Randall K.Q. Akee & Jonathan B. Taylor
Social and Economic Change on American Indian Reservations
A Databook of the US Censuses and the American Community Survey
1990–2010

$9.95
ISBN 978-0-9903880-0-5
50995>
9 780990 388005

Free download at:
taylorpolicy.com/us-databook

Social and Economic Change on American Indian Reservations

A Databook of the US Censuses and the American Community Survey 1990–2010

May 15, 2014

Randall K.Q. Akee

Jonathan B. Taylor

"Social and Economic Change on American Indian Reservations: A Databook of the US Censuses and the American Community Survey, 1990–2010" was made possible by a grant from the Research Center for the Sycuan Institute on Tribal Gaming (SITG). The research center, housed in the L. Robert Payne School of Hospitality and Tourism Management (HTM) and supported by the San Diego State University Research Foundation, is focused on producing and disseminating unbiased research on gaming issues in tribal government. The SITG grant program is guided by federal standards in the review of applications. An independent panel composed of distinguished researchers in the field evaluates proposals and makes the final funding decisions. The views expressed in this report are the authors' own and do not necessarily reflect those of any of the funding organizations or of the institutions with which the authors are affiliated. This research project is undertaken with the clear understanding that the investigators have the full right to publish any results obtained by them, without prior approval of any funding organization or individual and subject only to established safeguards for the protection of privacy or confidentiality.

ISBN: 978-0-9903880-0-5

Social and Economic Change on American Indian Reservations

A Databook of the US Censuses and the American Community Survey 1990–2010

May 15, 2014

Randall K.Q. Akee

Jonathan B. Taylor

Contents

Executive Summary

1. By 2010, the vast majority of American Indian tribes could be considered gaming tribes. We estimate that more than 92% of all American Indians on reservations lived on reservations with gaming operations. Gaming operations have an impact on almost every American Indian reservation given the existence of revenue-sharing funds and intertribal gaming-device leasing, which transfer gaming revenues to non-gaming tribes.

2. Significant gains were made in Real Per Capita Income on American Indian reservations from 1990 to 2000. In the ten years following, however, income gains were much smaller.

3. The Median Household Income of American Indians living on reservations increased during the 1990s, but those gains did not continue into the 2000s. Nor did the large reductions in Family and Child Poverty made during the 1990s. However, neither the increases in income nor the reductions in poverty after 1990 have eroded on reservations.

4. The Unemployment rate for American Indians residing on reservations fell in the 1990s but remained constant in the 2000s. The Labor Force Participation rate remained steady over time, but Indian Female Labor Force Participation increased steadily over that period.

5. Improvements in infrastructure have continued on reservations over the past 20 years. Crowded Homes and Homes Lacking Complete Plumbing have dropped significantly in number.

6. Education levels have increased over time on reservations, with more College Graduates since the 1990s, although the Indian population is far from parity with the rest of the United States on this measure.

Reservation Economies in the National Context

The 25th anniversary of the Indian Gaming Regulatory Act of 1988 (IGRA) occasions this review of living conditions on reservations. This databook examines US census data over two decades, which show both remarkable progress and a great gap between life on reservations and in the US generally.

The economic fortunes of Indians on reservations continue to lag those of other racial and ethnic groups tracked by the census. The per capita income of Indians on reservations is less than half the US average and consistently falls far below that of Hispanics, African Americans, Asian Americans, and Indians living elsewhere.

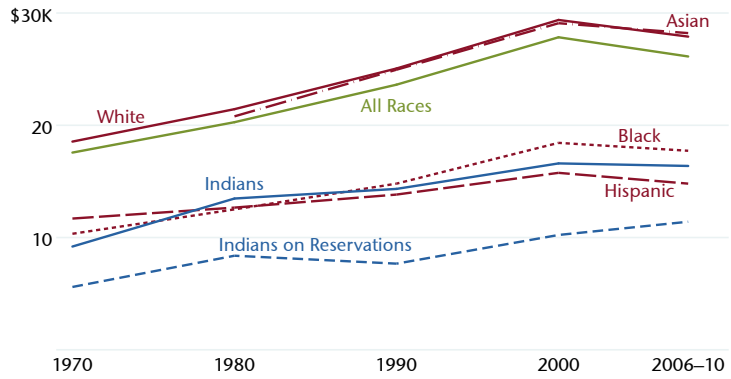
Even after the advent and widespread adoption of self-determination policies by tribes and the federal government, the problem of low per capita income on reservations persists. Indeed, in light of IGRA—one of many recent federal laws recognizing and bolstering Native self-reliance—it is perhaps surprising that Indians living on reservations fare as poorly as they do. Their incomes stand in stark contrast to a widespread public assumption of burgeoning wealth from casino operations.

Real (that is, inflation-adjusted) Indian per capita income on reservations grew by 50% during the 1970s but fell by 8% in the following decade, just as self-determination and gaming gained traction. That drop accompanied dramatic Reagan-era cuts in funding for programs targeting Indians. In the 1990s and 2000s, Indian incomes on reservations grew again, even though federal funding per Indian lost ground relative to nondefense discretionary spending per American [1]. More important, income growth on reservations outpaced the growth rates for other racial and ethnic groups tracked by the census in the 1990s and 2000s.

Since 1970, real Indian per capita income on reservations doubled, increasing by 104%, whereas the growth rate for all races in the US was 49% over the same period. The fact that growth from 1990 to 2010 occurred despite low and declining federal funding for tribal governments indicates the power of increased Native sovereignty and economic development.

Real Per Capita Income by Census Racial or Ethnic Category

2009 dollars



Note: the roster of reservations tracked by the Census Bureau changes over time.

This databook presents 13 indicators of demography, income, employment, education, and housing for reservations in the lower 48 states. It also begins to investigate the variations within Indian Country, although full examination is beyond its scope. It is meant to update earlier research on changes from 1990 to 2000 on reservations [2] and relates to prior research documenting the challenges of reservation life [3,4].

The next section describes Recent Native Political Economy, painting in broad strokes a picture of political, economic, and social resurgence. [*Throughout this document, text in small caps refers to sections, tables, and graphics captioned by the indicated name.*] The subsequent section summarizes the findings of this databook, providing a snapshot of Recent Change on Indian Reservations. The section on Methodology highlights important conventions and considerations that influenced the selection and presentation of data. Graphs

and discussions of the data follow immediately thereafter. The Appendices contain links to companion resources online, acknowledgments, biographical information about the authors, and references.

Recent Native Political Economy

Generalizations about Indian Country risk mischaracterizing and masking enormous variety, but most observers would concur that the past three or four decades have seen a broad resurgence in Native self-government, economic development, and social investment.

Self-Government

The United States is home to thousands of internal governments, ranging from tribal and state governments to those of counties, municipalities, and towns. There are 3,021 counties; 35,886 municipalities, towns, and townships; and 566 Native nations [5]. In the lower 48 states, 305 tribal governments preside over 324 reservations, pueblos, rancherias, colonies, and other Indian bodies of land [6]. Over the past 35 years, Indian communities have asserted their sovereignty—their powers of self-determination—with at least three broad consequences.

First, they now have decision-making control over reservation life to a degree not seen since the nineteenth century. They have insisted that the Bureau of Indian Affairs abandon its mid-twentieth-century role as a quasi-colonial overseer of reservation poverty to become a more benign federal bureaucracy. In some cases, the BIA even provides consulting expertise to tribal governments. Native nations have displaced opportunistic landowners, unscrupulous developers, and other modern-day carpetbaggers in order to develop resources themselves. Tribes have fought in the courts—often successfully—to have their powers of self-government on reservations take precedence over state, county, and municipal authorities. Asserted Indian sovereignty has kept decisions and—critically, their consequences—internal to Native communities. Outcomes have improved accordingly [7].

Second, Indian communities have asserted their position in the federalist matrix of governments. Although the US Constitution mentions

tribes (one of four sovereigns explicitly named), it is largely reticent about tribal powers, checks, and balances. Today, tribes find themselves in cooperation and conflict with state governments as they build state-like relationships with the federal government. Under the federal Clean Air and Clean Water Acts, they can opt for formal "treatment-as-state" status. By order of the Secretary of the Interior, tribes and the US Fish and Wildlife Service manage endangered species together. At the state and local levels, intergovernmental cooperation takes place under frameworks such as the Centennial Accord between the Federally Recognized Indian Tribes in Washington State and the State of Washington [8] and under particularized agreements such as the Otoe-Missouria Tribe's police cross-deputization agreement with the City of Perry, Oklahoma [9]. Perhaps nowhere else is this federalist relationship more powerfully articulated than in IGRA's requirement that tribes and states formally compact to regulate Vegas-style Indian casinos. Recent legislation such as the Dodd-Frank Act of 2010 allows them to be treated as states as well [10]. From gaming regulation and sewage management to law enforcement and salmon habitat restoration, tribes, states, and local governments have forged new working relationships. Asserted Indian sovereignty has clarified how tribes fit into federalism.

Third, tribes have been in the vanguard of the "new fiscal federalism"—the practice of shifting implementation authority and spending discretion to state, county, municipal, and tribal governments. Since the Indian Self-Determination and Educational Assistance Act of 1975, tribes have been increasingly able and eager to contract federal functions, to receive block-grant-like spending discretion, and to adapt federal policy implementation as they see fit. Devolution in Indian Country ranges from legislation giving tribes the power to adapt welfare-to-work definitions [11] to the Nez Perce Tribe's contracting for off-reservation implementation of the grey wolf reintroduction in Idaho [12]. Indian decision-making in federal policy implementation has brought greater efficiency and effectiveness to antipoverty, health, environmental, and other policies [7,13-19].

Economic Development

A wide range of economic development has accompanied tribal assertions of sovereignty. Tribes have long turned to timber, water, grazing, wildlife, and mineral resources for jobs and revenue. As they have asserted more sovereignty and built their capacity, they have been able to move from simply collecting stumpage, royalties, and rents to running value-adding enterprises such as the Fort Apache Timber Company and Warm Springs Power Enterprises.

And, of course, in recent years they have developed first bingo operations and then full-fledged casinos. Less well known is the broad extent to which they have parlayed gaming experience into resort, golf, RV, spa, and hotel businesses, ranging from the Flandreau Santee Sioux's modest but growing Royal River Hotel and Casino, a 45-mile drive north of Sioux Falls, South Dakota, to the world-class Mohegan Sun in Uncasville, Connecticut.

Tribes have also built a wide variety of manufacturing and service businesses. Some of these, such as S&K Technologies (Confederated Salish and Kootenai, Montana) and Ho-Chunk, Inc. (Winnebago, Nebraska), benefited from the Small Business Act's procurement advantages for businesses owned by tribes or individual Indians. Others, such as Skookum Creek Tobacco (Squaxin Island, Washington), have succeeded in markets where non-Indian manufacturers face high taxes. A host of tribe-owned ventures also began and flourished without procurement or tax advantages, including the Mississippi Choctaw's First American Plastic Molding Enterprise, the Colorado River Indian Tribes' CRIT Farms agricultural enterprise, and the Tulalip Tribes' Quil Ceda Village development project.

More than ever before, tribes have been able to develop businesses that produce jobs, profits, and government revenues. There's no disputing that the gaming sector, with its $27.9 billion in 2012 revenue (denominated in 2012 dollars) [20], represents the dominant development of the past two decades, but that revenue should not obscure the other considerable economic changes that are also under way.

Social Investment

Greater Indian control and economic self-sufficiency on reservations has been accompanied by rising social investment. Some tribes have improved or replaced their formal institutions of government through constitutional reform, such as the Osage Nation, in Oklahoma and the Ho-Chunk Nation, in Wisconsin. They have constructed, reconstructed, or bolstered corporate boards (Winnebago), appellate courts (Navajo), gaming commissions (Oneida of New York), and tribal administrations (Confederated Salish and Kootenai). Until recent decades, these superstructures of tribal government reflected outsiders' views of how best to organize and use authority. But these reforms have brought alignment with local cultures, conditions, and preferences, thereby increasing the effectiveness of self-government [14,16,21-24].

Programs such as the Cherokee Language Revitalization Project, in Oklahoma; the Mille Lacs Band's Ojibwe Language Program, in Minnesota; and the Piegan Institute on the Blackfeet Reservation, in Montana, work to strengthen Native fluency. Similar efforts, including the San Carlos Tribal Elders Program, have helped to restore cultural knowledge and practice and their place in community life. These efforts to refresh Indian citizens' connection to their history and culture are not just valid in their own right; they improve social outcomes. For example, the Squaxin Island Tribe's Northwest Indian Treatment Center uses a blend of traditional ceremony, art, and ritual to achieve outcomes in substance abuse recovery that are among the best in the nation [25]. The Sisseton Wahpeton Oyate rely on the cultural sanction of elderly women to reduce workplace absenteeism and turnover [26]. Systematic evidence links cultural integrity and cohesion with positive economic and administrative performance [16]. Informal, cultural institutions support formal ones.

And, of course, tribes are making more-conventional investments in human and social capital. Many tribes underwrite college scholarships with funds derived from casino profits. The Hopi Tribe, in Arizona, took over its high school from the BIA, orchestrated the co-location of a Northland Pioneer [community] College on its high school grounds, and established an organic chemistry class with a fiber-optic link to

Northern Arizona University in Flagstaff [27]. The Tohono O'odham Nation in southern Arizona built a world-caliber skilled-nursing facility that takes care of elderly members of the community using both modern and traditional medicine and cultural practice [28].

