



**AN IMPACT ANALYSIS OF  
TRIBAL GOVERNMENT GAMING  
IN CALIFORNIA**

Prepared by the  
Center for California Native Nations

**UNIVERSITY of  
CALIFORNIA** Riverside

January, 2006



**CENTER FOR CALIFORNIA  
NATIVE NATIONS**

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## ABSTRACT

This study evaluates the social and economic impacts of tribal government gaming operations on tribal and local governments in California. We compare changes in key indicators of well being between 1990 and 2000 across tribal governments in California that opened a gaming facility during the 1990s and those that did not. We also compare tribal governments in California to those in the rest of the United States and to state and national averages. To examine tribal government gaming impacts since 2000, when the state's primary tribal-state compact was ratified, we present surveys of tribal and local government officials.

Major findings include:

- ◆ The location of Indian reservations in California places a natural limit on the size and scope of gaming in California.
- ◆ Tribal government gaming in California differs from Indian gaming in other states in some important ways; in other ways, California is a subset of the national experience.
- ◆ Tribal government gaming has not erased poverty in California, which hovered around 14% in 2000 in both gaming and non-gaming U.S. Census tracts.
- ◆ Tribal government gaming in California, located on reservation lands, concentrates employment and other benefits in counties that need development the most.
- ◆ The off-reservation impacts of Indian gaming in California are significantly positive and local governments near Indian gaming facilities recognize their benefits.

Full copies of all data and reports are available at the website for the Center for California Native Nations: [www.ccn.ucr.edu](http://www.ccn.ucr.edu).

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By its very nature, any empirical analysis is predicated on assumptions about data quality and measurement, inferences of causality between variables, and potential biases of statistical and econometric estimates. The analysis presented throughout this report is not immune to these same concerns. It is therefore important to note at the outset that while the results and simulations presented in this report may give an impression of precision, they should be treated as indicative of possible broad trends. When the results are used with this understanding, they can be meaningfully combined with data from other sources and utilized as a foundation for discussion by policy-makers.

For more information about The Center for California Native Nations go to <http://www.ccn.ucr.edu> or call 760-533-9387.

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## INTRODUCTION

In 1987, the United State's Supreme Court decided the *Cabazon* case that re-affirmed the right of tribal governments to offer gaming on their own lands. In 1988, the U.S. Congress passed the Indian Gaming Regulatory Act (IGRA), which placed various restrictions on tribal governmental gaming. One such limit is the requirement that tribal governments sign gaming compacts with state governments in order to offer casino-style gaming. On September 10, 1999, California Governor Gray Davis signed tribal-state gaming compacts with 61 tribes, which were then ratified by the citizens of California when Proposition 1A passed with 64.5% of the vote in March of 2000. Since then, additional tribes have signed compacts. Currently, 55 are involved in tribal government gaming.

The objective of this research was to evaluate the economic impacts of tribal government gaming operations on tribal and local governments in California. The absence of such analysis has impaired public discussions about tribal government gaming and related public policy issues. The study relies primarily upon publicly available data, especially the 1990 and 2000 US Censuses. Close analysis of Census data offers a "before and after" snapshot of conditions in California during Indian gaming's initial growth phase. To analyze tribal government gaming impacts since the implementation of the first tribal-state compact in 2000, the research team conducted surveys of tribal and local government officials.<sup>1</sup> More definitive analysis of post-2000 trends will have to await the 2010 Census.

This study finds that the impacts of tribal government gaming in California are directly related to two identifiable features of the enterprises themselves: A) the fact that they are owned by tribal governments; B) the fact that they must be located on existing tribal trust lands. On the one hand, because this form of gaming is owned and managed by tribal governments operating under the strictures of IGRA, gaming revenues in California support community and government activities within the region where the facility is located. On the other, because this form of gaming presupposes a location on existing tribal trust lands and these lands for historical and political reasons were located in poorer regions of the state, the economic activity that results tends to concentrate employment and other benefits in counties that

need economic development the most. Both of these features---tribal government ownership and location on existing tribal trust lands---also contribute to the fact that tribal government gaming benefits in California generally accrue to local communities both on and near tribal trust lands. As a result, tribal governments with gaming are concentrating employment opportunity in areas that are economically worse off than areas without gaming reservations.

### *California versus US reservations*

Comparing the 1990 and 2000 U.S. Census findings reveals important information regarding the ways that tribal government gaming in California differs from the national experience and ways that it is a subset. For example, while the economic and population growth resulting from tribal government gaming in California during the 1990's was impressive, that growth was limited by the insecure political and legal environment that resulted from not having an approved tribal-state gaming compact throughout the decade.

The most striking difference is that the California reservations are more heterogeneous and that by 2000 there was a larger inequality between gaming and non-gaming reservations than in the reservations in the rest of US. The introduction of Indian gaming on California reservations during the 1990s helps explain why some tribal governments in California developed more quickly than others. In 1990, the average income per capita for gaming and non-gaming reservations in California was very similar and in both instances it was higher than in the rest of the US reservations. However, in the rest of the US, the gaming reservations were poorer than their non-gaming counterparts in 1990. By 2000, when compacted gaming is operating in other U.S. states, we observed that the fastest average income growth took place on gaming reservations versus non-gaming. The US non-gaming reservations have made more economic progress than those in California, which have been stagnant, but the gaming reservations in California have experienced a larger growth than those in the US. As a result, in California the income per capita distribution in 2000 exhibits higher inequality than that of the reservations in the rest of US.

The finding that Indian gaming in California developed unevenly in the 1990's and resulted in increased economic inequalities between

<sup>1</sup> These studies are available at the Center's website [www.ccnr.ucr.edu](http://www.ccnr.ucr.edu).

gaming and non-gaming tribes reveals the intuitive quality of the 2000 tribal-state gaming compact, which created a policy solution---the Revenue Sharing Trust Fund (RSTF)---to address these inequalities before they were substantiated. Since its creation, tribal governments have put more than \$148 million into the RSTF to be shared with non-gaming tribes. Since our census analysis ends in 2000 we are unable to document statistically how the RSFT helps reduce the inequality that existed among reservations in California in 2000. However, survey research in 2005 reveals that payments to the RSTF have been invested in ways that will help address these inequalities and that these funds have allowed non-gaming tribes to add services at the same rate as gaming tribes.

Though there are some differences between tribal governments in California and the tribal governments in other states regarding their economic progress between 1990 and 2000, the common feature is that, judging by national standards, all tribal governments---including those in California---continue to experience significant socioeconomic deficits compared to other Americans.

For example, the average income for American Indians in California remains well below the national average; in 1990 it was 42% of the national average and by 2000 it experienced only a modest increase by reaching a 53% of the national average income. Also, between 1990 and 2000, the gaming tribes in California experienced a reduction in the percentage of families in poverty going from 36% in 1990 to 26% in 2000. At the national and state level, however, the percentage of families in poverty is between 9 and 10%.

#### *Off-reservation effects of tribal government gaming*

In addition to exploring the impact of tribal government gaming on tribal lands and populations, we also examined if the establishment of gaming had economic and social effects beyond the reservations during the 1990's. To do this, we used tract-level data from the 1990 and 2000 Censuses to analyze changes that occurred in economic and social indicators and explore associations between these changes and the establishment of reservation-based gaming in close proximity of a

particular tract.<sup>2</sup>

Our analysis indicates that tribal government gaming has had strong economic and social benefits that reach beyond the reservations in California. An analysis of Census tracts in California suggests that tracts in close proximity to gaming reservations experienced significantly greater income growth than tracts that were not in close proximity. Further, these positive income effects were progressive, with poorer areas receiving larger economic benefits (in the form of increased family income) than better-off areas. In addition, the establishment of gaming had beneficial effects on poverty, employment, educational expansion, and the receipt of public assistance.

These positive impacts result from the fact that most Indian reservations in California, even the better-off ones, are located in the poorest counties and tracts in the state. Thus, even though the most prosperous Indian reservations may have benefited more than the poorest reservations from gaming, it was the poorest tracts within the state that benefited disproportionately from gaming.

#### *Conclusion*

While the benefits of tribal government gaming in California have been substantial for tribal members and their neighbors, it will take more time for the economic and social benefits of tribal government gaming to be fully realized. As this Census analysis shows, large gaps remain between the conditions on Indian reservations in California and those enjoyed by other Americans.

The decade from 2000-2010 is a critical developmental period for tribal government gaming in California and the 2010 Census will yield important data about the effectiveness of the primary tribal-state gaming compact in effect, the Davis Compact, and its two major provisions, the Revenue Sharing Trust Fund (RSTF) and the Special Distribution Fund (SDF).

<sup>2</sup> We focus on Census tracts for two reasons. First, the tract is a much larger geographical area than a reservation. While a typical reservation in California has a population of a few hundred persons, the median population of a tract in the state is 4,500 persons. At the same time, a tract is significantly smaller than a county, which is too large an area over which to reasonably gauge the spillover effects of gaming. Second, detailed data from the Census is compiled at the tract level, making tract-level analysis relatively straightforward.

## THE GROWTH OF INDIAN GAMING IN CALIFORNIA

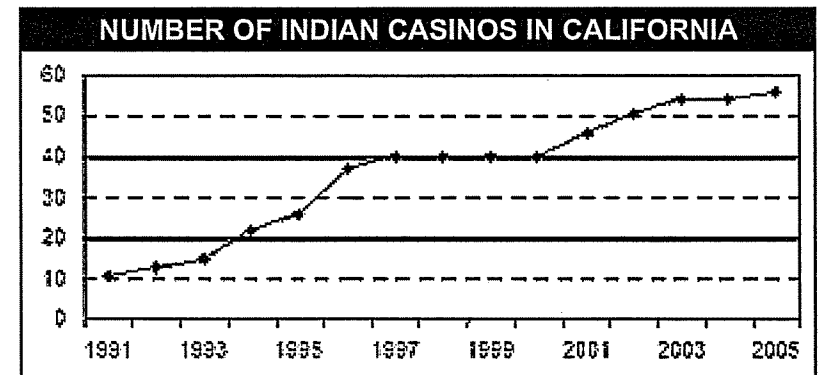
After the passage of the Indian Gaming Regulatory Act (IGRA) in 1988, the number of tribal governments operating gaming facilities in California grew rapidly, with at least twenty-five new facilities opening in the early 1990's. Between 1996 and 2000, however, only four additional tribes began gaming in California and two tribes<sup>3</sup> had closed their casinos by the decade's end. The rate of growth was limited in the 1990's largely due to uncertainties about the legal scope of tribal government gaming in California.

