and 1990.

Figure 4 also shows the residential mobility of whites and blacks, and there is no question that American Indians are considerably more mobile than either of these groups. In central cities, the gap between American Indians and whites or blacks is about 15 to 18 percent. In nonmetropolitan areas, the gap is smaller, but American Indians are still more mobile than either blacks or whites. The high level of mobility among urban Indians is difficult to explain, but there are two possibilities. One is that because American Indians are relative newcomers to cities, they do not have established communities or ethnic enclaves in which to settle and become attached to existing social networks. This lack of social ties to an area or neighborhood may contribute to higher levels of residential mobility. Another possible explanation is the substantial anecdotal evidence that American Indians routinely and frequently move between reservations and urban areas. Nonmetro mobility rates remain low because persons return to the same house on the reservation, but live in

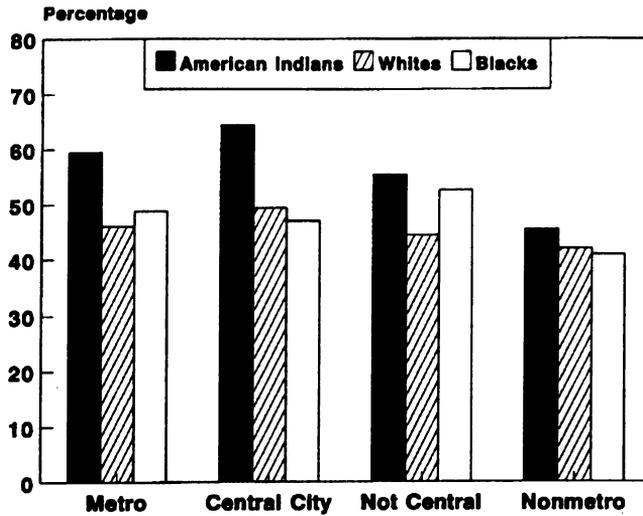


Figure 4. Percentage in different house in 1990 than in 1985.

different places when residing in cities. Hence, residential mobility on the reservation appears low, while urban residential mobility stays at a high level.

In view of the earlier finding that the distribution of the American Indian population across regions, states, and cities has remained fairly stable for the past two decades, the above high rates of residential mobility may be surprising, presuming that residential mobility frequently leads to population redistribution. On the other hand, if residential mobility follows established, long-term patterns of exchange, such as those that might exist between certain reservations and certain cities, there is no reason to expect that residential flows would have any effect on population distribution.

Table 11 shows rates of in, out, and net migration per 100 population for census regions and divisions between 1985 and 1990. The South and Northeast regions had relatively small American Indian populations, but relatively high rates of in and out migration. In contrast, the Mountain and Pacific regions had much larger populations, but somewhat lower rates of in and out migration. Despite these relatively high rates of in and out migration, net migration in virtually all of these areas was negligible, between 1 and 2 percent, lending credence to the idea that high rates of residential mobility do not signal a large-scale distributional shift in the American Indian population. Significantly, the West South Central Division, including Oklahoma with its large Indian population, was the only area to experience a net loss, which was dispersed across the other regions.

In closing, it is worth noting that in the 1970s, American Indian migration patterns mirrored those of other Americans, especially in flows toward the so-called 'sunbelt' (Snipp 1989). Because American Indians were already concentrated in the west, these migration patterns did not substantially alter the distribution of the Indian population, and these flows were also offset by return mobility to reservation communities. However, in the 1980s, as sunbelt opportunities diminished, the American Indian population, though highly mobile, appeared to be in stasis insofar as no place, state, or region appeared to hold a strong attraction. Needless to say, this buttressed the stability of the American Indian population distribution, which apparently remained fundamentally unchanged from 1970 to 1990.

## 7. Concluding remarks

From the arrival of Europeans until the dawn of the twentieth century, the indigenous societies of North America appeared destined for extinction. Most observers fully expected American Indians to disappear, and their beliefs were well founded; the American Indian population dwindled from perhaps as many as 5–7 million to as few as a quarter million in 1890. However, as the twentieth century progressed, a remarkable event took place: instead of disappearing, the American Indian population staged a surprising comeback.