Native Nations Rebuilding

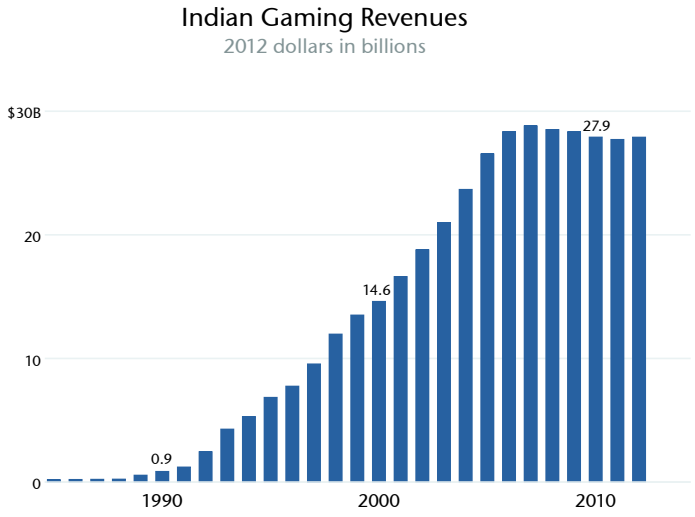
These three broad trends in Indian Country are mutually reinforcing. As Steve Cornell and Joseph Kalt have pointed out, assertions of sovereignty and institutional reforms based in Native culture beget economic and social development [14,22,23] that, in turn, spur stronger institutions and more-effective assertions of sovereignty. For example, revenues from successful tribal enterprises support sovereignty directly by underwriting legal and policymaking reforms and indirectly by establishing effective administration that competes with and even surpasses state and local counterparts. Likewise, social investments, be they made to increase college completion rates, revitalize Native languages, or reduce drug and alcohol recidivism, help institutions perform more effectively [16]. Native nations across the United States are rebuilding their governments, economies, and societies [24].

Recent Change on Indian Reservations

Broadly speaking, the statistics in the US Census and American Community Surveys indicate continuing improvement on Indian reservations but with a somewhat slower pace of change in the 2000s. As noted above, the change since 1970 has been remarkable, with truly astonishing gains coming in the 1990s. In that decade, reservation economies grew at almost three times the national average [2].

Recession and Income

The recession of 2007–2009 took a toll on the US economy, depressing inflation-adjusted median and per capita incomes, and probably bears some responsibility for the reduction in American Indian economic growth as well, since casinos are recession-vulnerable. The plateauing growth is evident in the path of Indian Gaming Revenues.



[20,29]

Nonetheless, the data make clear that Indian social and economic indicators for the 1990s and 2000s improved against the national statistics, with the exception of College Graduate or More, for which the US outpaced reservation improvement. The table below shows the Change on Reservations Other than Navajo. The Navajo Nation is excluded from the table (and many other figures) because its large population skews the impression as explained in the Methodology section. When the table includes all reservations, the pattern of relative improvement against national rates remains consistent. [The full collection of charts and comparisons with and without Navajo is available online as indicated in the Appendices, and many Navajo-only charts accompany the main charts that follow.]

Most stunning, real Indian per capita income and median household income grew over the two decades by 46.5% and 27.5%, respectively, compared with 7.8% and –1.8% for the US as a whole. Over that period, Indian income growth translated into a 2.1% compound annual growth rate for real per capita income and 1.4% for median household

income. These figures are in stark contrast to the US annual growth rates over the same period of 0.4% and –0.1%, respectively. [The Methodology section explains that this databook must rely on the Census Bureau's American Community Survey 2010 five-year averages rather than on a 2010 decennial snapshot.]

Change on Reservations Other than Navajo

in points unless indicated as %

	Indians on Reservations Other than Navajo			United States All Races		
	1990s	2000s	Both Decades	1990s	2000s	Both Decades
real per capita income	32.5%	10.5%	46.5%	11.4%	-3.3%	7.8%
real median household income	30.4%	-2.2%	27.5%	4.0%	-5.5%	-1.8%
child poverty	-11.0	0.8	-10.1	-1.7	2.6	0.9
family poverty	-10.9	-1.4	-12.3	-0.8	0.9	0.1
unemployment	-4.2	-0.2	-4.4	-0.5	2.1	1.6
labor force participation	1.0	-0.6	0.4	-1.3	1.1	-0.3
male labor force participation	-3.1	0.3	-2.8	-3.7	0.2	-3.5
female labor force participation	4.8	2.5	7.2	0.8	1.9	2.6
overcrowded homes*	-0.3	-3.7	-4.0	1.1	-2.6	-1.6
homes w/o complete plumbing	-3.5	-1.2	-4.7	-0.1	-0.1	-0.3
homes w/o complete kitchens*	-0.2	1.1	0.8	0.2	1.4	1.6
high school degree only	1.4	2.3	3.7	-1.4	0.4	-1.0
college graduate or more	2.1	1.9	3.9	4.1	3.5	7.6

*Due to data limitations, the Indian-area figures for overcrowded homes and homes w/o complete kitchens are the all-races, rather than Indian, statistics.

While this is good news for Indian Country, it is plainly not good enough on at least two measures. First, the rate of change is not uniform. The statistics in the table above and the charts that follow give weighted averages: Small tribes have less influence and large tribes have more influence on the statistic in question. Weighted averages properly characterize the overall change in Indian Country: Across all reservations, Indians experienced, on average, a 46.5% increase in income from 1990 to 2010.

But the Variation in Real Per Capita Income Change is substantial. On some reservations in the 1990s, incomes lost ground in both relative and absolute terms. In the 2000s, that happened more often. Although both average and median incomes improved generally, almost a fifth of the on-reservation Indian population outside Navajo lived on reservations where the income per capita shrank by more in the 2000s than it did for the US as a whole (-3.3%, adjusted for inflation).

Second, and more important, the absolute difference between conditions on reservations and those nationwide continues to be very large. Indeed, at recent rates of economic growth it would take decades for per capita income in Indian Country to converge with that in the rest of the US (see Projected Real Per Capita Income).

Other Indicators of Change

These caveats aside, other economic, educational, and housing statistics demonstrate improvements in concert with, if not precisely parallel to, the improvement in income statistics. The reservation Child Poverty Rate declined in the 1990s but increased slightly in the 2000s, as did US poverty rates. The Indian Family Poverty Rate saw a marked decline in the 1990s (from 44% to 33%), but by 2010 it had dropped only to 32%—more than triple the US family poverty rate of 10%.

The Unemployment Rate fell in the 1990s but changed little in the 2000s, while the US as a whole saw an increase in unemployment during the 2000s. The overall difference between the two is still quite large, with reservation unemployment at 20% and US unemployment at 8% by 2010. From 1990 to 2010, Female Labor Force Participation increased among Indians on reservations from 48% to 56%, but changed much less in the US as a whole. Despite a decline in the Male Labor Force Participation Rate in Indian Country, employment held steady at about 55%.

The Indian housing stock seems to be improving over time in some dimensions. The fraction of Indians living in Overcrowded Homes dropped from 11% to 6% from 1990 to 2010. The proportion of Indian Homes Lacking Complete Plumbing fell from 8% to 3%. Homes Lacking Complete Kitchens displays an improving relative trend but possibly a worsening absolute trend; the US rate increased, too.

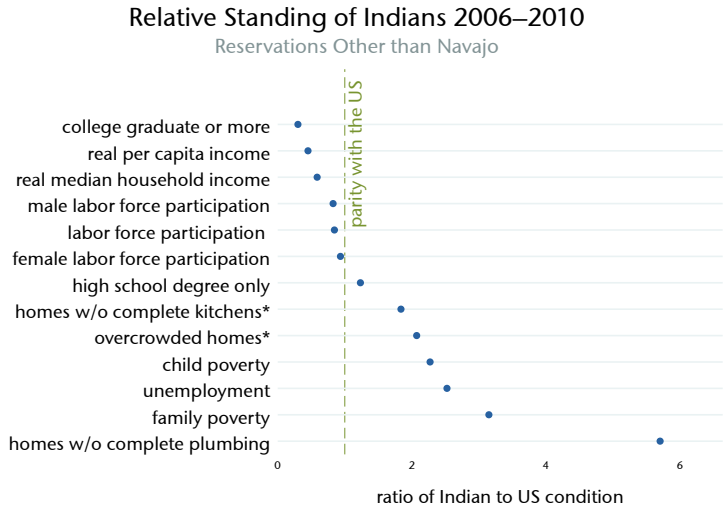
Among Indians on reservations aged 25 and older, those with a High School Degree Only increased from 32% to 36%. College Graduates almost doubled, from 4.5% to 8.4%. By comparison, the US proportion of adults 25 and older with college degrees was 29% in 2010. [Again, the full collection of charts and comparisons with Navajo and other US Census-tracked Indian areas is available online as indicated in the Appendices.]

The Outlook for Indian Country

In the figure Relative Standing of Indians 2006–2010, it is clear that even in 2010, Indians on reservations lived under uniformly worse conditions than did Americans in general. That figure provides the ratio of the Indian statistic to the US statistic for each indicator. For example, Indian per capita income is 45% of US per capita income and is plotted to the left of the dotted vertical line. The Indian family poverty rate is more than three times that of the US and is far to the right of the vertical line.

Note that for the characteristics toward the top of the graph, from College Graduate to Female Labor Force Participation, the ratio of the Indian rates to the US rates is less than one. These indicators can be characterized as social goods—attributes that societies seek to increase. Further note that all the items below High School Degree Only are social bads.

Of course, this collection of statistics is not exhaustive. It says nothing about health, life expectancy, family integrity, or the environment, for example. But these statistics are widely used measures of general socioeconomic status, and the fact that they are uniformly worse than US levels indicates the ongoing need for economic, political, and social development in Indian Country. The income gap is large, and the pace of change is slowing. Growth in the US economy will probably increase, but there is no guarantee that reservation economies will follow suit.



*Due to data limitations, the Indian-area figures for overcrowded homes and homes w/o complete kitchens are the all-races, rather than Indian, statistics.

Given that economic fortunes on reservations have retreated in the recent past, and that there are persistent gaps in important socioeconomic indicators, it is imperative that federal, Indian, and state policymakers remain attentive to Native self-determination and effective self-governance. Future outcomes will depend heavily on the continued exercise of sovereign rights and on sound decision-making in reservation contexts. Without them, Indian economic and social wellbeing may once again depend on US taxpayers—a situation that worked poorly in the past for all parties involved.

Methodology

Reservations Other than Navajo

The Census Bureau designates several geographic areas for federally recognized Indian communities, most commonly reservations and accompanying trust lands, which encompass treaty homelands, executive-order reservations, lands held by the federal government in trust for Indians, and other lands over which tribes and the federal government have the clearest jurisdictional powers. Reservations may be listed by other names—rancheria in California, pueblo in New Mexico, "Indian community" (as at Bay Mills, in Michigan, and elsewhere)—but most have similar legal and economic properties.

The census also denotes statistical areas in which the powers and titles of reservations and trust lands are not as well established. Oklahoma Tribal Statistical Areas (OTSAs) delineate areas comparable to the former Oklahoma reservations. They cover much of the state, encompassing even most of Tulsa, where thousands of non-Indians live.

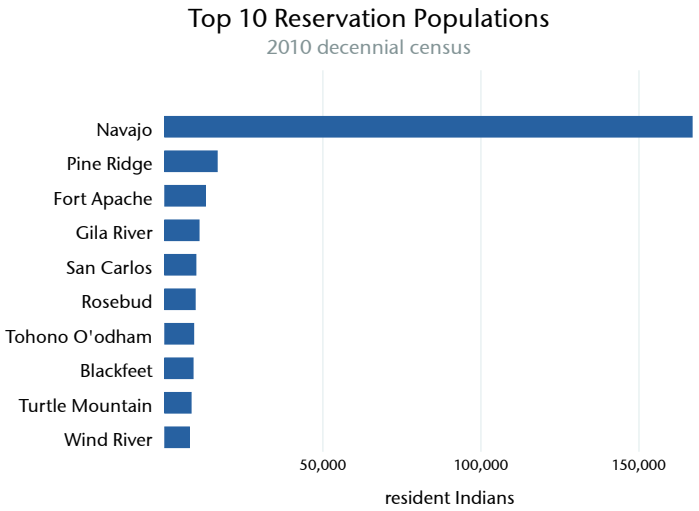
Tribally Designated Statistical Areas (TDSAs) provide information about Indians where tribes have no formal reservation lands. The Census Bureau also tracks joint-use areas shared by federally recognized tribes, Alaska Native Village Statistical Areas, Alaska Native Regional Corporation Lands, State Designated Tribal Statistical Areas, American Indian Reservations (recognized by state governments), and State Designated Tribal Statistical Areas.

The bounty of geographic choices in Census Bureau data presents challenges for a databook like this. To simplify matters, we have looked at the census areas covering federally recognized tribes in the lower 48 states, leaving to other research the specialized tasks of understanding the socioeconomic status of Alaska Natives, Native Hawaiians, and state-recognized tribes and Indian quality of life in urban and non-reservation settings.