The legal questions of the 1990's had a number of impacts on California's Indian gaming industry. First, fewer than thirty tribal governments in California pursued gaming. Second, the gaming facilities that were offered by these tribes were modest in size. Third, tribal gaming facilities were more likely to be opened on reservations near larger populations.

Tribal government gaming reached a major turning point in 1999, when representatives from 61 tribal governments and California Governor Grey Davis negotiated a tribal-state gaming compact which clarified the legal parameters for gaming in California. The legal certainty offered by the gaming compacts, along with a provision that required tribes to exercise their slot machine licenses within one year, resulted in a rapid increase in the number of gaming facilities from 2000-2001 as tribes built new casinos and expanded existing operations to meet the compact's deadline. In 2005, there are fifty-five tribes operating fifty-six casinos in California.<sup>4</sup>

<sup>3</sup> The Big Pine Band of Owens Valley Paiute Shoshone Indians and Resighini Rancheria

<sup>4</sup> Thus in 2005 there are 55 tribal governments offering gaming in 56 tribal gaming facilities. (Agua Caliente operates two casinos on their land.) In addition there are two tribes (Fort Mojave and the Colorado River Tribe) that have a population base in California that offer gaming in Arizona.

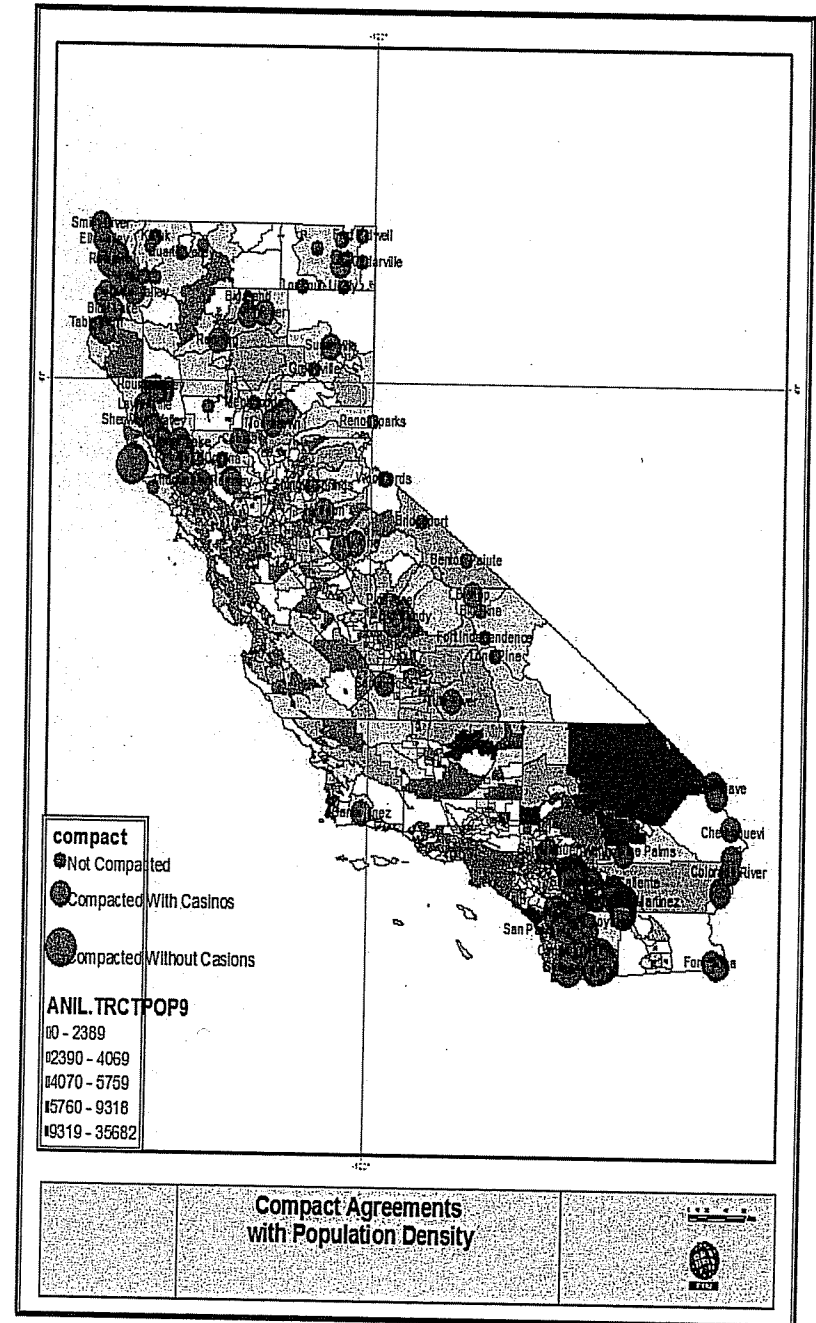


Note: Information on the number of tribes currently operating casinos is available from the California Gambling Control Commission and the *Native American Casino Directory*. Information on the opening and closing dates of the casinos were obtained from back issues of *Native American Casino Directory*, Elizabeth Hill's *Gambling in California: An Overview*, *Tribal Government* websites, media coverage of casino openings and discussion with tribal leaders.

### VARIATION IN COMPACT STATUS, GAMING STATUS AND POPULATION DENSITY

This map shows the location of every tribal government in California, its current compact status, and its current gaming status. This figure also includes the population density for the state of California as a whole. Areas that are shaded in pale colors on the map correspond to parts of the state with relatively few residents. The map suggests that tribal governments who do not have a gaming compact are located far from population centers.

The fact that characteristics of the surrounding communities, mainly population density and income, determine which tribal governments offer gaming implies that the introduction of gaming constitutes a "natural experiment." In other words, if we find that the introduction of gaming is associated with improved economic or social economic variables we can attribute these changes to gaming and not to inherent characteristics of the tribes that adopt gaming. This framework shapes the remainder of our analysis.





### VARIATION IN THE SIZE OF TRIBAL GOVERNMENT GAMING OVER TIME

Both within years and across time there is substantial variation in the size of tribal government gaming facilities located in California. In 2001, almost half the facilities in operation had fewer than 350 slot machines and only one tribe had reached the 2,000 slot machine cap dictated by the original compacts. In 2005, nineteen tribes were operating casinos that were so small that these tribes were counted as non-gaming tribes for compact purposes.<sup>5</sup> On the other hand, eleven tribal governments had reached the 2,000 slot machine cap and four tribes that had negotiated amended compacts lifting the slot machine cap had expanded beyond 2,000 slot machines.

This table provides additional information on the distribution of size (as measured by the number of slot machines) and growth of the tribal government gaming industry. Because of legal uncertainties, the average tribal gaming facilities in 2000 were relatively small. Between 2000 and 2005, sixteen new casinos opened and the average casino had doubled in size to 1,057 slot machines. For all years, the average gaming facility operates more slot machines than the median casino, which means that the distribution of gaming is such that there are relatively more small facilities than large facilities in operation.

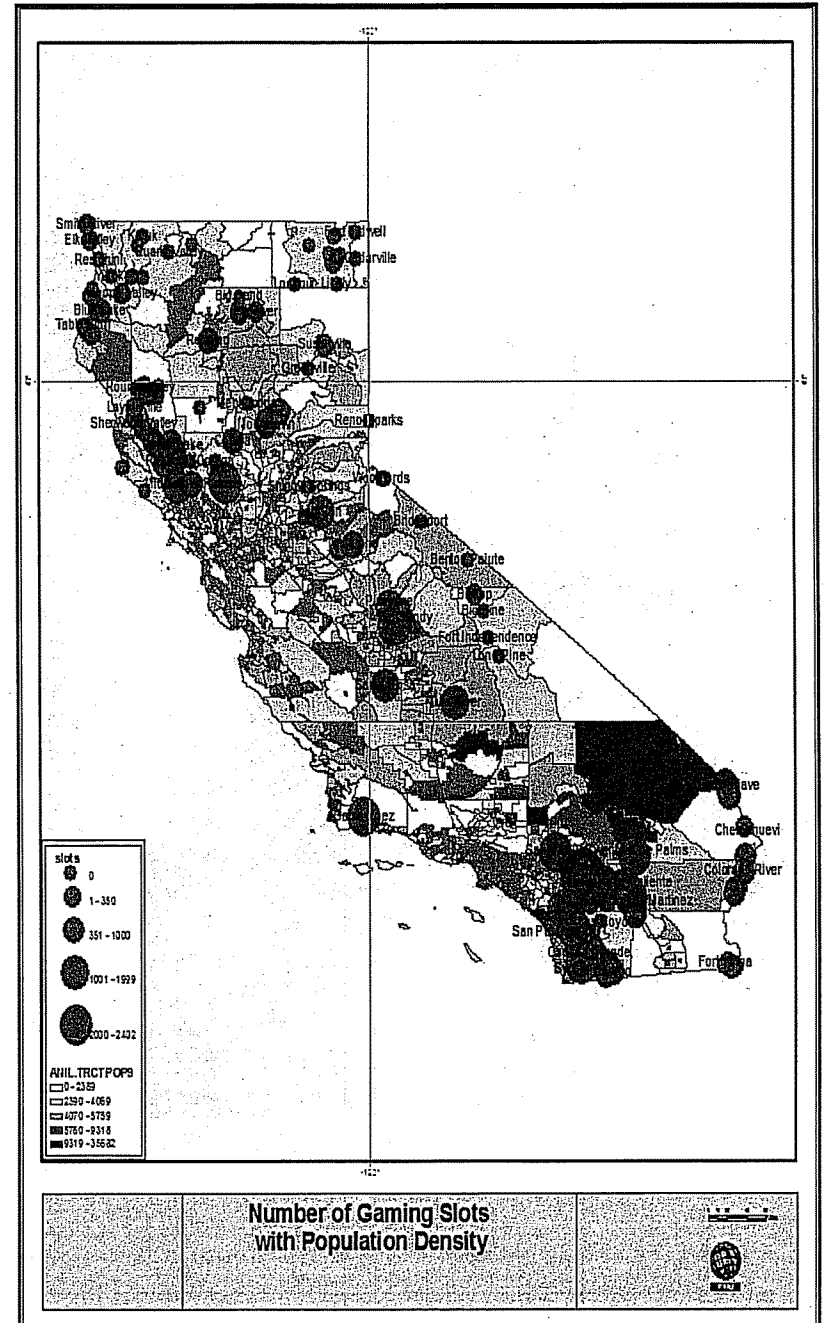
<sup>5</sup> If a tribal government offers fewer than 350 slot machines in their facility they are classified as a "non-gaming" tribe for compact purposes.