Throughout the first half of this century, growth in the American Indian population gathered momentum, starting slowly at first, then gradually increasing over the decades. Despite signs of renewed vigor in the form of rising fertility and declining mortality, no one could have predicted the spectacular growth in the American Indian population since 1950. In the second half of the twentieth century, the American Indian population has increased five-fold, and at least in the short term, there are few reasons to expect this trend to reverse itself.

The staggering growth in the American Indian population, coupled with the unique legal and political status accorded to American Indian tribes, is no less than a mandate for acquiring better knowledge about the demography of this population. Insofar as demography is the study of how human populations reproduce themselves, as well as the conditions in which they live, there are obvious and compelling reasons why a better understanding of American Indian demography is essential for social scientists and policymakers alike – and perhaps even more so for American Indians themselves.

This chapter has been devoted to two fundamental dimensions of American Indian demography: the size and the distribution of the American Indian population. In particular, because population size is primarily an outcome of natural events related to births and deaths, fertility and mortality are central

to understanding American Indian population dynamics. Likewise, the distribution of the American Indian population is tied to settlement patterns, and especially to patterns of migration or residential mobility.

With regard to fertility, American Indian birth rates were relatively low at the beginning of this century. The reasons for these low rates are not well understood, but the rates are consistent with the slow population growth among American Indians prior to 1930. Since that time, the fertility rate of American Indians has climbed to a level that now exceeds most other groups in American society. There can be little doubt that high fertility rates have made a significant contribution to the growth of the American Indian population. Indeed, from 1970 to 1980, the excess of births over deaths helped increase the population by 28 percent, and it added another 22 percent in the decade of the 1980s.

Natural increase would have an even greater impact on the size of the American Indian population if somehow mortality could be reduced. Death rates for American Indians are especially high for younger persons. Ironically, the Indian Health Service probably deserves much of the credit for severing the link between poverty and infant mortality among American Indians – infant mortality rates are relatively low in most areas of Indian Country. Yet American Indian youth and young adults die at rates far out of proportion to their numbers. Moreover, an overwhelming number of these deaths are unnecessary in that they do not result from chronic disease; instead, they are the result of violence, auto accidents, and alcohol abuse. Many tribal leaders are acutely aware of these problems, but as a matter of public health, they should be accorded foremost priority.

Finally, perhaps more than fertility or mortality, the distribution of the American Indian population clearly bears the marks of historical events and especially the influence of federal policies. The removal policies of the nineteenth century, for example, pushed American Indians out of the east and into the west, where the majority still reside. About one-third still live on the reservations first designed to quarantine them and now serving as a final homeland. World War II and the relocation programs of the 1950s and 1960s had a profound impact on American Indians by bringing them to urban areas, where slightly over one-half now live, with the largest numbers being concentrated in cities once designated as relocation centers. American Indians continue to be a highly mobile population, but their moves follow patterns that do not appreciably alter the existing residential distribution. Since 1970, there have been no major developments to cause a significant redistribution of the American Indian population, and the current distribution of American Indians appears to be a relatively stable one for the foreseeable future.

There can be no doubt that the American Indian population, once on the brink of extinction, has rebounded in a dramatic way. Equally certain is the fact that, at least numerically, the existence of the American Indian population is assured for the foreseeable future. Yet the future vitality of the American Indian population will depend on more than growth alone. Growing numbers bring hope, but they also bring challenges. Tribal leaders and others concerned with the future well-being of American Indians must find innovative ways to provide for the material needs and ensure the cultural survival of Indian people. As American Indians move into the next century, meeting the many challenges of preserving cultural traditions and improving economic well-being will, more than numbers alone, be the foundation for sustaining the place of American Indians within the mosaic of American society.

## Notes

1. Although the term 'American Indian' is used throughout this paper, this is done purely for editorial convenience. Readers should be mindful that the data presented are for American Indians *and* Alaska Natives, unless otherwise specified.
2. Young (1994: 40) reports infant mortality rates of 10 and 16 per 1000 live births, respectively, for American Indians and Alaska Natives.

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