Even with that substantial omission, the choice of geography remains complicated. It would be appealing to characterize all Indians living in

all Indian areas, but life in many of those areas resembles off-reservation Indian life. The Indians living in Tulsa, which lies inside both the Creek and Cherokee OTSAs, may have economic opportunities like those that Indians in Phoenix, Oakland, or Denver have—dramatically different from the opportunities on the Pine Ridge Indian Reservation, the San Ildefonso Pueblo, or the Seneca Nation's Cattaraugus Territory.

Limiting the analysis to reservations still leaves the problem of the very large Navajo Nation. The 2010 decennial census records 166,824 Indians within the confines of the Navajo Nation Reservation and its off-reservation trust lands. The next largest reservation population, at the Pine Ridge Reservation, is one-tenth the size of the Navajo population.



Indeed, the Navajo Nation is home to more Indians than the next 19 reservations combined and represents 33% of the on-reservation Indian population in the lower 48 states. Any statistical analysis of reserva-

tion-based populations will be heavily influenced by its disproportionate size.

For completeness, we might have included the Navajo in characterizing reservation life. However, in order not to confuse "Indian reservation life" with "mostly Navajo reservation life," we opted to separate Navajo from other reservation populations and to provide comparisons between Navajo and the US where appropriate. Two other approaches—including the Navajo reservation and including both Navajo and OTSAs—are taken in our presentation of Real Per Capita Income. (Interested readers can pursue the full array of charts for all the geographies online, as noted in the Appendices. They can also find the full data set online and make custom aggregations of tribes at will.)

Decennial Census vs. American Community Survey

We have relied on the US decennial censuses for Indian population counts in 1990, 2000, and 2010 (see Top 10 Reservation Populations, American Indian and Alaska Native Population, and American Indian Population).

For income, employment, housing, and education statistics, the 1990 and 2000 censuses provide a one-in-six sample of population characteristics for those years—also known as the census's "long form." The 2010 decennial census dispensed with the long-form survey; its replacement, the American Community Survey (ACS), is an annual sample, but it is too small to provide reliable estimates for all geographic units. The Census Bureau provides three-year averages for places with populations between 20,000 and 65,000, and five-year averages for geographic and political units that are smaller than 20,000 in population [30]—i.e., most Indian reservations.

The Census Bureau's policy change has forced us to compare the long-form information of two decennial censuses (1990 and 2000) with the 2010 ACS five-year average, which actually reports average conditions from 2006 to 2010. Given that the recent recession took place in the middle of that period, it is concerning that these charts may be comparing apples with oranges. US per capita income, for example, averaged $26,059 according to the 2010 ACS one-year survey and $27,334 according to the 2010 ACS five-year average (both in nominal, 2010 dollars). Pre-recession conditions lift the five-year average. Unfortunately, these are the only data that provide more than a simple count of the population.

However, the approach of this databook—a comparison of differences in differences—mitigates the concern. The charts compare the ACS five-year statistics for Indians with those for the US, and each of those to their 1990 and 2000 counterparts in the long-form census. But conclusions about the absolute levels should be reached with caution, because the data are not from a decennial snapshot.

To further ensure the reliability of our comparisons, the charts that follow use consistent definitions of the indicators in question. When changes in census-taking procedures or definitions prevented consistent comparisons, a substitute indicator, consistent across the decades (e.g., for College Graduate or More), was developed. Unfortunately, this could not be done for the proportion of Indians in deep poverty, those with less than a ninth-grade education, or those dependent on public assistance—three indicators that appeared in prior work [2]. Thus those indicators are not included.

It should also be noted that the data herein do not control for migration onto or off the reservation—a limitation for all such cross-sectional data—so the charts do not compare the same populations over time. The Census Bureau does not allow researchers to reliably identify where people resided ten years earlier; therefore, it is not possible to estimate the flow on or off reservations.

Finally, researchers have found that the ACS undercounts the number of American Indians and Alaska Natives relative to the US Census in 2010 [31]. To some extent this is owing to the sampling nature of the ACS data. However, in some cases the discrepancy is almost ten times the potential sampling error, clearly indicating that something more is at play. Inaccurate sampling weights may play a role in this discrepancy. Additionally, there is some evidence that the accuracy of counts is

more problematic for urban settings than for rural ones. This databook focuses on reservation populations, which may alleviate the concern.

Gaming vs. Non-Gaming

Prior work distinguished between tribes that had opened casinos by January 1, 2000, and tribes that had not [2]. At that time a substantial number of Indians were living on reservations both with (55%) and without (45%) casinos. That is no longer the case.

As of January 1, 2010, the population of Indian Areas With and Without Casinos had shifted such that two-thirds, representing 95% of Indians living in the Census Bureau's Indian areas, resided in an area governed by a tribe that operated a casino. Looking at reservations only, 207 (almost two-thirds) belonged to tribes that operated casinos and contained 92% of the on-reservation Indian population.

Indian Areas With and Without Casinos

Decennial populations of census Indian areas in the lower 48

	As of January 1, 2010:			
	Non-Gaming		Gaming	
	#	Indians	#	Indians
Navajo			1	166,824
Other Reservations	112	42,258	207	331,665
OTSAs			29	273,211
TDSAs	4	468		
Joint Use Areas			3	0
Total	**116**	**42,726**	**240**	**771,700**

Note: areas are not the same as tribes (see References for sources).

As explained in the American Indian Population section below, additional tribes that do not operate casinos nonetheless benefit from Indian gaming. More than ever before, the influence of casinos in Indian Country is a matter of degree. It would not be sensible to create bar charts and other statistics for non-gaming Indian areas when they represent only 6% to 8% of the population. Accordingly, in this databook we compare characteristics of all the reservations with those of the US as a whole.

Inflation-Adjusted Dollars

Unless otherwise indicated, the dollar figures in this report are adjusted for inflation to 2009 dollars using the Consumer Price Index for urban consumers (CPI-U) [32]. That is because the census question asks for income in the prior year—hence the values are for 1989, 1999, and 2009. Thus comparisons over time preserve purchasing-power parity.

Income

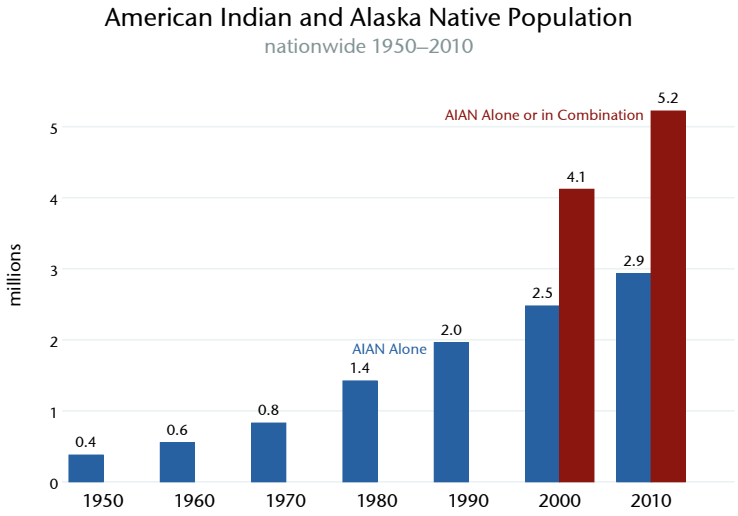
Census-recorded income includes income from many sources other than earnings—for example, SSI, Social Security, retirement income, welfare transfers, and unemployment benefits. It does not include refunds, rebates, savings withdrawals, capital gains/losses, or in-kind payments. It is self-reported and, of course, not audited or otherwise verified.

Indian

We use *American Indian*, *Indian*, *Native*, and *Native American* to refer to the people whose lives are characterized by this data. There are many official and unofficial designations of Native heritage from which to choose. The federal Certificate of Degree of Indian Blood determines eligibility for certain health care, college tuition, and other assistance from the Indian Health Service and the Bureau of Indian Affairs. Native governments establish the criteria and procedures for determining who is properly a citizen of, for example, the Red Lake Chippewa, the Mescalero Apache, or the Eastern Band of Cherokee. Job and college applicants self-report as they see fit.

We use the Census Bureau's category American Indian and Alaska Native Alone—a self-reported identification. Since the 2000 census, the bureau has provided Americans with the option to designate more than one racial or ethnic category. Over time, the American Indian

and Alaska Native Population has risen as a result of strong birthrates and an increasing propensity to self-identify as Indian [33].



[35,36]

At the national level, the difference between AIAN Alone and AIAN Alone or in Combination with another race is large. Such a discrepancy would be concerning for a project like this, except that the difference between the two categories shrinks as the scope of analysis approaches the reservation. Indians in New York City and Los Angeles, for example, tend to self-identify with more racial categories than Indians living on reservations or in cities that are close to Indian Country, such as Albuquerque and Rapid City [34].

The narrower definition most likely correlates with a tighter affiliation with reservation economic, political, and social life. Accordingly, wherever we refer to "Indians," we mean American Indian and Alaska Native Alone—not in combination with other races.

Average

Virtually all the summary statistics for Indian areas—reservations, OTSAs, TDSAs—are averages weighted by reservation Indian population. Equivalently, they represent the sum of all numerator values divided by the sum of all denominator values. For example, the sum of all the income earned by all Indians on all reservations divided by the total number of Indians on all reservations yields Per Capita Income. Thus the statistics relate not how the average *reservation* fares but, rather, how the average *Indian* across all reservations fares.

Median

The exception to the rule is Median Household Income. The median must be calculated differently to yield a summary statistic that is an appropriate analog to the weighted average. Because the Census Bureau keeps confidential the individual household data from which an actual median could be calculated, we apply the bureau's method of Pareto interpolation [37,38] to estimate the median. Essentially, the counts of individuals in census-defined bands of income are added across reservations, and the median is interpolated from the national histogram.

American Indian Population

Reservations and All Indian Areas

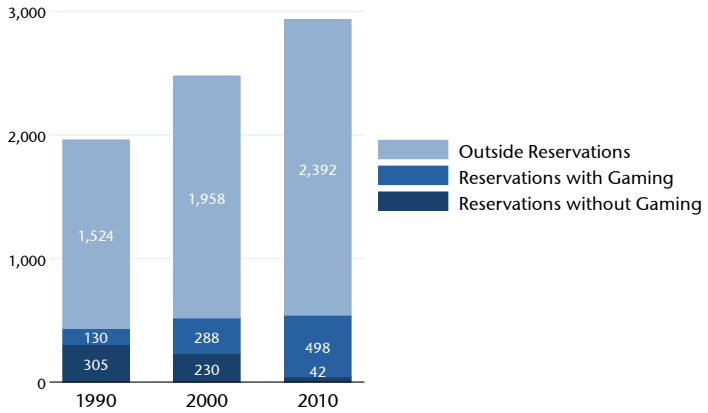
Data: These graphs display the Indian population on reservations and in census Indian areas. Each bar consists of three subgroups. The bottom one represents Indians residing on lands that had no casino or bingo hall by January 1 of the indicated year. The middle one represents Indians residing on lands that did have a casino or bingo hall by January 1 of the indicated year. A contemporaneous measure of gaming tribes was compiled from a variety of sources for this analysis (see References). The top subgroup represents Indians living in cities, towns, or counties outside reservations (top) and outside census Indian areas (bottom). In contrast to the bulk of this databook, these data are derived from the decennial census not a sample (see References).

Trend: From 1990 to 2010, the Indian population on reservations, in all Indian areas, and nationwide grew by 24%, 28%, and 50%, respectively. By comparison, the US total population grew by 24%. Also in that period, gaming spread across virtually all of Indian Country. In the 1990 census, 30% of all Indians living on a reservation and 41% of all Indians living in an Indian census area lived in one governed by a tribe that operated a bingo hall or casino. By 2010, only about 42,000—less than 10%—were *not* so situated. Even that number overstates how many Indians were unaffected by gaming. A substantial number of tribes that do not operate casinos benefit indirectly from gaming through revenue sharing (as under California's compacts), device leasing (as under the Washington and Arizona compacts), or casino-funded, intertribal philanthropy and investment, such as from the Shakopee Mdewakanton Sioux Community.

Implication: Given that many of the Indians living off-reservation or outside census areas maintain economic, political, and social ties to Indian lands, it is clear that gaming has become an important fixture of life for many individual Indians. It is no longer possible to talk about gaming as an either-or proposition. Rather, it is a matter of degree: Some tribes operate casinos in large markets and some do not.