VARIATION IN THE SIZE OF TRIBAL GOVERNMENT GAMING OVER TIME				
	2000	2001	2003	2005
Number of Gaming Facilities	40	46	54	56
Slots <350 <sup>a,c</sup>	16	20	16	19
350<Slots<2,000 <sup>c</sup>	23	22	22	22
Slots=2,000 <sup>c</sup>	0	1	13	11
Slots>2,000 <sup>c</sup>	0	0	0	4
<b>Total Number of Slots</b>	<b>20,684</b>	<b>26,725</b>	<b>50,383</b>	<b>58,141</b>
<b>Average Size</b>	<b>530</b>	<b>666</b>	<b>1,002</b>	<b>1,057</b>
<b>Median Size</b>	<b>401</b>	<b>469</b>	<b>755</b>	<b>846</b>

a. Casinos smaller than 350 slot machines allow government owners non-gaming status.  
 b. Majority of compacts have a 2,000 slot machine cap.  
 c. Information on the number of slots is not available for all casinos in a given year since the data on the number of slot machines is often collected prior to the opening date for some casinos.  
 Source: California State Auditor Report 2003-122 and the Native American Casino Directory 2003, 2005.

### CASINO SIZE AND POPULATION DENSITY

This map shows the location and size of every tribal government gaming facility in California. In this figure the size of each gaming facility in operation in 2005 is indicated by a circle with large circles representing larger facilities. The map also contains information on the variation in population density across California. It is clear that larger facilities are located near population centers, specifically near the Los Angeles, San Diego and San Francisco metropolitan areas. The smallest facilities tend to be located in the sparsely populated areas of Northern California and along California's eastern border. This figure suggests that population of the surrounding areas is a key predictor of how large a tribal government's gaming operation will be and whether they pursue gaming in the first place.



**SLOT MACHINE DISTRIBUTION IN CALIFORNIA**

There are 58 counties in California. In 2000, twenty counties in California had tribal government gaming. By the end of 2005, twenty-five counties hosted a tribal government gaming facility.<sup>6</sup> Thus, in 2005, thirty-three counties, representing seventy-four percent of California's population, are non-gaming.<sup>7</sup>

Columns 2 and 4 of this table show the number of slot machines and the number of casinos in each California County for the years 2000 and 2005. In 2000, Riverside County had the most slot machines followed by San Diego, San Bernardino and Yolo Counties. Currently, San Diego County has the most slot machines followed by Riverside, San Bernardino, Fresno, Yolo and Placer Counties. These six counties are the only counties in California with more than 2,000 slot machines.

However, the population of California counties varies widely so the raw number of slots machines presents a misleading representation of which counties are most exposed to gaming. Columns 3 and 5 of this table adjust the number of slot machines by the county population. This adjustment presents an entirely different ranking of counties. In 2000, Colusa County had the highest gaming density with 28 slots machines per 1,000 people. Lake County was second with 15 slot machines per 1,000 persons and Amador County followed with 12. These same counties top the list in 2005 with Colusa up to 41 slots per 1,000 people, Amador up to 40 machines per 1,000 people, and Glenn and Lake Counties at 27. In comparison, San Diego and Riverside Counties --which have the most slot machines-- have only 4.4 and 6 slots per 1,000 people respectively. In 2005, average gaming density among California counties with gaming is 5.4 slots machines per 1,000 inhabitants. The casino density for California as a whole was .61 slot machines per 1,000 inhabitants in 2000 and 1.58 slot machines per 1,000 inhabitants in 2005.

**SLOT MACHINE DISTRIBUTION IN CALIFORNIA BY COUNTY**

County (1)	2000		2005	
	Number of Slots/Casinos (2)	Slot Machines Per 1,000 Persons (3)	Number of Slots/Casinos (4)	Slot Machines Per 1,000 Persons (5)
Amador	435 (1)	12.4	1,500 (1)	39.9
Butte	906 (2)	4.5	1,900 (2)	8.9
Colusa	523 (1)	27.8	846 (1)	40.5
Del Norte	399 (2)	14.5	542 (2)	18.8
Fresno	1,074 (2)	1.3	4,129 (3)	4.7
Glenn	0	-	773 (1)	27.4
Humboldt	281 (2)	2.2	1,467 (4)	11.2
Imperial	0	-	325 (1)	2.0
Inyo	273 (1)	15.2	332 (1)	17.9
Kings	472 (1)	3.6	1,700 (1)	11.7
Lake	900 (3)	15.4	1,686 (3)	26.7
Lassen	150 (1)	4.4	208 (1)	5.9
Mendocino	959 (4)	11.1	1,332 (4)	14.8
Modoc	54 (1)	5.7	150 (1)	15.5
Placer	0	-	2,700 (1)	8.8
Riverside	6,052 (6)	3.9	11,269 (6)	6.0
San Bernardino	1,814 (3)	1.1	4,320 (3)	2.2
San Diego	2,708 (3)	1.0	13,289 (9)	4.4
Santa Barbara	1,814 (1)	1.9	2,000 (1)	4.8
Shasta	530 (2)	3.2	1,081 (1)	6.1
Sonoma	0	-	1,600 (1)	3.3
Tulare	408 (1)	1.1	1,500 (1)	3.7
Toulumne	224 (1)	4.1	1,190 (2)	20.3
Yolo	1,762 (1)	10.4	2,402 (1)	12.8
<b>TOTAL</b>	<b>20,684 (39)</b>	<b>2.1</b>	<b>58,721 (55)</b>	<b>5.4</b>

Note: 2000 county population data was found from the U.S. Census. Estimates of 2005 county population data are available at <http://www.dof.ca.gov/HTML/DEMOGRAP/E-1table.xls>. Data of the location of casinos and the number of slot machines in operation is from the Native American Casino Directory and the California State Auditor Report. Information on number of slots is not available for all casinos in a given year.

<sup>6</sup> Assuming the Shingle Springs casino, which is currently finishing construction, successfully opens in El Dorado County.

<sup>7</sup> Two additional counties (Del Norte and Sacramento) have tribes with signed compacts which are not in effect.

**COMPARISON OF CALIFORNIA COUNTIES WITH AND WITHOUT A TRIBAL GAMING FACILITY IN 2000**

This table contains information from the 2000 United States Census on a number of economic and demographic indicators measured at the county level. The first column provides county averages for counties where at least one federally recognized tribal government was operating a gaming facility in 2000. The second column contains county averages for non-gaming counties. To be classified as non-gaming, the county must be non-gaming as of the end of 2005. The final column contains summary information for the five counties (El Dorado, Glenn, Imperial, Placer, and Sonoma) for which their first gaming facility began operation sometime after 2000.

Comparisons of the second and third columns of the table reveal that counties with gaming were less well off than their non-gaming counterparts in 2000. Residents of gaming counties were less educated, earned less money and were more likely to reside in poor families than their non gaming counterparts. For example, only 18% of the adult population in counties with the possibility of gaming employment had college degrees, while 24% the population in counties without gaming employment had college degrees. The final column indicates that the counties that most recently added gaming fall between the early gaming counties and the non-gaming counties.

The difference between these columns suggests that tribal gaming facilities first opened in the most impoverished areas of California and then expanded to relatively better off parts of the state. For instance, average annual earnings were \$6,000 higher in non-gaming counties than in early gaming counties but only \$2,000 higher in recent gaming counties. A notable exception is annual unemployment rate which is higher in non-gaming counties and was noticeably higher in the counties that most recently experienced casino expansion. Since one of the federal goals for tribal government gaming policy is to create employment and alleviate poverty in those areas of California that lag behind state averages then this analysis suggests that tribal gaming is located in counties that will benefit the most.

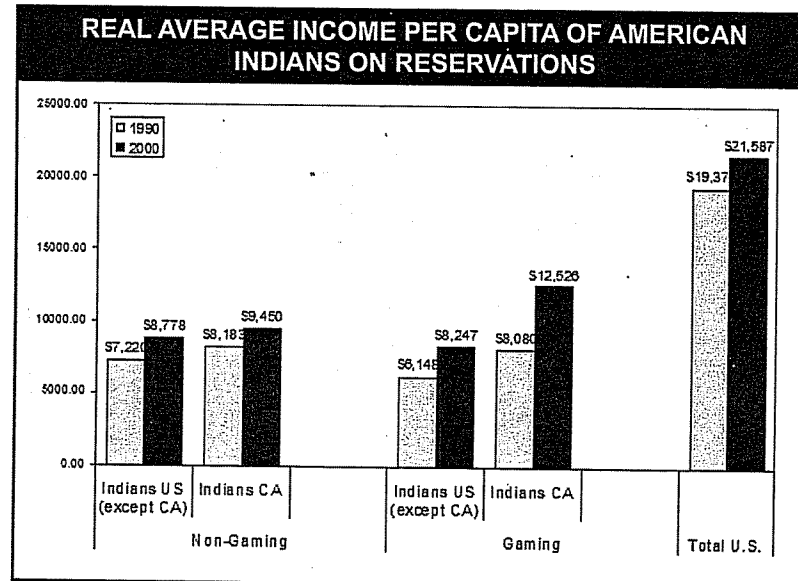
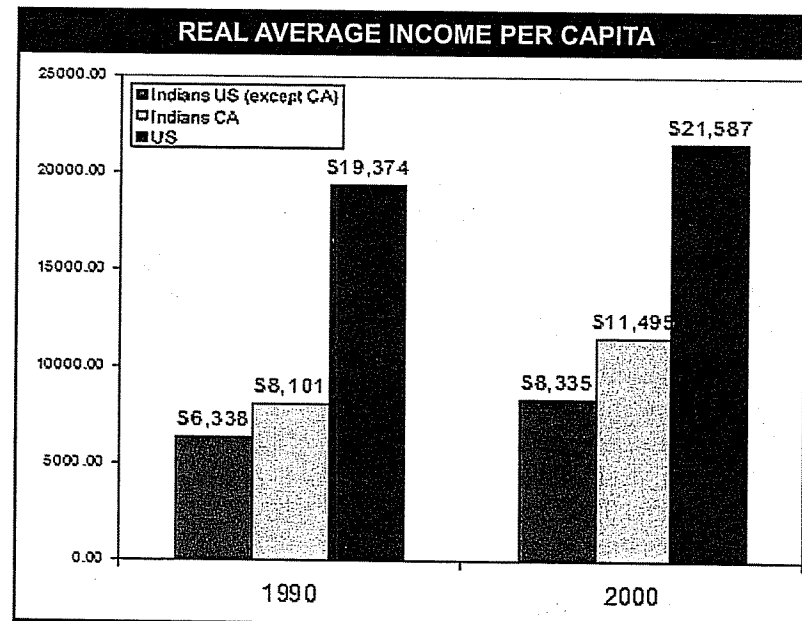
<b>COMPARISON OF CALIFORNIA COUNTIES WITH AND WITHOUT A TRIBAL GAMING FACILITY IN 2000</b>			
	<b>Gaming as of 2000</b>	<b>Non-Gaming as of 2000</b>	<b>1st Casino Between 2000 &amp; 2005</b>
Number of Counties	20	33	5
Population	8,768,203	24,071,319	1,032,126
Percent White	65.3%	56.6%	79.8%
Percent American Indian	1.35%	0.84%	1.20%
High School Graduates 25+	77.0%	79.8%	78.4%
College Graduates 25+	17.7%	24.0%	21.3%
Home Ownership Rate	63.3%	63.0%	66.8%
Per Capita Personal Income	\$26,473	\$34,368	\$32,189
Average Earnings Per Job	\$29,119	\$35,079	\$31,304
Unemployment Rate	6.6%	5.75%	7.4%
Percent of Families Below Poverty Level	12.2%	9.65%	9.1%
Note: Numbers in the table reflect the average of each variable across counties of a given gaming status. Per Capita Income is computed in a different manner than the other variables. It is total income for all counties of a given gaming status divided by the relevant population. Source: 2000 U.S. Census			