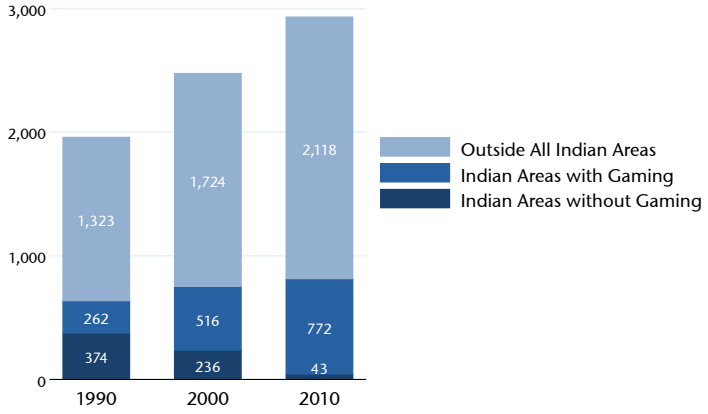
American Indian Population (thousands)

Reservations Only



American Indian Population (thousands)

All Indian Areas (including statistical areas)



Real Per Capita Income I

Reservations Other than Navajo and Navajo Alone

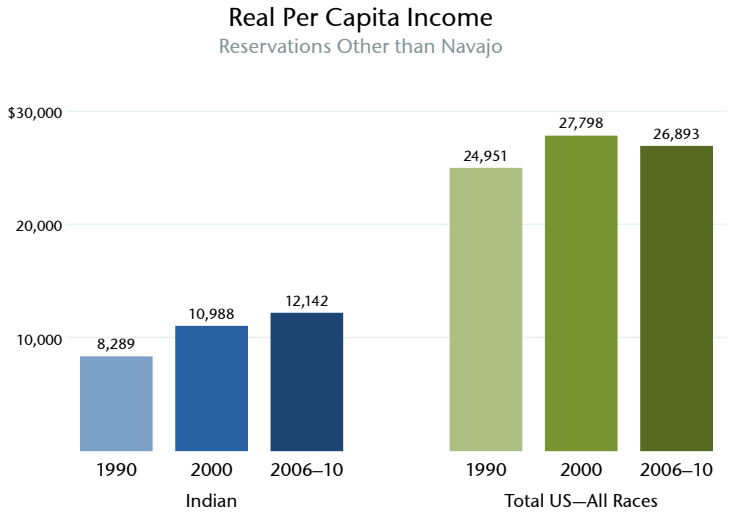
Data: The graph portrays aggregate, inflation-adjusted income divided by population for Indians living on reservations and for all Americans.

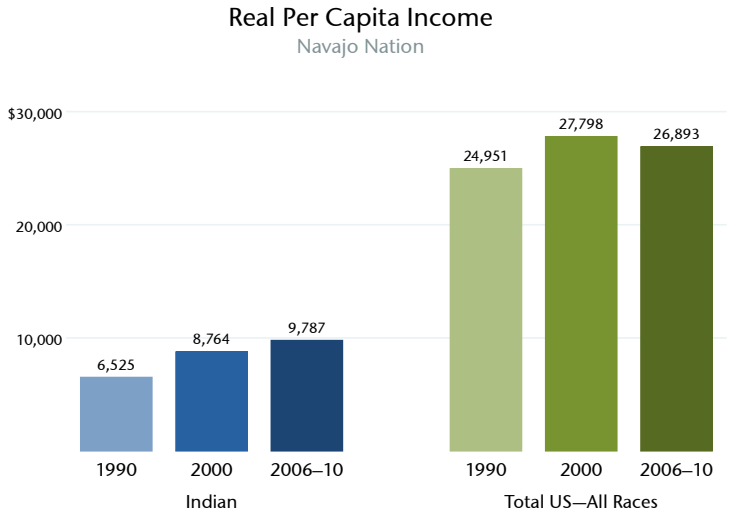
Trend: Outside the Navajo Nation, Indians had an increase in per capita income of $1154 in the 2000s (10.5%). The pace of change, though slower than in the 1990s (32.5%), was better than for the US as a whole, which saw a decline (–3.3%). Yet even after experiencing superlative growth in both decades, reservation per capita incomes are only 45% of the US average.

Implication: Nationally, personal income is about 85% of GDP, and it amounts to 80%–90% of GDP in the majority of states [39]. Thus real personal income per capita is a proxy for GDP per capita—a statistic of interest for Indian Country but one not easily measured. In the main, per capita income tells us how reservation economies are faring.

Although it sometimes receives undue consideration at the expense of other quality-of-life indicators, income correlates with mortality, fertility, migration, education, occupation, and a host of other measures [40]. For example, rising income derived from gaming profits has recently been linked to declines in Indian psychopathology among children whose families crossed the poverty threshold [18]. Similarly, higher baseline incomes correlate with healthier dietary responses to Indian income growth [41]. Income tracks only the cash economy, not domestic production, barter, subsistence, or other economically meaningful but uncompensated work. Nonetheless, it remains a valuable first-order comparator for living conditions in societies.

Income per capita is calculated as a mean and is subject to the influence of outliers—extreme wealth pulls the average away from the median. The distribution of income can be an object of concern both for its potential links to economic growth [42,43], and as a matter of policy preference. Median Household Income and the Family and Child Poverty rate graphs shed more light on distribution.





Real Per Capita Income II

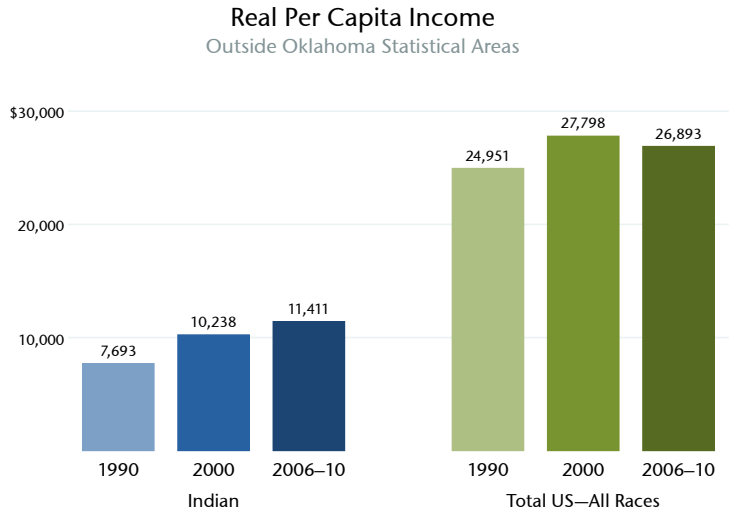
Outside Oklahoma Statistical Areas

Data: These graphs portray the same data as the previous ones, but they expand the geography of the Indian data to reflect conditions in all the areas associated with federally recognized tribes other than Oklahoma Tribal Statistical Areas. More precisely, the data here include the 24,130-square-mile Navajo Reservation and a handful of Tribally Designated Statistical Areas.

Trend: Indians living on reservations had an increase in per capita income of $1,173 in the 2000s (11.5%). Again, the pace of change—though slower than in the 1990s (33.1%)—was better than in the rest of the US, which saw declines over the two decades (–3.3%). The incomes here are about 6% to 7% lower than for reservations other than Navajo because the Navajo Nation pulls the numbers down.

Implication: In the 2010 decennial census, the Navajo Nation's 166,824 Indians dominated the combined population of the four TDSAs (468 in 2010). For these reasons and others, we have opted to examine the Navajo Nation separately and will make comparisons on that basis for the remaining indicators. (Interested readers can find the comparisons that include Navajo online, as explained in the Appendices.)

Notwithstanding the Navajo Nation's dominance, this graph does capture the total economic experience of Indians living on reservations in the lower 48 states. The per capita income on reservations is only 42.4% of the national average, highlighting the continuing challenges they face.



Real Per Capita Income III

All Indian Areas

Data: The information here covers all census-defined Indian areas associated with federally recognized tribes in the lower 48 states. Again, the inflation-adjusted income data (2009 dollars) are calculated as before, but here the geographic scope expands to include all reservations, including the Navajo Nation's, Tribally Designated Statistical Areas, and Oklahoma Tribal Statistical Areas (OTSAs). In the decennial census of 2010, OTSAs encompassed 273,211 Indians and covered roughly two-thirds of the land area of Oklahoma.

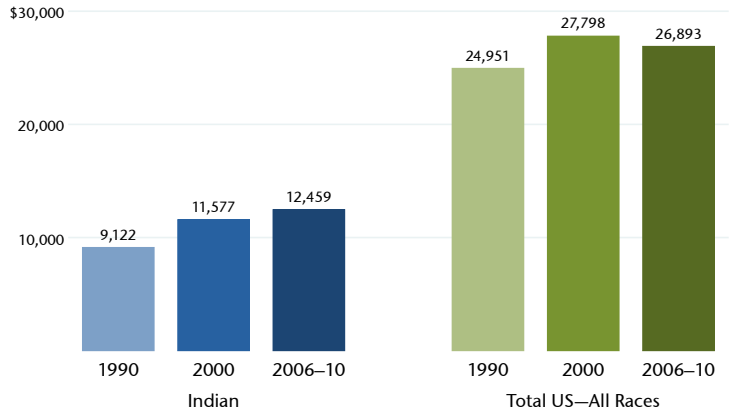
Trend: Indians living in all Indian areas experienced an $882 increase in per capita income over the 2000s (7.6%). The pace of change—though slower than in the 1990s (27%)—was better than in the rest of the US, which saw declines in the period (–3.3%). The incomes here are higher because the Indian incomes in the OTSAs pull the numbers up. Per capita income in the OTSAs was $11,922 in 1990, $14,602 in 2000, and $14,963 in 2010.

Implication: OTSAs include Tulsa and other cities, and a wide variety of non-Indian economic activities affect the fortunes of Indians living within them. On the one hand, statistics for Indians living in OTSAs are likely to correspond to those for off-reservation and urban Indians. On the other hand, Indian life in Oklahoma reflects a degree of tribal sovereignty that Indian life in Oakland, Denver, or Gallup does not. Oklahoma tribes operate clinics, manage police forces, develop businesses, and engage in a host of other functions in their former reservation areas—areas from which OTSA boundaries are derived.

Because the focus of this databook is on the living conditions on reservations, which are subject to Native self-determination in ways that urban, off-reservation, and to a lesser-degree OTSA life is not, we make comparisons for the remaining indicators on the basis of reservation statistics only. (Interested readers can find the comparisons that include OTSAs and that focus on them directly in the online graphs, as explained in the Appendices).

Real Per Capita Income

All Indian Areas (including statistical areas)



Variation in Real Per Capita Income Change

Reservations Home to More than 150 Indians

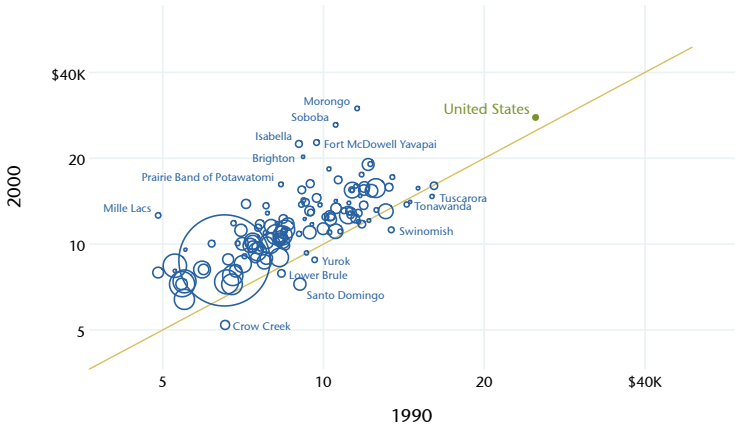
Data: These graphs compare inflation-adjusted per capita income in 1990 and 2000 with income a decade later. The diagonal line signifies no change over the indicated period. Above the line, reservations experienced growth—and below it, a reduction—in per capita income. In each graph, US per capita income for all races is plotted in green, showing 11% growth in the 1990s and a –3.3% net change from 2000 to the 2010 ACS five-year average. The larger a blue circle, the more Indians living on the reservation; the largest circle represents the Navajo Nation. Reservations with fewer than 150 Indians at the start of either decade were dropped for visual clarity. As noted in the introductory material, the use of the ACS five-year average data renders it potentially flawed for an examination of absolute changes, but statements about change relative to the US (whose ACS five-year averages are also portrayed throughout for consistent comparison) are appropriate. The axes are in constant proportions rather than constant increments, as is common when portraying growth phenomena.

Trend: In the 1990s, 188 reservations other than Navajo in this subsample—representing 87% of Indians on such reservations—experienced income growth greater than that in the US. In the 2000s, fewer reservations (178) experienced greater growth. Nonetheless, over the two decades, 93% of Indians lived on reservations with superior growth. Navajo growth exceeded US growth over the two decades also.

Implication: The income gap remains large almost everywhere. Only one reservation crossed from below the US average to above it in the 1990s (Morongo), and only a few had done so by 2010 (Morongo, Soboba, Rincon, Pala, and Isabella). The preponderance of reservations had per capita incomes that in 2006–10 averaged three-quarters, half, or even a third of the US's $26,893. Nonetheless, it is heartening that more than three-quarters of the reservations and nine-tenths of the reservation population saw their incomes grow at a pace exceeding that in the United States.

Real Per Capita Income Change 1990–2000

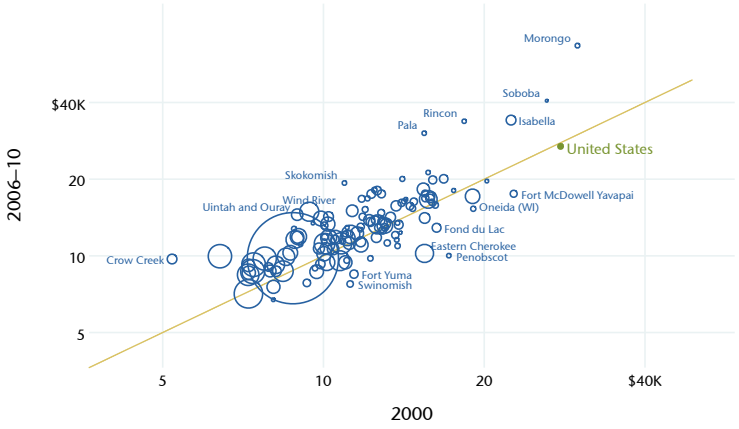
Reservations Home to More than 150 Indians



log scale; blue marker size = 1990 Indian pop.

Real Per Capita Income Change 2000–2010

Reservations Home to More than 150 Indians



log scale; blue marker size = 2000 Indian pop.

Projected Real Per Capita Income

Reservations Other than Navajo

Data: This chart displays the inflation-adjusted income data from Real Per Capita Income I as a scatterplot. A growth trendline estimates the date at which the gap would be closed if the pattern from the past two decades continued unabated. A log regression estimates the trend.

Trend: At recent growth rates, it is safe to say that the gap will not close for many decades. Of course, the estimated date varies with the geography under investigation (see the online charts as described in Appendices for charts covering Navajo and OTSAs). Note that the US trendline appears to have linear growth and the Indian one exponential growth, but this is not the case. In actual fact, both curves are plotted with compound growth; the low 0.4% US annual growth only appears linear because it increases so slowly.

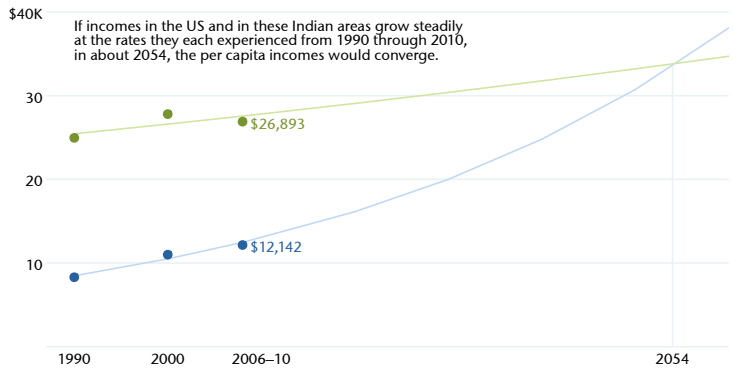
Implication: The superlative growth in Indian Country in the 1990s and the unusually large effects of the Great Recession in the 2000s, render this a rough projection rather than a forecast. The potential problems with measurement and estimation aside, it is a conservative one.

The US economy stands a good chance of rebounding in the coming decades, but reservation economic growth will not necessarily follow along. The 1980s saw strong US growth decoupled from reservation income shrinkage as shown in the chart Real Per Capita Income by Census Racial or Ethnic Category. Moreover, the rapid growth of incomes on reservations in the 1990s was most likely anomalous—a once-in-a-lifetime benefit of self-determination and the casinos it spawned.

If both Indian Country and the United States revert to long-term trends, the gap will widen by the end of the present decade. The onus remains on federal and tribal policymakers to maintain and improve the policies that produce self-determined economic growth.

Projected Real Per Capita Income Growth

Reservations Other than Navajo



Real Median Household Income

Reservations Other than Navajo and Navajo Alone

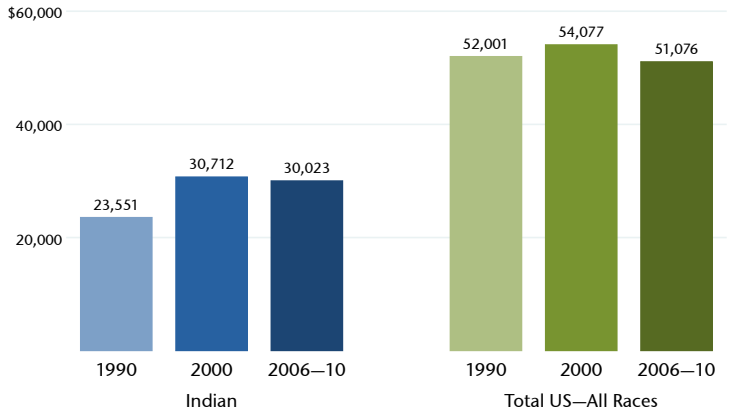
Data: Here we focus specifically on household income and portray the median as opposed to the simple average, again in inflation-adjusted terms (2009 dollars). The median household income level indicates the point at which half of all households receive more or less income—the fiftieth percentile. (The median calculation is described in Methodology.)

Trend: Median household income for the US as a whole declined by 5.5% from 2000 to 2010, while American Indians residing on reservations other than Navajo saw declines of only 2.2%. During the 1990s, median household income increased for both groups.

Implication: The increase in income inequality in the United States and the stagnating US median income have attracted a great deal of attention from social scientists, the media, and policymakers [44]. Lower median household income across both groups is consistent with stagnant per capita income over the same time period. The gains of the 1990s were lost for the US as a whole—real median household income was lower in 2010 than in 1990. In contrast, the preponderance of the gains made on American Indian reservations from 1990 to 2000 persisted.

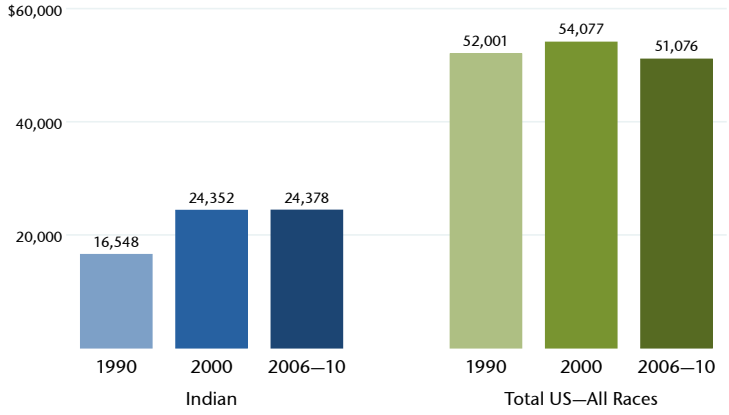
Real Median Household Income

Reservations Other than Navajo



Real Median Household Income

Navajo Nation



Family Poverty

Reservations Other than Navajo and Navajo Alone

Data: If a family is deemed to be in poverty, each of its individual members is also considered to be in poverty [45]. The Census Bureau uses income thresholds set by the Office of Management and Budget. A family of two adults and two children fell below the poverty line in 2009 if its income was less than $14,787 [45]. Income thresholds are common across all geography types and are updated for inflation. Income is measured before taxes and does not include non-cash government transfers such as public housing assistance and Medicaid [46].

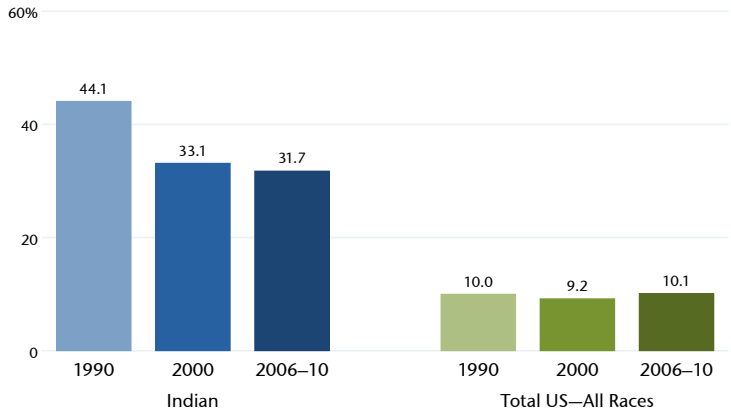
Because the poverty threshold does not take into account differences in the cost of living in various geographic regions, family poverty rates on American Indian reservations may be slightly lower than reported. Furthermore, non-cash resources such as housing and subsistence fishing, farming, and gathering activities, which are not included in the family income calculation, may ease the burdens of poverty.

Trend: The number of American Indian families in poverty fell markedly from 1990 to 2000 but remained relatively stable, at about one-third, in the subsequent decade. Meanwhile, the family poverty rate for the US as a whole has remained constant at about 10% and is less than a third the rate for American Indians.

Implication: With Real Per Capita Income less than half that of the US, it is no surprise that the Indian family poverty rate is three times as high. Reservation life may be even more pinched than these figures suggest. The poverty rate was set in the 1960s, and is widely regarded as outmoded [47]. Some might argue that the lives of the poor have been eased by falling real costs of consumer goods, but many states and the federal government are using thresholds higher than the poverty rate—sometimes multiples of the poverty rate—to identify families in distress [48]. Such thresholds imply that poverty lines are too low. Given where Indian average and median incomes stand in relation to the US, applying such higher thresholds to both reservations and the US would portray a picture of relative Indian poverty at least as bad as this one, if not worse.

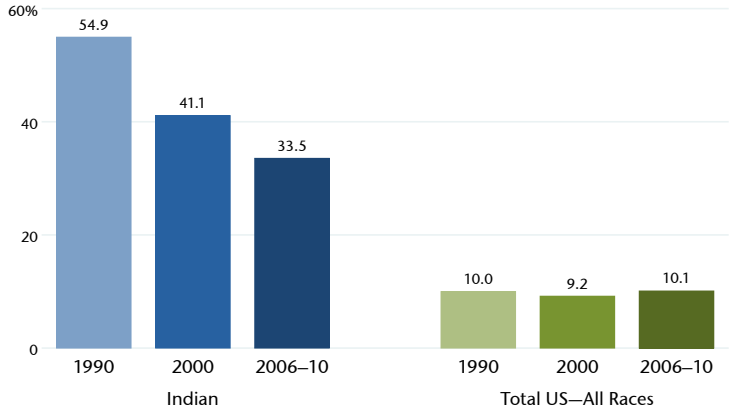
Family Poverty Rate

Reservations Other than Navajo



Family Poverty Rate

Navajo Nation



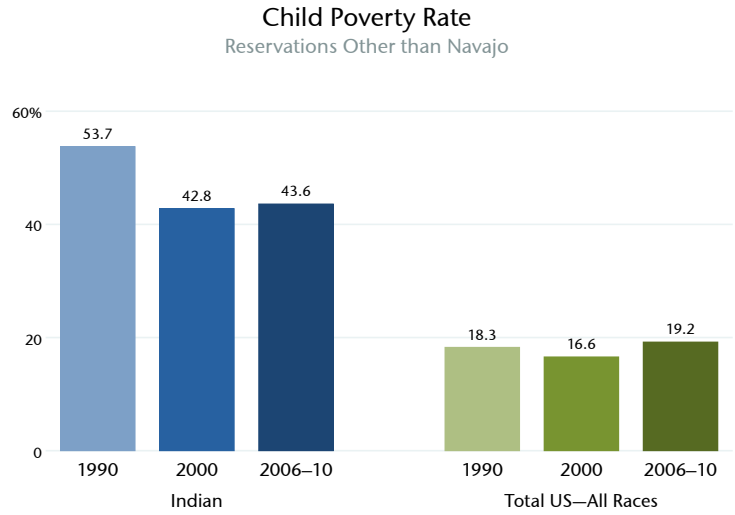
Child Poverty

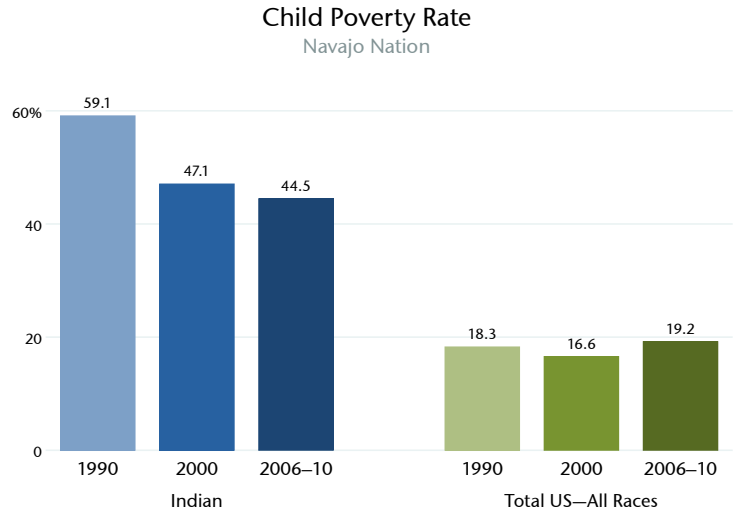
Reservations Other than Navajo and Navajo Alone

Data: A child lives in poverty if his or her family's income falls below the relevant thresholds, which varies by family size and composition [46].

Trend: The proportion of Indian children in poverty declined from 1990 to 2000. Over the next decade, however, the rate increased slightly, from 43% to 44% for reservations other than Navajo—a change that may be due to sampling methods. Child poverty in the US as a whole also increased from 2000.

Implication: The child poverty rate exceeds the Family Poverty Rate as shown on the preceding pages. For the US, the child poverty rate is almost twice that of the Family Poverty Rate. The child poverty rate for American Indian reservations is about one third higher than the reservation Family Poverty Rate.