## INCOME DYNAMICS ON CALIFORNIA RESERVATIONS

From 1990 to 2000 the real average income per capita of American Indians on reservations has grown at a faster pace than that of the rest of the United States, but this has not been enough to bring the average American Indian to parity with other Americans. In these figures we summarize the growth of real average per capita income (in 1999 dollars) in the US, on the California reservations, and on the reservations in the rest of the country. On average, California Indians have higher income per capita than American Indians in the rest of the country and they have also experienced the fastest growth. In California, the average per capita income grew 42% going from \$8,101 in 1990 to \$11,495 in 2000. On the rest of the Indian reservations, the growth was 31.5% going from \$6,338 in 1990 to \$8,335 in 2000. At the national level, the average per capita income grew 11.4%.

This impressive growth must be put into context, however. Though American Indians in California have a higher average income than the rest of the American Indians, their income is still well below the national average; in 1990 it was 42% of the national average and by 2000 it experienced only a modest increase by reaching a 53% of the national average income.

According to US Census research on all US reservations (including California), "the growth in real per capita income over the 1990's (33%) compares favorably with a decline in the prior decade (-8%), yet it is lower than the growth in the 1970's (49%)...Even if incomes were to grow steadily at their 1990's pace henceforward, the gap would not close for 55 years."<sup>8</sup>

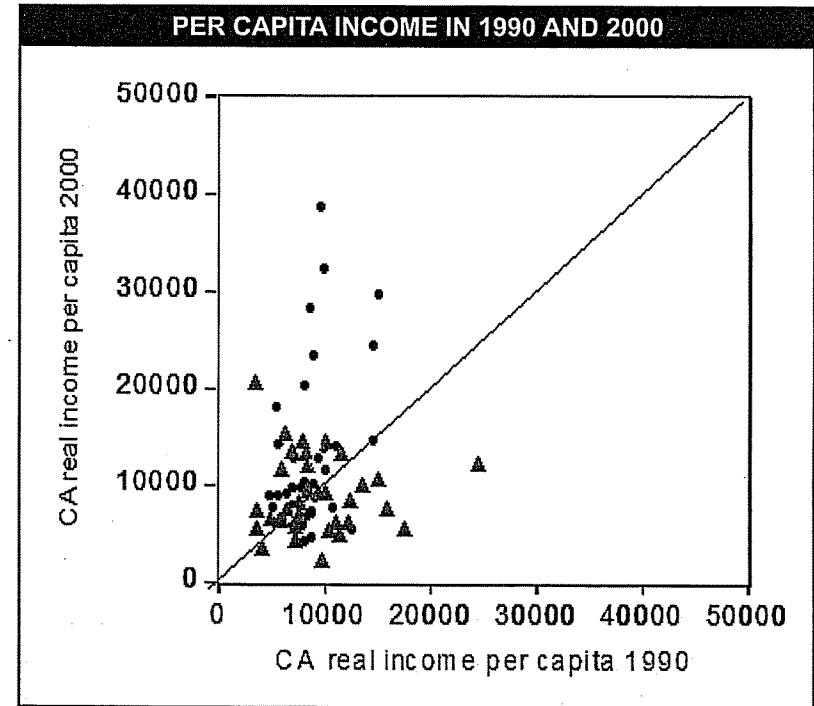


<sup>8</sup> See "American Indians on Reservations: A Databook of Socioeconomic Change Between the 1990 and 2000 Censuses." Harvard Project on American Indian Economic Development (HPAIED). Available at [www.ksg.harvard.edu/hpaied](http://www.ksg.harvard.edu/hpaied)

### REAL AVERAGE INCOME PER CAPITA FOR EACH TRIBAL GOVERNMENT, 1990-2000

Tribal governments and lands in California and elsewhere are very diverse and a precise picture of economic development in Indian Country takes into account this heterogeneity. Thus, in this figure we proceed to disaggregate the income figures per tribe in California.

Here, we plot the 2000 real average income per capita for each tribal government in California against the 1990 figure. A blue circle means that the tribe had gaming by 2000 and a red triangle represents a non-gaming tribe. The diagonal line is the 45-degree line. Any point above this line means the tribe is better off in 2000 than in 1990, and conversely, for any point below the line, the tribe is worse off in 2000 than in 1990. A simple count yields that 62% of the tribes were better off in 2000 and 38% were worse off. It is readily observable that the tribes with gaming facilities, in particular eight of them, have fared better than those without gaming. The non-gaming tribes seem to be more or less equally distributed above and below the 45-degree line indicating that overall there has not been much progress in these reservations.

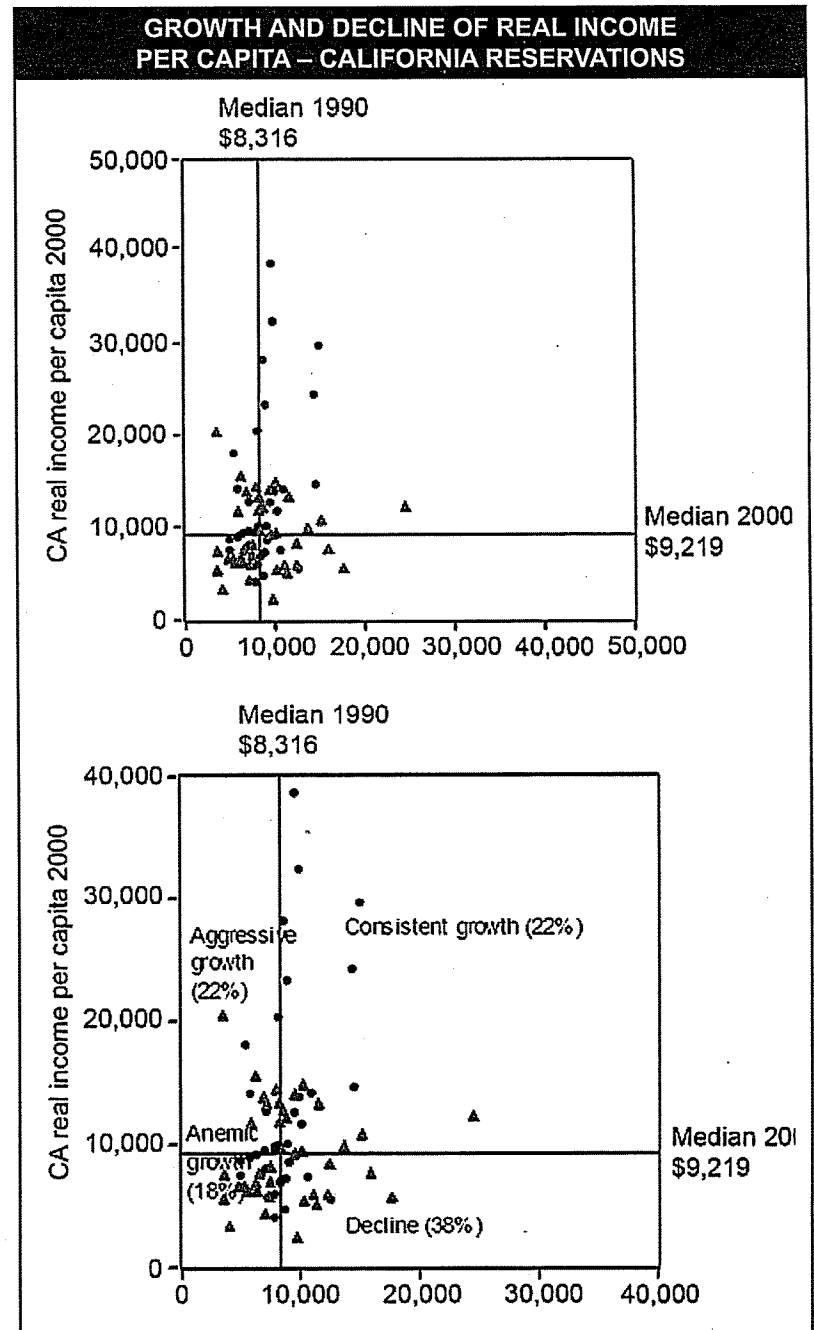


## HETEROGENEITY OF TRIBAL GOVERNMENTS IN CALIFORNIA

Here we display further the heterogeneity of the tribal governments in California by categorizing the tribes' growth around the median values of real income per capita in 1990 (\$8,316) and in 2000 (\$9,219). We distinguish four patterns of growth:

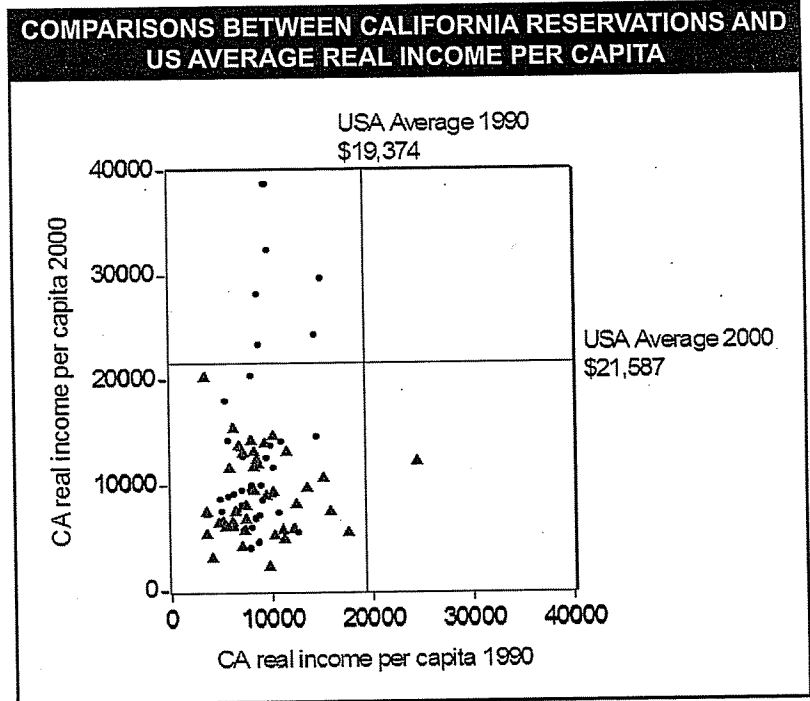
1. consistent growth when the tribe's income per capita is above the median values in both 1990 and 2000 and the 2000 income is larger than that of 1990;
2. aggressive growth when its income was below the median in 1990 but it went above the median in 2000;
3. anemic growth when the income is in close proximity to both median values in 1990 and 2000; and finally,
4. decline when the 2000 income is below that of 1990.

We find that 22% (17 tribes) of the tribal governments in California exhibit consistent growth, 22% (17 tribes) aggressive growth, 18% (14 tribes) anemic growth, and 38% (30 tribes) decline. Overall, only 44% (34 tribes) made significant progress according to their income growth.



### LARGE GAPS REMAIN

When we compare these figures with the national US averages, only nine tribal governments in California (eight with gaming facilities and one without as of 2000) exhibit aggressive growth as their 2000 per capita income rose above or near the US average in 2000. In other words, 88% of the California tribes did not make any real progress with regard to overcoming the vast disparities between American Indians and other Americans between 1990 and 2000. According to national standards, California's tribal citizens remained at the bottom of the national income distribution in 2000.



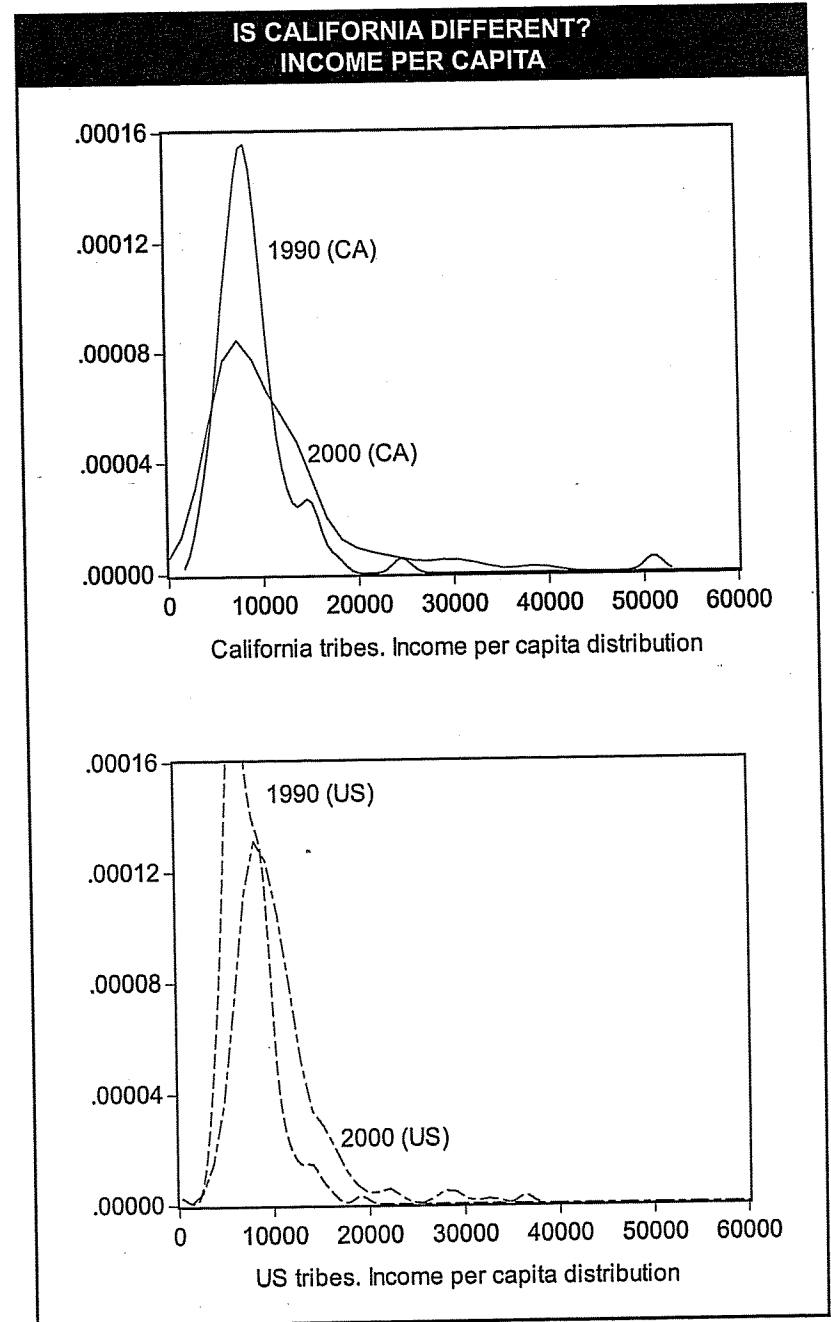


UNIVERSITY OF CALIFORNIA, RIVERSIDE

**IS CALIFORNIA DIFFERENT? – INCOME PER CAPITA INCREASED INEQUALITY IN THE 1990'S**

While on average tribal governments in California are very similar to the rest of the tribes in US, there are noticeable differences when we examine the lower and upper tails of their income distribution. In this figure, we plot the 2000 and 1990 income distributions for tribes in California and the rest of the US tribes.

From these comparisons, it appears that some of the progress on Indian reservations in California has resulted in increased inequality between tribal governments with gaming and those without gaming. The lower tail of the 2000 income distributions has expanded to the left indicating that there was an increase in the percentage of tribes that in 2000 were poorer than in 1990. On the contrary, the upper tail of the distribution has thickened indicating that there was an increase in the percentage of tribes that were much better off in 2000 than in 1990.

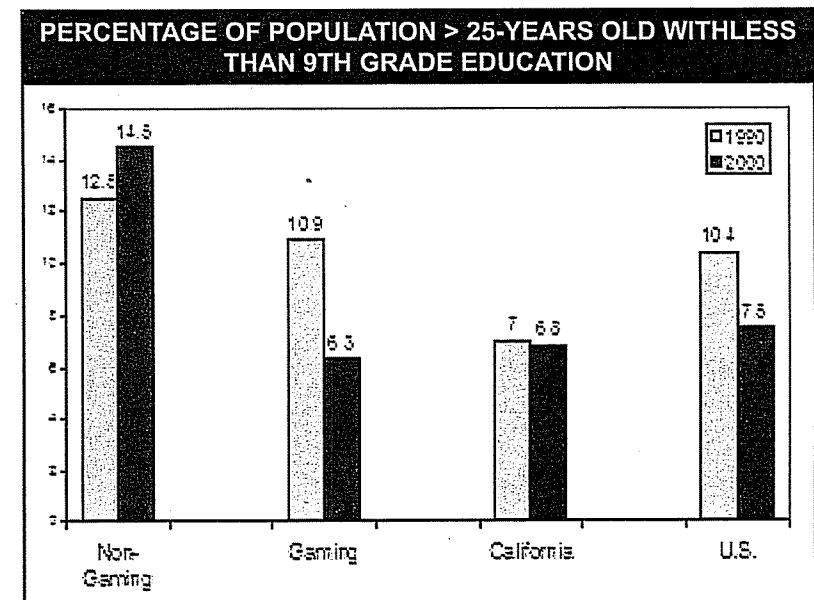
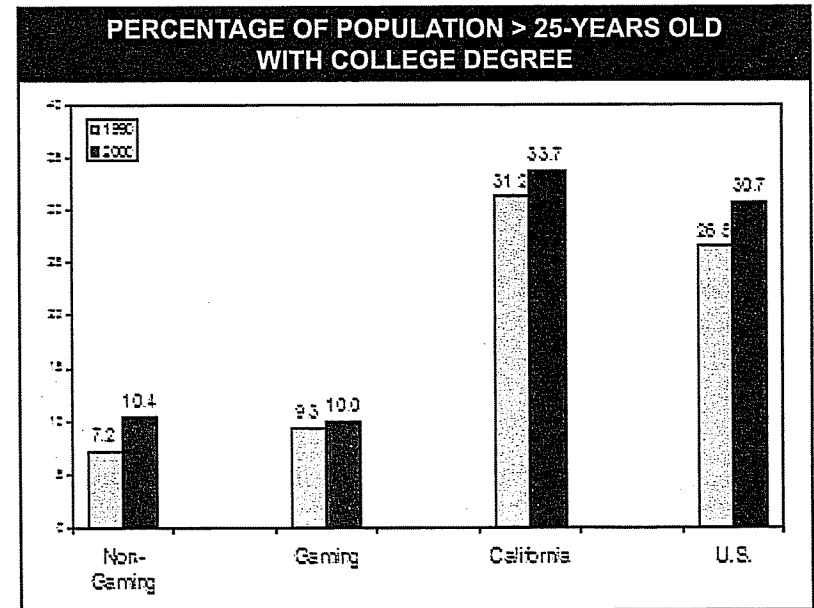


**SOCIAL INDICATORS: EDUCATION**

Though income statistics are customary measures to gauge development, they offer only a partial view of progress. In order to complement the income measure, we present data for three broad social indicators –education, employment, and poverty – to assess development differences between gaming and non-gaming tribal governments and compare them with indicators at the state and national levels.