Unemployment

Reservations Other than Navajo and Navajo Alone

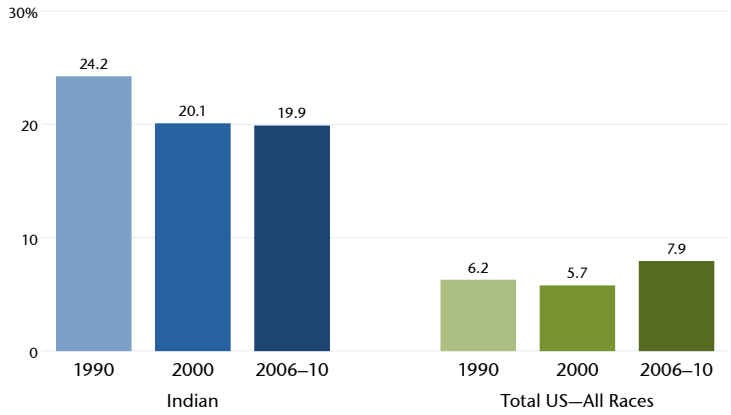
Data: Unemployment measures the percentage of working-age individuals (16 years or older) who are in the labor force and who are actively seeking employment [49]. This measure does not include full-time students, people working full-time in the home or not for pay, and people not seeking employment for other reasons.

Trend: The unemployment rates on American Indian reservations and for the US as a whole differ by 12 points in the ACS 2010 five-year average. Although unemployment rates have declined since the 1990 census, the pace of that decline has slowed.

Implication: Unemployment is an important indicator of the level of economic activity. Persistent unemployment indicates an underutilization of resources—human resources—and a lack of economic opportunity in a geographic region. Although the difference between reservation unemployment and national unemployment remains large, it is somewhat heartening that Indian unemployment did not increase with the recession, as it did in the United States.

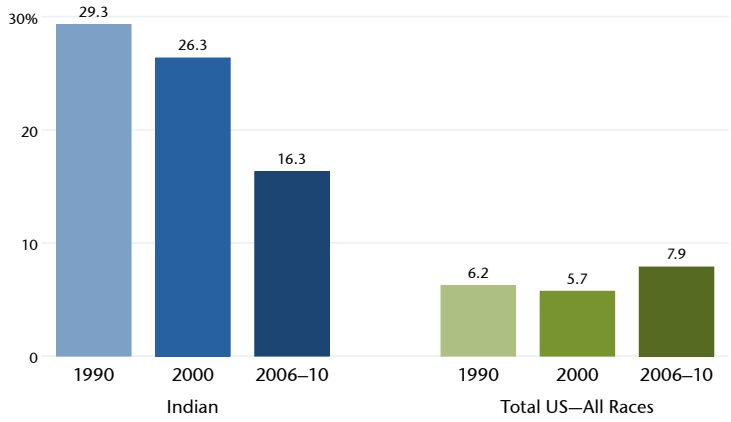
Unemployment Rate

Reservations Other than Navajo



Unemployment Rate

Navajo Nation



Male and Female Labor Force Participation

Reservations Other than Navajo

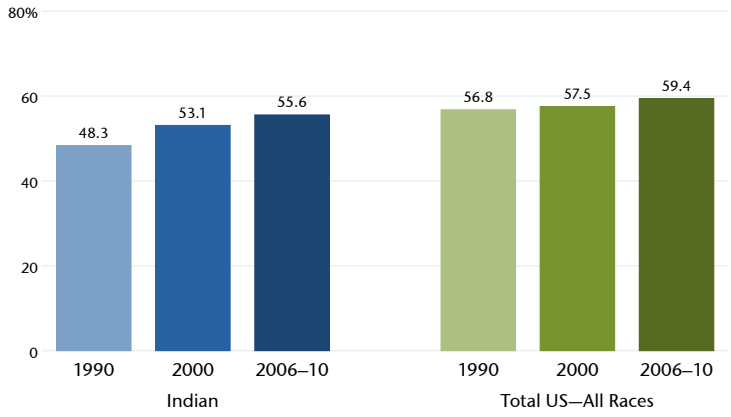
Data: The labor force encompasses people aged 16 and older who are employed or seeking to be employed. The labor force participation rate describes the proportion of the working-age population that is or seeks to be economically active in the cash economy.

Trend: Generally speaking, the labor force participation rate changes slowly or only in response to large shocks. In the United States, the rates for both male and female participation changed slightly from 1990 to 2010; for females it moved slightly upward and for males it moved slightly downward. In Indian Country, these trends take the same direction as for the US as a whole, but the increase in Indian female labor force participation is more pronounced. Enough women entered the workforce in Indian Country to counteract the decline among men, holding the total Indian participation rate at 55% in 1990 and 2010. The US rate stayed virtually unchanged at 65%.

Implication: When people move from outside the labor force into it, the economy grows. Outside the labor force, they tend to be more dependent—either on family breadwinners or on government assistance—than self-sufficient. Of all our indicators, female labor force participation brings Indians closest to parity with the US (see Relative Standing of Indians, 2006–2010), making the trend in this graph hopeful.

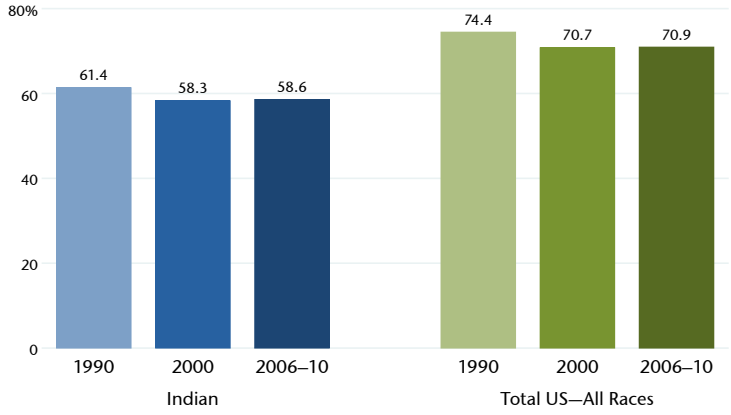
Female Labor Force Participation Rate

Reservations Other than Navajo



Male Labor Force Participation Rate

Reservations Other than Navajo



Employment Sector

Reservations Other than Navajo and Navajo Alone

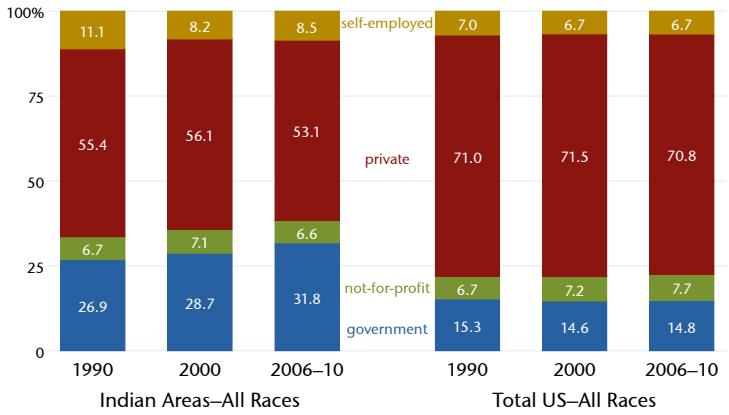
Data: These graphs provide information on Indian employment in the private, public, not-for-profit, and self-employment sectors. The private sector, of course, includes all non-governmental companies. The public sector includes all levels of government: federal, state, local, and tribal. The self-employment sector includes individuals who work for profit or fees in their own businesses, professions, trades, or farms. The not-for-profit sector includes individuals who work in non-governmental organizations. Whether census respondents categorize their employment in tribally owned—that is, government-owned—enterprises as government or private is unknown. The data for the Indian areas describe the employment of all racial groups, not just Indians.

Trend: These levels are generally stable over time. The data also indicate that the two largest employment sectors are the private and the public. Government employment accounts for a larger and growing proportion of the labor force on reservations than in the US as a whole.

Implication: Indian government employment is now more than twice as large as in the US as a whole, and at Navajo, even larger. It is noteworthy, however, that the share of government employment on reservations has not grown even more over time, given the expansion of tribal government businesses and enterprises.

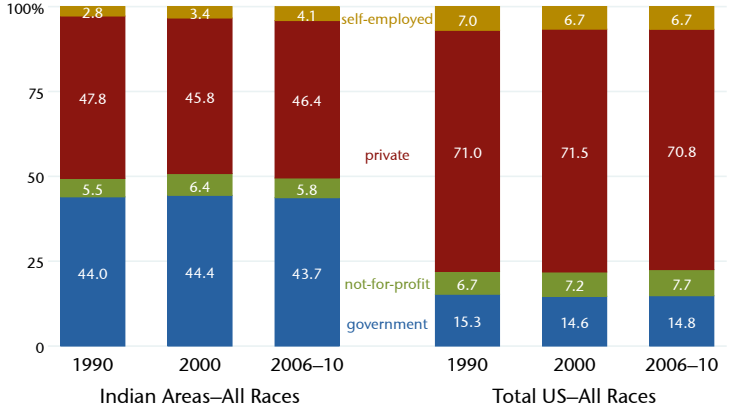
Percentage of Workers by Sector

Reservations Other than Navajo



Percentage of Workers by Sector

Navajo Nation



Overcrowded Housing

Reservations Other than Navajo and Navajo Alone

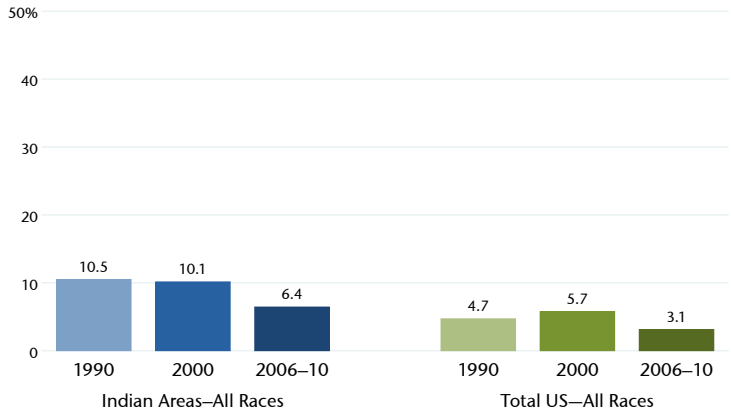
Data: These charts show the proportion of houses with more than one occupant per room. Only actual rooms, such as kitchens, bedrooms, dining rooms, and living rooms, are included in the count. Bathrooms, porches, balconies, and hallways are excluded [50]. These data are not available for Indians alone, so both charts report the all-races population.

Trend: The percentage living in overcrowded housing has decreased for Indians and the US as a whole since 1990. This coincides with the well-known housing boom. The striking result is that this national trend appears to have spilled over onto reservations as the percent living in crowded homes decreased over the decade there too.

Implication: Clearly, one person per room is a low threshold, because few American households live at that occupancy level. The problem of relative Indian overcrowding is most likely greater than indicated here, because on reservations, Indian economic conditions are generally worse than all-races averages. For example, according to the 2010 ACS five-year average, for people of all races on reservations other than Navajo, the per capita income was $18,816, as opposed to $12,142 for Indians.

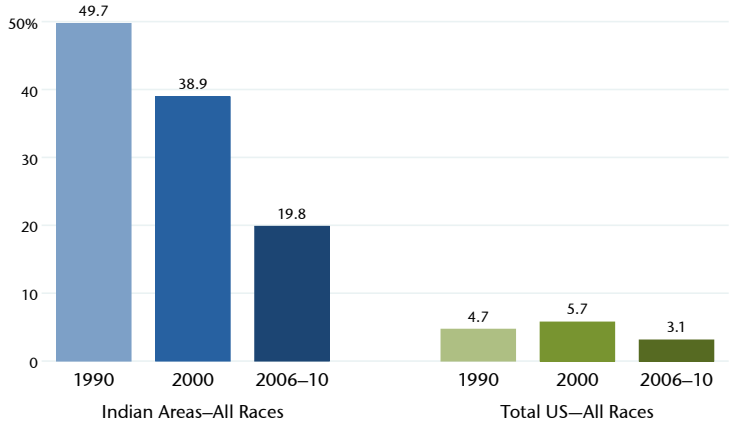
Percentage Living in Crowded Homes

Reservations Other than Navajo



Percentage Living in Crowded Homes

Navajo Nation



Homes Lacking a Complete Kitchen

Reservations Other than Navajo and Navajo Alone

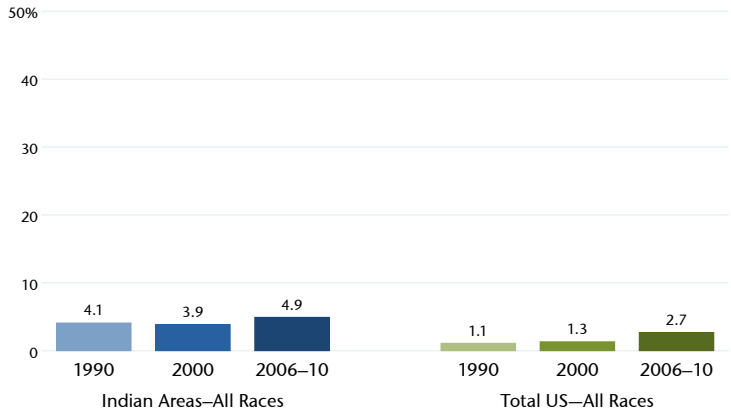
Data: These charts show the proportion of all-races housing units lacking a complete kitchen. A complete kitchen has a sink with piped running water, a stove with an oven, and a refrigerator.