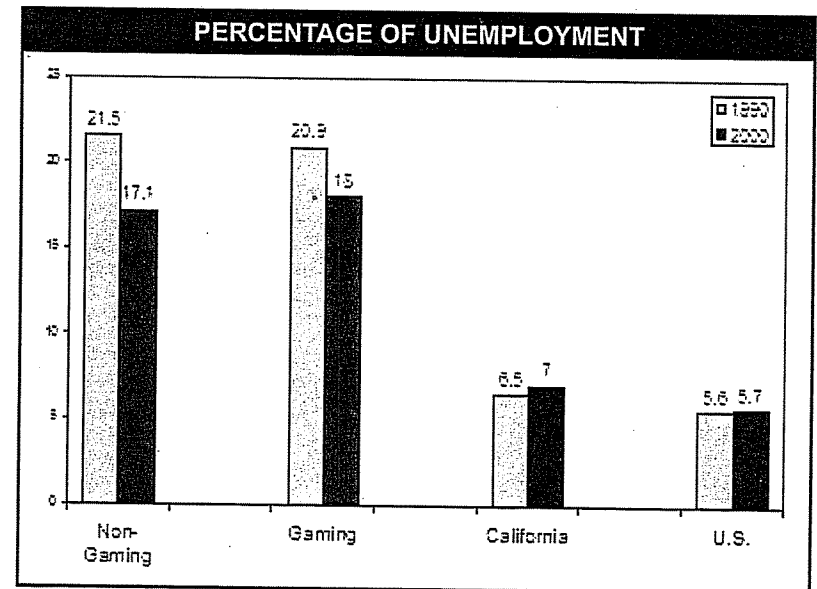
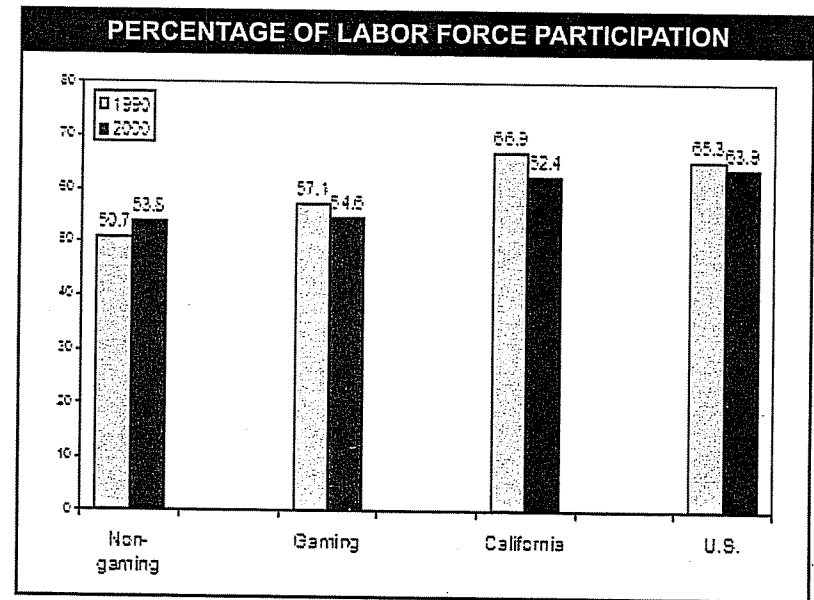
In these figures, we show two indicators related to education. The first assesses the percentage of the population older than 25 who holds a college degree. In 2000 the state of California (with 34% college graduates) had a slight edge over the US (which had 31%). Gaming status does not seem to provide any advantage to the tribal governments in California. In this dimension, tribes are at a disadvantage as only 10% of their population holds a college degree.

The second educational indicator assesses the percentage of the population older than 25 who has less than 9th grade education. In 2000, for California and US, this percentage is very similar at approximately 7%, which represents a large decline at the national level. For non-gaming tribes the percentage was 14.5%, more than twice the percentage (6.3%) for the gaming tribes. From 1990 to 2000, the gaming tribes in California experienced a reduction in the percentage of those with less than 9th grade education going from 11% to 6.3%; on the contrary, the non-gaming tribes went from 12.4% to 14.5%.



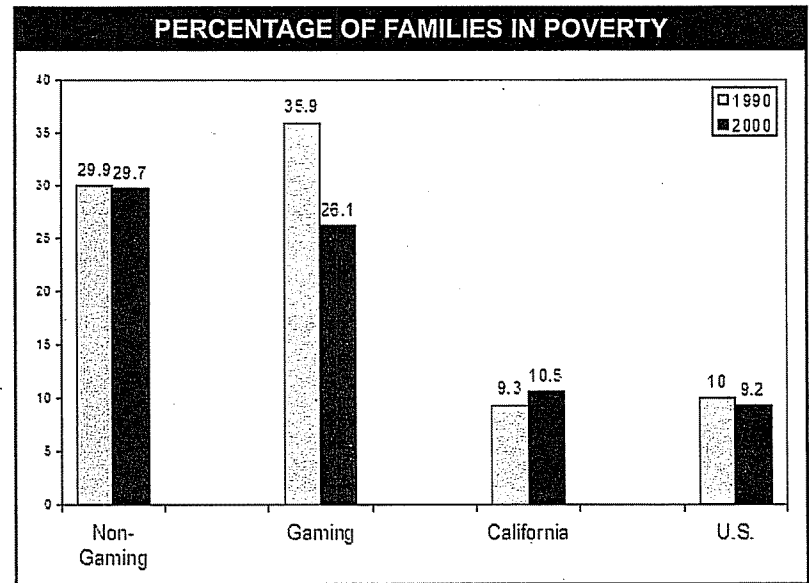
## LABOR FORCE PARTICIPATION AND EMPLOYMENT

The second set of social indicators measure labor force participation and employment. In 2000, the labor force participation in US and in California was approximately 63%, while for the tribal governments in California, regardless of their gaming status, the participation rate was around 54%. The disparity revealed by the unemployment figures is even more striking. In 2000, the national unemployment rate was 5.7% and in California was 7%. In California Indian country, the unemployment rate was above 17% regardless of the tribe's gaming status.



### POVERTY

Comparing the percentage of families in poverty on Indian lands with those in the rest of California or the United States reveals significant gaps in quality of life. At the national and state level, the percentage of families in poverty is between 9 and 10% but for the California tribes with gaming in 2000 was 26% and for those non-gaming tribes was 30%. On the positive side, the tribal governments with gaming in California experienced a reduction in the percentage of families in poverty going from 36% in 1990 to 26% in 2000.



### CALIFORNIA IS DIFFERENT AND SO IS ITS MAIN GAMING COMPACT

Comparing the 1990 and 2000 U.S. Census findings reveals important information regarding the ways that tribal government gaming in California differs from the national experience and ways that it doesn't. While the economic and employment growth resulting from tribal gaming in California during the 1990's was impressive, that growth was limited by the insecure political and legal environment that resulted from not having an approved tribal-state compact throughout the decade.

The finding that tribal government gaming in California developed unevenly in the 1990's and resulted in increased economic inequalities between gaming and non-gaming tribes reveals the intuitive quality of the 1999 tribal-state gaming compact, which created a policy mechanism---the Revenue Sharing Trust Fund (RSTF)---to address these inequalities before they could be statistically substantiated.

Here we provide detailed information on payments by Tribal governments to the Revenue Sharing Trust Fund (RSTF), which is distributed to non-gaming tribes in an effort to equalize the benefits of gaming across tribal governments in California. The table lists all payments made by tribal governments to the RSTF since its inception in 1999 until the most recent quarter of 2005.<sup>9</sup> A total of \$148 million has been placed into this fund by 44 tribes to help alleviate poor economic conditions in Indian County in California.

Payments to the RSTF are outlined in the 2000 compact and individual tribal payments to the fund are based on a combination of factors, including the number of slot machines tribes offer. Given the current size of tribal government gaming activity in California, the RSTF provides close to \$30 million a year for development on California Indian Reservations.

<sup>9</sup> Source: California Gambling Control Commission's cash receipts journals. Includes license fees collected from May 2000 to June 2000 when Sides issued 27,065 licenses. The information for some of these tribes is reported from 2004.

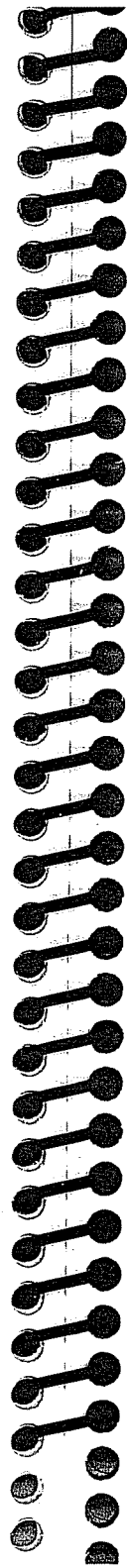
PAYMENTS TO THE REVENUE SHARING TRUST FUND							
Federally Recognized Indian Tribe	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	Total
Agua Caliente Band of Cahuilla Indians	1,058,750	480,506	549,150	549,150	549,150	549,150	3,735,856
Alturas Indian Rancheria	0	0	0	0	187,500	0	187,500
Augustine Band of Cahuilla Indians	437,500	0	0	0	0	0	437,500
Bear River Band of the Rohnerville Rancheria <sup>2</sup>	-	-	-	-	0	0	0
Berry Creek Rancheria of Maidu Indians	437,500	0	0	0	180,000	0	617,500
Big Sandy Rancheria of Mono Indians	250,000	0	0	0	0	0	250,000
Big Valley Band of Pomo Indians	500,000	0	0	0	0	0	500,000
Blue Lake Rancheria	0	0	0	0	437,500	0	437,500
Buena Vista Rancheria of Me-wuk Indians	1,812,500	0	0	0	0	0	1,812,500
Cabazon Band of Cahuilla Mission Indians	125,000	584,775	66,000	820,000	729,542	1,266,750	3,592,067
Cahuilla Band of Mission Indians	0	125,000	0	0	0	0	125,000
Cahto Indian Tribe of the Laytonville Rancheria <sup>2</sup>	-	-	-	-	0	0	0

Campo Band of Diegueno Mission Indians	500,000	0	0	0	0	0	0	0	500,000
Capitan Grande Band of Diegueno Mission Indians <sup>3</sup>									0
Barona Group of Capitan Grande	1,178,750	432,770	0	506,243	736,350	736,350	736,350	3,590,463	
Viejas Group of Capitan Grande	1,085,000	442,575	590,100	0	317,094	1,257,598	3,692,367		
Chemehuevi Indian Tribe	75,000	0	0	0	0	0	75,000		
Cher-Ae Heihgts Indian Community <sup>2</sup>	-	-	-	-	0	0	0		
Chicken Ranch Rancheria <sup>2</sup>	-	-	-	-	0	0	0		
Colusa Indian Community of the Colusa Rancheria	0	0	0	312,500	0	91,250	403,750		
Dry Creek Rancheria of Pomo Indians	1,562,500	0	0	2,610,747	1,335,000	1,001,250	6,509,497		
Elem Indian Colony <sup>2</sup>	-	-	-	-	0	0	0		
Elk Valley Rancheria <sup>2</sup>	-	-	-	-	0	62,500	62,500		
Ewiaapaayp Band of Kumeayaay Indians	1,250,000	0	0	509,372	678,061	0	2,437,433		
Hoopa Valley Tribe <sup>2</sup>	-	-	-	-	0	0	0		
Hopland Band of Pomo Indians	562,500	0	0	593,750	153,009	755,700	2,064,959		