Trend: In the 2000s, housing units lacking a complete kitchen rose by a point or so on both on reservations other than Navajo and in the US generally. As noted in the Methodology section, differences between the decennial census long-form sample in 1990 and 2000 and the 2010 ACS five-year average require caution in making observations about absolute change. However, the relative standing of reservation housing at declining multiples of 3.7, 3, and 1.8 times the US average over the three periods is less equivocal; it indicates steady relative improvement on this dimension of reservation housing stock. At Navajo, the problem has been much more pronounced than elsewhere in Indian Country, but the rate shows signs of both relative and absolute improvement.

Implication: The actual number of Indian homes lacking a complete kitchen is probably higher than indicated, given that the data are for all races.

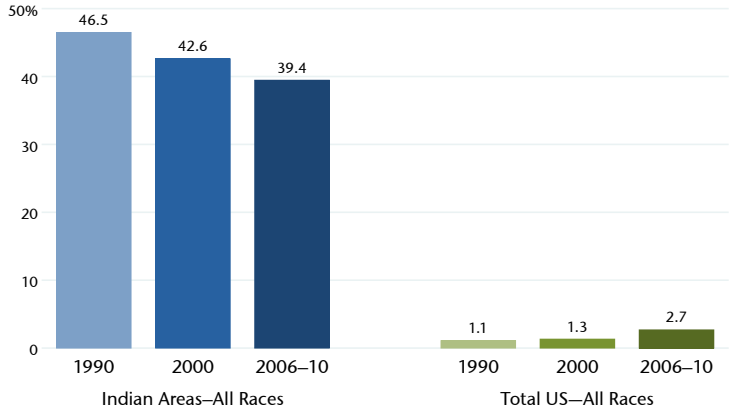
Percentage of Homes Lacking Complete Kitchen

Reservations Other than Navajo



Percentage of Homes Lacking Complete Kitchen

Navajo Nation



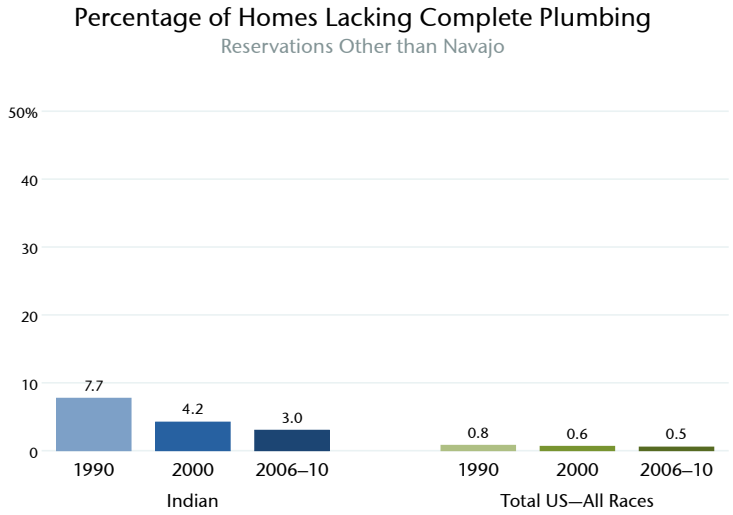
Homes Lacking Complete Plumbing

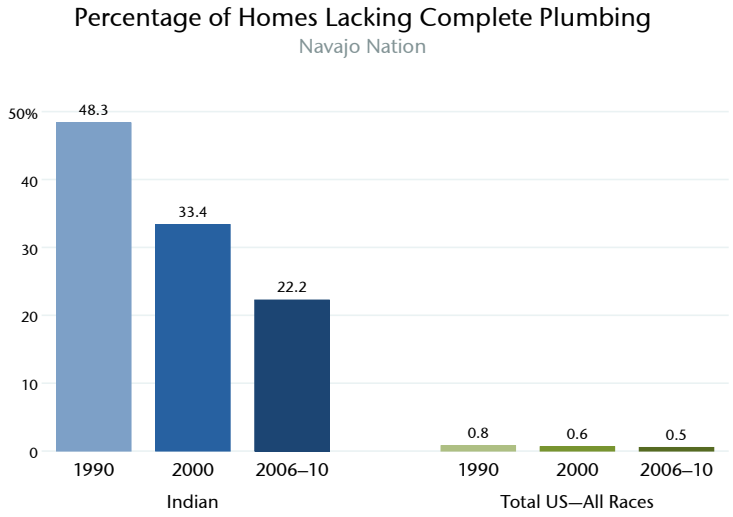
Reservations Other than Navajo and Navajo Alone

Data: A housing unit is considered to have complete plumbing if it includes hot and cold piped water, a flush toilet, and either a bathtub or a shower.

Trend: Large gains were made during the 1990s, when the percentage of occupied Indian homes lacking complete plumbing decreased by almost half outside Navajo; in the 2000s, it dropped further. For the US as a whole, such homes accounted for less than 1% over all three periods.

Implication: The proportion of Indians living without complete plumbing on reservations other than Navajo has fallen by almost two-thirds—a welcome development. At Navajo it was more than cut in half.





High School Degree or Equivalent

Reservations Other than Navajo and Navajo Alone

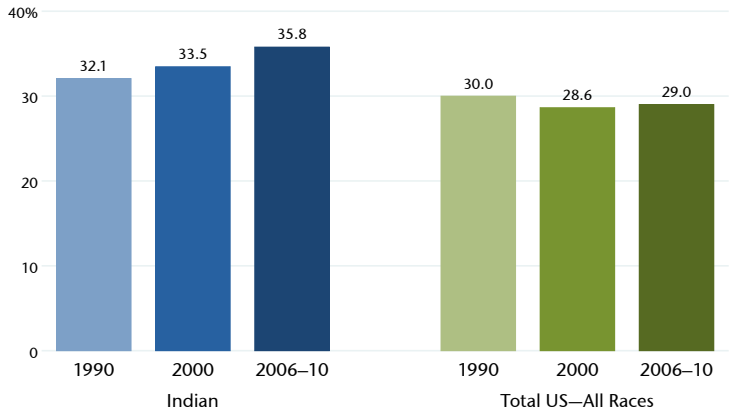
Data: The graph shows the percentage of adults living on reservations who are 25 and older and have a high school degree or the equivalent. People with post-secondary degrees are not included in this measure.

Trend: The percentage of the reservation population holding a high school degree or the equivalent has increased over the years. Approximately 36% of the adult reservation population outside Navajo had completed secondary education by 2010. For the US as a whole, that figure was 29% to 30% for all years.

Implication: A high school degree or the equivalent is a basic measure of the skill level found on reservations. Improvements in overall human capital and skills are indicative of long-run economic development and investment. Given US mandatory schooling laws, completion of secondary education is common in the country. Each additional year of education boosts annual wages by 7.3% to 14%, depending on assumptions [51,52]. The increase in the percentage of reservation-dwelling adults with a high school diploma may be driven by at least two things: Individuals with high school diplomas are moving to the reservation or individuals who would have dropped out of high school are now completing high school. Given the structure of the data, it is not possible to detect which of these two scenarios is driving the results. (The census data do not allow us to determine whether reservation residents are new arrivals since the last census enumeration.)

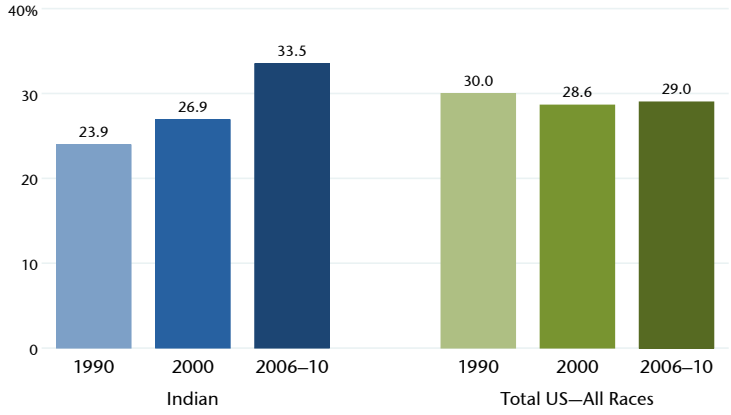
Percentage High School Degree or the Equivalent Only

Reservations Other than Navajo



Percentage High School Degree or the Equivalent Only

Navajo Nation



College Graduates or More

Reservations Other than Navajo

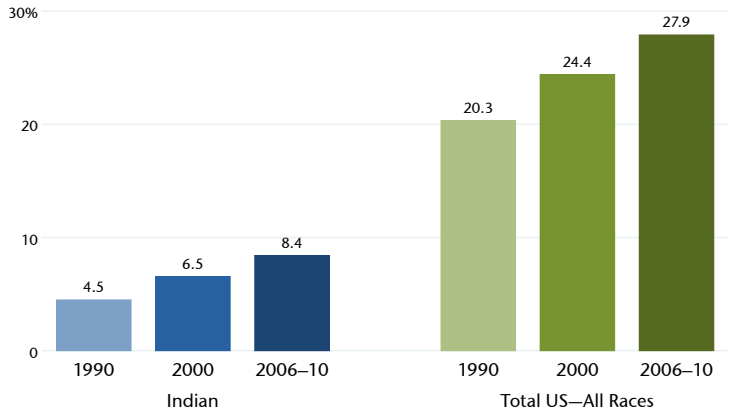
Data: The graph shows the percentage of reservation-dwelling Indian adults aged 25 years and older who have a college degree or more.

Trend: The proportion of the population with a post-secondary education has been increasing on reservations over time; by 2010, it had reached 5.4% on Navajo and 8.4% on other reservations. For the US as a whole, the percentage has climbed steadily since 1990, as the country's economy has increasingly specialized in manufacturing and services that require high levels of education.

Implication: Economic growth in the US as a whole has become increasingly skill-biased, making the rewards to education greater over time. As noted, individuals in the US can be expected to earn from 7.3% to 14% more annually over their lifetimes for each additional year of education [51,52]. The fact that the percentage of adults with post-secondary education has grown on reservations is a positive sign. Once again, the data do not permit us to determine the cause of this increase in educational attainment. It is possible that lifetime residents are acquiring college degrees, and it is also possible that the reservation is attracting the highly educated in a "brain gain" scenario. The push for increased educational attainment may be driven by the increasing economic opportunities on many reservations. In either case, conditions seem to be more conducive than ever before to educated Indians' living on reservations—a very propitious sign for human capital accumulation there.

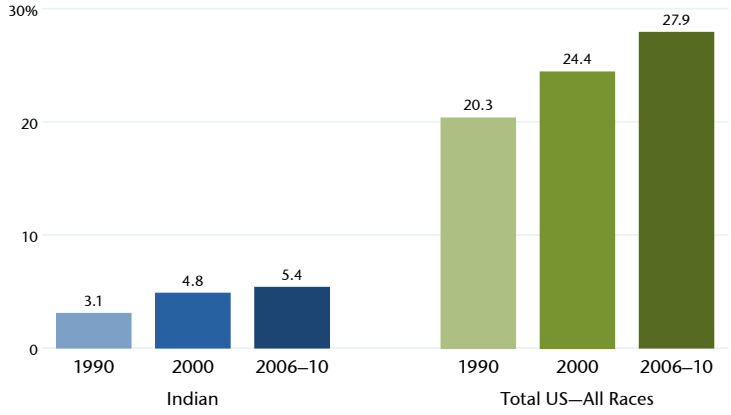
Percentage College Graduates or Higher

Reservations Other than Navajo



Percentage College Graduates or Higher

Navajo Nation



Appendices

Online Resources

Alternate graphs displaying this data for all reservations (including Navajo), all census Indian areas, OTSAs only, and Navajo only, along with the set of numerators and denominators for the indicators, can be found at taylorpolicy.com/us-databook

Acknowledgments

We are grateful for research funding provided by the Sycuan Institute on Tribal Gaming and for the able assistance provided by Connor Carney, Courtney Colgan, Margot Crandall Hollick, and Martha Lee Spaulding. Helpful comments were provided by Joseph Kalt, Miriam Jorgensen, Matthew Taylor, Sarah Kastelic, Jackie Old Coyote, and the Native Nations Institute Research Seminar. Of course, all errors and omissions remain our responsibility.

Randall K.Q. Akee
Los Angeles, CA

Jonathan B. Taylor
Sarasota, FL

May 2014

About the Authors

Randall K.Q. Akee is an assistant professor at the University of California, Los Angeles in the Department of Public Policy and American Indian Studies. Dr. Akee spent several years working for the State of Hawaii Office of Hawaiian Affairs Economic Development Division. He is also a research fellow at the Harvard Project on American Indian Economic Development and at the Institute for the Study of Labor (IZA). His main research interests are labor economics, economic development, and migration.

Jonathan B. Taylor is an economist with expertise in natural resources, gaming, and American Indian development. Mr. Taylor is president of the Taylor Policy Group, an economics and public policy consultancy; a research affiliate at the Harvard Project on American Indian Economic Development; and a senior policy associate at the Native Nations Institute, Udall Center for Studies in Public Policy, University of Arizona, Tucson.