Jackson Rancheria Band of Me-Wuk Indians	581,250	31,250	0	718,750	721,377	974,250	3,026,877
Manchester Point Arena Rancheria <sup>2</sup>	-	-	-	-	0	0	0
Manzanita Band of Mission Indians <sup>2</sup>	-	-	-	-	0	0	0
Middletown Rancheria of Pomo Indians	187,500	0	0	0	0	0	187,500
Mooretown Rancheria of Maidu Indians	625,000	0	0	0	0	67,014	692,014
Morongo Band of Cahuilla Mission Indians	466,250	20,700	10,350	0	0	0	497,300
Palute Bishop Tribe <sup>2</sup>	-	-	-	-	0	0	0
Pala Band of Luiseno Mission Indians	2,062,500	0	1,396,875	6,153,159	3,075,000	1,684,035	14,371,569
Paskenta Band of Nomelaki Indians	187,500	187,500	0	31,250	31,250	91,250	528,750
Paurma Band of Luiseno Mission Indians	625,000	0	0	0	250,000	205,422	1,080,422
Pechanga Band of Luiseno Mission Indians	833,750	0	0	58,106	142,650	427,950	1,462,456
Picayune Rancheria of Chukchansi Indians	1,562,500	0	0	2,773,969	2,205,000	2,756,250	9,297,719
Pit River Tribe <sup>2</sup>	-	-	-	-	0	0	0

Quechan Indian Nation <sup>2</sup>	-	-	-	-	-	0	0	0	0	0	0
Redding Rancheria	437,500	0	0	0	0	250,000	0	0	0	0	687,500
Resighini Gancheria <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	0
Rincon Band of Luiseno Mission Indians	2,062,500	0	3,028,125	0	0	417,622	1,335,000	0	0	0	6,843,247
Robinson Rancheria of Pomo Indians	0	0	0	0	0	0	0	0	0	0	275,000
Rumsey Indian Rancheria of Wintun Indians	312,500	550,000	0	0	0	1,994,912	1,457,489	0	0	0	5,134,901
San Manuel Band of Serrano Mission Indians	1,282,500	0	0	0	0	1,300,748	898,200	0	0	0	4,604,198
San Pasqual Band of Diegueno Mission Indians	2,062,500	0	0	0	0	1,501,171	1,327,511	0	0	0	6,031,182
Santa Rosa Band of Cahuilla Mission Indians	1,910,000	635,363	1,903,163	0	0	2,544,300	1,908,225	0	0	0	12,406,078
Santa Ynez Band of Chumash Mission Indians	1,550,000	0	1,315,500	0	0	1,644,375	1,315,500	0	0	0	6,743,289
Sherwood Valley Rancheria <sup>2</sup>	-	-	-	-	-	0	0	0	0	0	0
Shingle Springs Band of Miwok Indians	0	0	0	0	0	426,250	0	0	0	0	1,238,750
Soboba Band of Luiseno Mission Indians	625,000	636,250	0	0	0	865,050	865,050	0	0	0	3,642,468
Susanville Indian Rancheria <sup>2</sup>	-	-	-	-	-	0	0	0	0	0	0



Sycuan Band of Diegueno Mission Indians	1,851,250	1,459,192	1,754,888	1,079,181	3,509,775	2,339,850	11,994,136
Table Mountain Rancheria	1,456,250	1,589,250	1,191,938	0	586,920	1,169,250	5,993,608
Tule River Indian Tribe of the Tule River Reservation	427,500	0	0	937,500	248,499	770,175	2,383,674
Tuolumne Band of Me-Wuk Indians	312,500	0	0	0	425,000	91,250	828,750
Twenty-Nine Palms Band of Luiseno Mission Indians	1,575,000	1,035,563	0	1,698,666	1,378,500	1,378,500	7,066,229
United Auburn Indian Community	0	812,500	0	1,187,402	3,332,625	1,614,033	6,946,560
<b>Totals</b>	<b>33,831,250</b>	<b>9,023,194</b>	<b>11,806,089</b>	<b>30,323,223</b>	<b>31,615,060</b>	<b>28,396,751</b>	<b>144,995,568</b>
<b>Total Interests</b>	<b>207,688</b>	<b>820,525</b>	<b>1,758,003</b>	<b>514,707</b>	<b>156,552</b>	<b>154,986</b>	<b>3,612,461</b>
<b>Grand Totals</b>	<b>34,038,938</b>	<b>9,843,719</b>	<b>13,564,092</b>	<b>30,837,930</b>	<b>31,771,612</b>	<b>28,551,738</b>	<b>148,608,029</b>

Source: California Gambling Control Commission's cash receipts journals  
 1. Includes license fees collected from May 2000 to June 2000 when Sides issued 27,065 licenses.  
 2. The information of these tribes is reported from 2004.

## OFF-RESERVATION IMPACTS OF TRIBAL GOVERNMENT GAMING

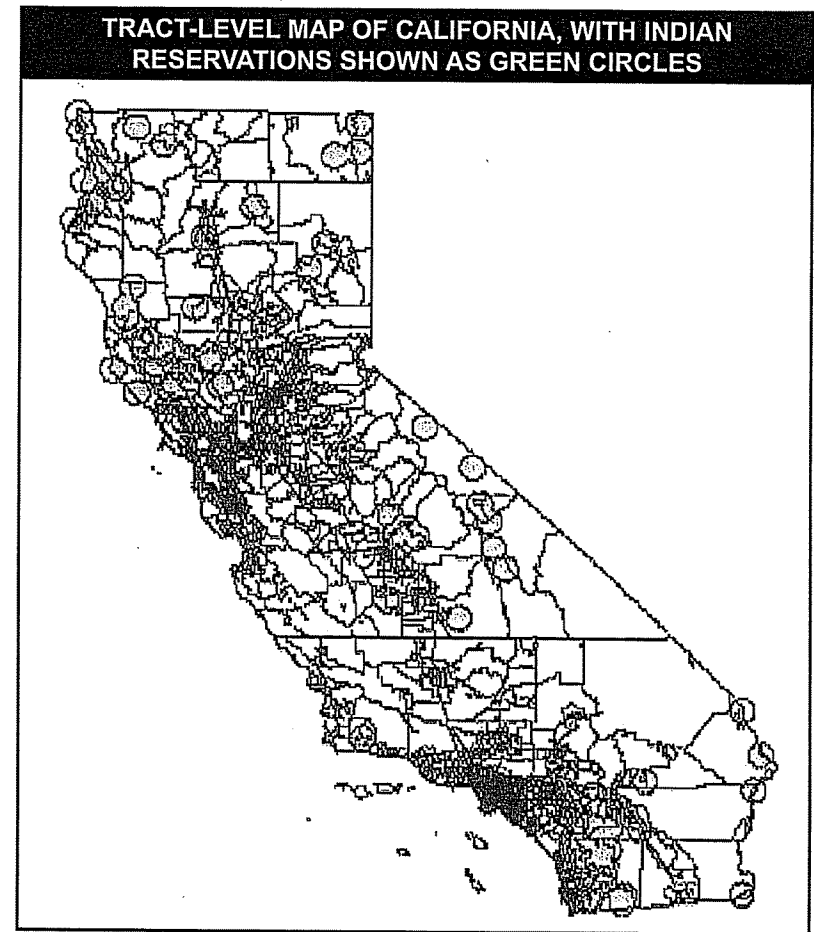
Earlier sections of this study discussed the impact of gaming on American Indian reservations in California and the US. The empirical analysis in those sections indicated that the establishment of gaming on reservations between 1990 and 2000 had significant effects on the living standards of the American Indian population living on reservations – viz., on their income, incidence of poverty, and education.

This section examines the social and economic effects of tribal government gaming beyond the reservations. We use tract-level data from the 1990 and 2000 Censuses to analyze changes that occurred in economic and social indicators and explore associations between these changes and the establishment of reservation-based gaming in close proximity of a tract.

This is a map of California with tract boundaries and Indian reservations (indicated by the green circles). In both 1990 and 2000, there were a total of 7,049 tracts in the state. Since the population of a tract is meant to be in the range of 2,500 to 8,000 persons, the physical area occupied by a tract can vary significantly, depending upon population density.

As shown here, tracts in the coastal (and heavily populated) areas of the state are extremely small in terms of area, while they tend to be much larger in the interior (and less densely populated) parts of the state.

In this analysis, a tract is considered to be impacted by a gaming reservation if the latter is within 10 miles (in any direction) of the tract. Thus, a gaming reservation in a tract is assumed to generate spillover effects on income, employment and other social and economic indicators not only in that tract but also in all neighboring tracts that are 10 or fewer miles away. Of course, the use of 10 miles as a cut-off is arbitrary. However, all of the analysis reported in this section was also undertaken using two alternative cut-off distances – 5 miles and 20 miles. The results reported here are generally robust to the choice of a cut-off distance.