References

In general throughout this databook, population characteristics for 1990 are derived from GeoLytics [53]. Data for 2000 are extracted from the census summary file containing the long-form responses [54]. Data for 2006–2010 are taken from the American Community Survey 2010 five-year average [55]. The main exceptions to this pattern are Top 10 Reservation Populations, American Indian and Alaska Native Population, and American Indian Population, which are based on the decennial census—the 100% enumeration—as reported by Social Explorer [36,56,57].

Determining exactly when a tribe first opened a casino or a bingo operation is difficult, and the earlier the date, the harder it is to be precise. We created rosters of tribes with casinos open as of January 1, 1999, 2000, and 2010 using lists of tribes with gaming at a certain time [29,58,59]; a special tabulation by a casino directory maker [60]; information from state regulatory agencies (such as the Nevada Gaming Control Board, Tax and License Division, the North Dakota Gaming Division, the Washington State Gambling Commission); records of the National Indian Gaming Commission [61]; telephone conversations with tribal regulators and managers; and newspapers and tribal casino websites. Notwithstanding the challenges of pinning down exactly when tribes began to earn gaming profits, our observation that more than nine out of ten Indians currently live on reservations with casinos is robust because it relies on a current and comprehensive source [62].

1. Walke R (2000) Indian-related federal spending trends, FY 1975–2001, US Congressional Research Service memorandum, March 1, 2000. Report of the Committee on the Budget, United States Senate to accompany S. Con. Res. 101 together with additional and minority views, Senate Report 106-251. pp. 199–250.

2. Taylor JB, Kalt JP (2005) American Indians on reservations: A databook of socioeconomic change between the 1990 and 2000 censuses. Cambridge, MA: Harvard Project on American Indian Economic Development.

3. Snipp CM (1989) American Indians: The First of This Land. Russell Sage Foundation.

4. Trosper RL (1996) American Indian Poverty on Reservations, 1969–1989. In: Sandefur GD, Rindfuss RR, Cohen B, editors. Changing numbers, changing needs: American Indian demography and public health. Washington, DC: National Academy Press. pp. 172–195.

5. Bureau of Indian Affairs (2012) Indian entities recognized and eligible to receive services from the United States Bureau of Indian Affairs. Federal Register 77: 47868–47873.

6. Osier V (2012) American Indian and Alaska Native area to tribe 2012.

7. Krepps MB, Caves RE (1994) Bureaucrats and Indians: Principal-agent relations and efficient management of tribal forest resources. Journal of economic behavior & organization 24: 133–151.

8. Centennial accord between the federally recognized Indian Tribes in Washington State and the State of Washington (1989) Centennial accord between the federally recognized Indian Tribes in Washington State and the State of Washington. Olympia, WA: Washington State. Available: http://www.goia.wa.gov/government-to-government/data/centennialaccord.htm.

9. Payne H (2012) Otoe-Missouria Tribe signs cross-deputization agreement. Native American Times. Available: http://www.nativetimes.com/news/tribal/8239-otoe-missouria-tribe-signs-cross-deputization-agreement.

10. Dodd C, Frank B (2010) The Dodd-Frank Wall Street reform and consumer protection act. Available: http://www.gpo.gov/fdsys/pkg/BILLS-111hr4173enr/pdf/BILLS-111hr4173enr.pdf.

11. Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (1996) Personal Responsibility and Work Opportunity Reconciliation Act of 1996.

12. HPAIED (1999) Idaho Gray Wolf Recovery—Wildlife Program, Nez Perce Tribe. hpaiedorg. Available: http://hpaied.org/images/resources/publibrary/Idaho%20Gray%20Wolf%20Recovery.pdf. Accessed 17 September 2013.

13. Moore M, Forbes H, Henderson L (1990) The provision of primary health care services under band control: The Montreal Lake case. Native Studies Review 6: 153–164.

14. Cornell SE, Kalt JP (1992) Reloading the dice: improving the chances for economic development on American Indian reservations. In: Cornell SE, Kalt JP, editors. What can tribes do? Strategies and institutions in American Indian economic development. Los Angeles CA: American Indian Studies Center, University of California Los Angeles. pp. 1–59.

15. Dixon M, Shelton BL, Roubideaux Y, Mather D, Mala Smith C (1998) Tribal perspectives on Indian self-determination and tribal self-governance in health care management. Denver, CO: National Indian Health Board.

16. Jorgensen MR (2000) Bringing the background forward: evidence from Indian country on the social and cultural determinants of economic development Harvard University.

17. Wakeling S, Jorgensen MR, Michaelson S, Begay M (2001) Policing on American Indian Reservations. Washington, DC: National Institute of Justice.

18. Costello EJ, Compton SN, Keeler G, Angold A (2003) Relationships between poverty and psychopathology: a natural experiment. JAMA: the journal of the American Medical Association 290: 2023–2029. Available: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14559956.

19. Cornell SE, Kalt JP, Krepps MB, Taylor JB (1998) American Indian Gaming Policy and its Socioeconomic Effects: A Report to the National Gambling Impact Study Commission. Cambridge, MA: The Economics Resource Group, Inc.

20. National Indian Gaming Commission (2013) Gaming Revenues. National Indian Gaming Commission. Available: http://www.nigc.gov/Gaming_Revenue_Reports.aspx. Accessed 16 September 2013.

21. Akee RK, Jorgensen MR, Sunde U (2011) Constitutional Change and Economic Development: Empirical Evidence from American Indian Nations: 1–37.

22. Cornell SE, Kalt JP (1994) Cultural evolution and constitutional public choice: institutional diversity and economic performance on American Indian reservations Vancouver, BC.

23. Cornell SE, Kalt JP (1995) Where does economic development really come from? Constitutional rule among the contemporary Sioux and Apache. Economic Inquiry 33: 402–426.

24. Harvard Project on American Indian Economic Development (2008) The state of the Native nations: conditions under U.S. policies of self-determination. New York: Oxford University Press.

25. Taylor JB (2006) Indian self-government in Washington, vol. II: The character and effects of the Indian economy in Washington State. Cambridge, MA and Olympia, WA: Taylor Policy Group, Inc. and Washington Indian Gaming Association.

26. HPAIED (2005) Professional Empowerment Program SWO Human Services Agency Sisseton-Wahpeton Oyate. hpaiedorg. Available: http://hpaied.org/images/resources/publibrary/Professional%20Empowerment%20Program.pdf. Accessed 17 September 2013.

27. HPAIED (2000) Two Plus Two Plus Two Program, Hopi Junior/Senior High School, Hopi Nation. hpaiedorg. Available: http://hpaied.org/images/resources/publibrary/Hopi%20Jr%20Sr%20High%20Two%20Plus%20Two%20Plus%20Two.pdf. Accessed 17 September 2013.

28. HPAIED (2008) Archie Hendrick, Sr. Skilled Nursing Facility and Tohono O'odham Hospice. hpaiedorg. Available: http://hpaied.org/images/resources/publibrary/Archie%20Hendricks%20Sr%20Skilled%20Nursing%20Facility%20TO%20Nation.pdf. Accessed 2013.

29. GAO (1997) Tax policy: a profile of the Indian gaming industry. Washington, DC: US General Accounting Office.

30. Macdonald H (2006) The American Community Survey: Warmer (More Current), but Fuzzier (Less Precise) than the Decennial Census. Journal of the American Planning Association 72: 491–503. doi:10.1080/01944360608976768.

31. Ong J, Ong P (n.d.) AIAN underrepresentation in the ACS. UCLA Indian Studies Center. Available: http://www.aisc.ucla.edu/research/pb1_memo3.aspx. Accessed 1 November 2013.

32. Bureau of Labor Statistics (2012) Consumer Price Index, All Urban Consumers (CPI-U), US City Average. ftpblsgov. Available: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt. Accessed 15 March 2012.

33. Eschbach K (1995) The enduring and vanishing American Indian: American Indian population growth and intermarriage in 1990. Ethnic and racial studies 18: 89–108. doi:10.1080/01419870.1995.9993855.

34. Ogunwole SU (2006) We the people: American Indians and Alaska Natives in the United States. US Census Bureau. 23 pp.

35. US Census (2002) American Indians and Alaska Natives in the United States Wall Map. Available: http://www2.census.gov/geo/maps/special/aian_wall/aian_wall_map.htm. Accessed 28 August 2013.

36. US Census Bureau (2010) Census 2010 - P3. Race. Social Explorer. Available: http://www.socialexplorer.com. Accessed 12 March 2014.

37. United States Bureau of the Census (2001) Summary file 3—2000 census of population and housing technical documentation. Available: http://www.census.gov/prod/cen2000/doc/sf2.pdf. Accessed 5 September 2013.

38. Stults BJ (n.d.) Deriving median household income. mumford1dyndnsorg. Available: http://mumford1.dyndns.org/cen2000/CityProfiles/Profiles/MHHINote.htm. Accessed 7 September 2012.

39. Analysis UBOE, editor (2013) Regional economic accounts. Available: http://www.bea.gov/regional/index.htm. Accessed 10 April 2013.

40. Shryock HS, Siegel JS, Stockwell EG (1976) The methods and materials of demography. New York: Academic Press.

41. Akee RK, Simeonova E, Copeland W, Angold A, Costello EJ (2013) Young Adult Obesity and Household Income: Effects of Unconditional Cash Transfers. American Economic Journal: Applied Economics 5: 1–28. doi:10.1257/app.5.2.1.

42. Berg AG, Ostry JD (2011) Inequality and Unsustainable Growth: Two Sides of the Same Coin? IMF Staff Discussion Note : 1–21.

43. Boushey H, Hersh AS (2012) The American Middle Class, Income Inequality, and the Strength of Our Economy. New Evidence in Economics, Center for American Progress: 1–56.

44. Tavernise S (2013) US income gap rose, sign of uneven recovery. The New York Times: A21. Available: http://www.nytimes.com/2012/09/13/us/us-incomes-dropped-last-year-census-bureau-says.html. Accessed 16 September 2013.

45. US Census Bureau (2013) Poverty Data—Poverty thresholds—U.S Census Bureau. Available: http://www.census.gov/hhes/www/poverty/data/threshld/index.html. Accessed 2 May 2013.

46. US Census Bureau (2012) How the Census Bureau Measures Poverty—U.S Census Bureau. Available: http://www.census.gov/hhes/www/poverty/about/overview/measure.html. Accessed 2 May 2013.

47. Citro CF, Michael RT (1995) Measuring poverty: a new approach. Washington, DC: Panel on Poverty and Family Assistance—National Research Council.

48. Mariani C, Lanning M, Marty J, Robling C (2007) Commission to end poverty in Minnesota by 2020. Available: http://www.commissions.leg.state.mn.us/lcep/LCEP_Final_Report_SinglePgs.pdf. Accessed 17 September 2013.

49. Bureau of Labor Statistics (2008) BLS Glossary. Bureau of Labor Statistics. Available: http://www.bls.gov/bls/glossary.htm#U. Accessed 20 April 2013.

50. US Census Bureau (2013) American Community Survey and Puerto Rico Community Survey: Subject Definitions. censusgov. Available: http://www.census.gov/acs/www/Downloads/data_documentation/SubjectDefinitions/2012_ACSSubjectDefinitions.pdf. Accessed 14 September 2013.

51. Card D (1995) Using geographic variation in college proximity to estimate the return to schooling. In: Christofides LN, Grant EK, Swidinsky R, editors. Aspects of Labor Market Behaviour: Essays in Honour of John Vanderkamp. University of Toronto Press. Available: http://davidcard.berkeley.edu/papers/geo_var_schooling.pdf.

52. Angrist JD, Krueger AB (1991) Does compulsory school attendance affect schooling and earnings? The Quarterly Journal of Economics 106: 979–1014.

53. GeoLytics, Inc., (2000) Census CD 1990 long form in 2000 boundaries. East Brunswick, NJ: GeoLytics, Inc.

54. US Census (2000) Census 2000 Summary File 3. Washington, DC: Bureau of the Census.

55. US Census (2013) 2006–2010 American Community Survey 5-Year Estimates DP03. US Census Bureau.

56. US Census Bureau (1990) Census 1990 Summary File Tape File 1 – P6. Race. Social Explorer. Available: http://www.socialexplorer.com. Accessed 12 March 2014.

57. US Census Bureau (2000) Census 2000 Summary File 1 – P3. Race. Social Explorer. Available: http://www.socialexplorer.com. Accessed 12 March 2014.

58. BIA (1987) Survey of Indian bingo activity, July 1, 1987. Washington, DC: Bureau of Indian Affairs, US Department of the Interior.

59. Cordeiro EE (1992) The economics of bingo: Factors influencing the success of bingo operations on American Indian reservations. In: Cornell SE, Kalt JP, editors. What can tribes do? Strategies and institutions in American Indian economic development. Los Angeles CA: American Indian Studies Center, University of California Los Angeles. pp. 205–238.

60. Casino City (2010) Gaming properties with opening dates.

61. National Indian Gaming Commission (n.d.) Gaming Tribes. Available: www.nigc.gov/nigc/nigcControl?option=GAMING_TRIBES&REGIONID=0. Accessed 25 March 2004.

62. Casino City (2013) Gaming Directory.com. Available: http://www.gamingdirectory.com/.