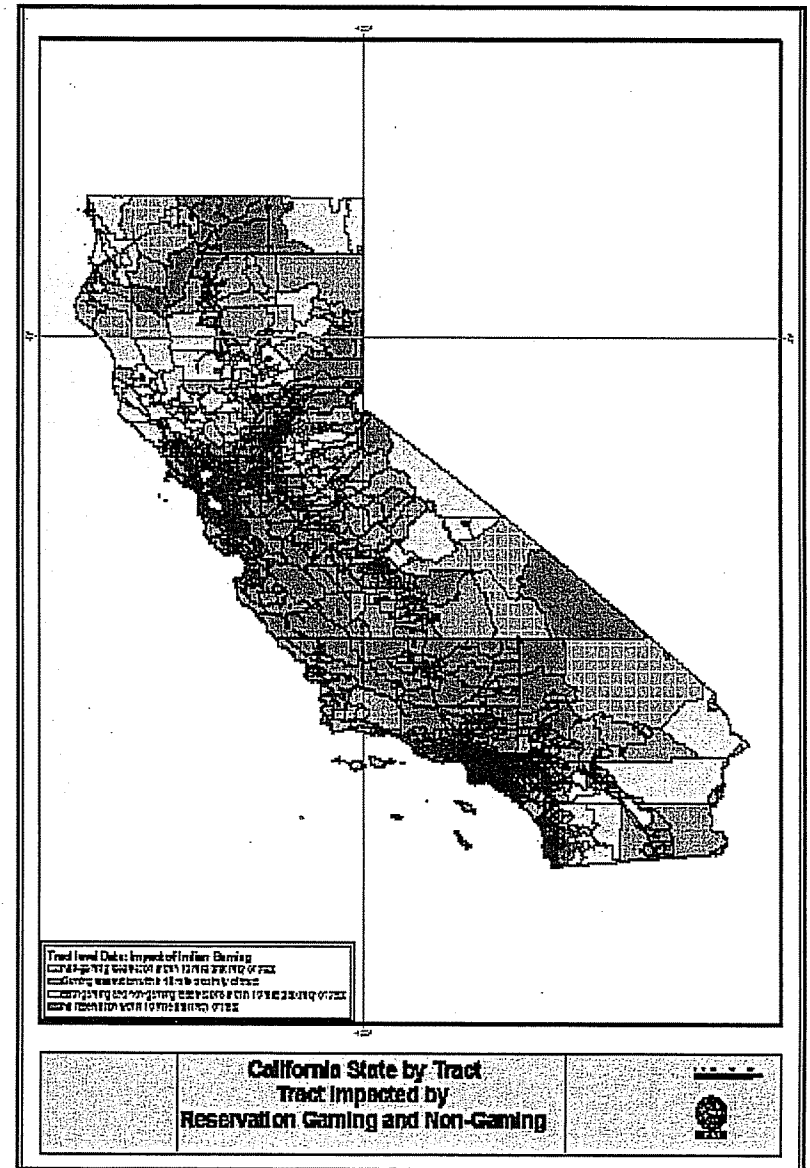


### TYOLOGY OF TRACTS BY PROXIMITY TO INDIAN COUNTRY

In order to distinguish which areas are impacted by tribal government gaming in California, we analyze differences across four types of tracts in the state: (i) tracts having a gaming reservation within close (less than 10 mile) proximity, (ii) tracts having a non-gaming reservation within close proximity, (iii) tracts that are within 10 miles of both a gaming and a non-gaming reservation, and (iv) tracts that are not in close proximity to any reservation (either gaming or non-gaming).

This map shows tracts in the state that fall into these four types. Of the 7,049 tracts in the entire state, 555 (or 8 percent) are in close proximity to a gaming reservation, while only 80 (or 1 percent) are in close proximity to a non-gaming reservation. Another 201 tracts (or 3 percent) are in proximity to both a gaming and a non-gaming reservation, while the vast majority of tracts (6,213 or 88%) are not close to any type of reservation. These figures reveal that only 11% of California's population lives near an Indian gaming facility.

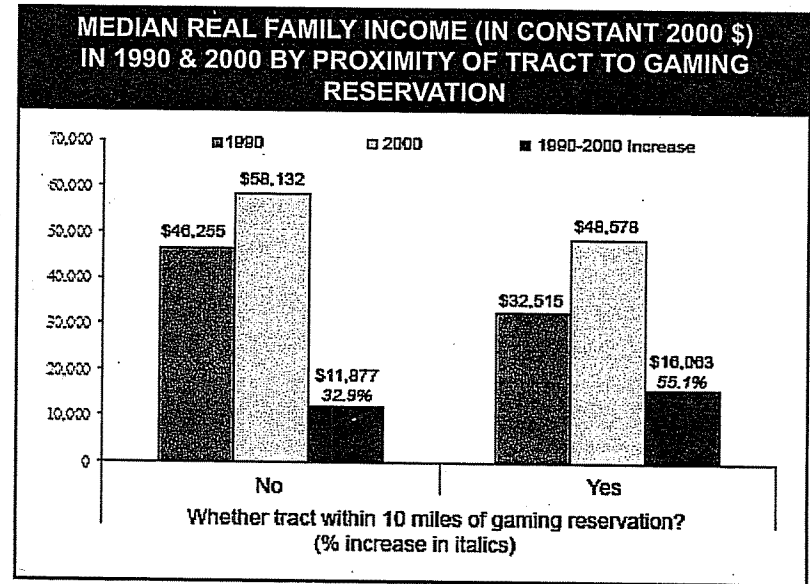
A preliminary analysis of socioeconomic differences across the four types of tracts suggests that the predominant difference is between tracts in close proximity of gaming reservations (i and iii above) and those not in close proximity of a gaming reservation (ii and iv). Consequently, in all of the analysis that follows, the comparisons that are drawn are between tracts in proximity of gaming reservations and tracts not having a gaming reservation within a distance of 10 miles or less.



### IMPACT OF TRIBAL GAMING ON INCOME

The most obvious method by which to gauge the economic impact of gaming is to compare the growth of real incomes over the period 1990-2000 in tracts that were exposed to gaming during that period and in tracts that were not so exposed.<sup>10</sup> This figure indicates that tracts in close proximity to gaming reservations were significantly poorer in 1990 (before the onset of any substantial reservation-based gaming) than those that were farther than 10 miles from the nearest gaming reservation. For instance, median family income in the former was merely \$32,515 (in constant 2000 prices), as against \$46,255 in the non-gaming tracts. However, over the following 10 years, median family income grew significantly more in the gaming than in the non-gaming tracts (55 percent versus 33 percent).

Within this simple framework, the difference in the 1990-2000 growth of median real family income across gaming and non-gaming tracts (“difference in difference”) represents the net ‘spillover’ effect of gaming. This figure indicates this “difference in difference” to be \$4,186 (= \$16,063 – \$11,877) or 22.2 (= 55.1 – 32.9) percent. To place this number in perspective, consider that there were 756 tracts in California that adopted gaming between 1990 and 2000 and that an average of 1,086 families lived in each of these tracts in 1990. If the income gain of \$4,186 is extrapolated to all of these 821,016 families, an aggregate figure of \$3.4 billion is obtained as the additional income associated with the establishment of gaming in California.<sup>11</sup>



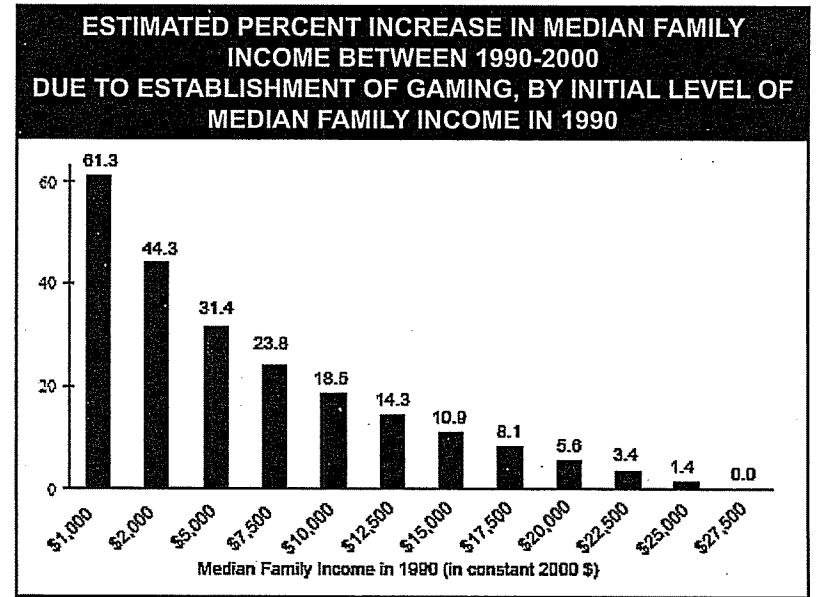
<sup>10</sup> Also, since there were very few gaming reservations in California in 1990, the comparison of areas with and without gaming in 2000 is essentially a comparison of areas that were exposed to gaming over the 1990-2000 period and those that continued to be unexposed to gaming over the same period.

<sup>11</sup> Of course, this number should be treated as indicative of possible broad trends – not a definitive and precise calculation of the economic impact of gaming.

**IMPACT OF TRIBAL GOVERNMENT GAMING  
ON MEDIAN FAMILY INCOME**

Our analysis indicates that the introduction of tribal government gaming in an area had the effect of raising median family incomes in that and neighboring tracts by about 22 percent. As would be expected, this is equivalent to the simple “difference in difference” shown in the previous figure.

However, controlling for initial income and allowing tribal gaming to vary by initial income dramatically alters the results. The impact of gaming is observed to fall with the initial level of income in a tract. Addition of the other control variables further changes these results, but not by very much. The full specification indicates that gaming raises median family income by as much as 30-60 percent at very low levels of income, but that this effect falls off sharply in tracts having a median family income of more than \$20,000. Indeed, beyond a median family income of \$27,500 (in 2000 \$s), no positive effect of gaming on income growth is observed.

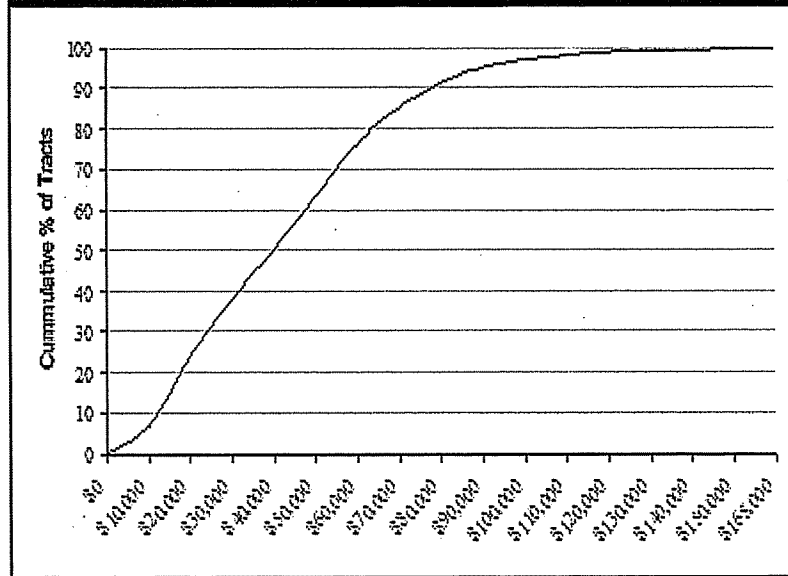


**CALIFORNIA'S POOREST COMMUNITIES  
BENEFITED THE MOST**

These results are powerful, since they indicate that gaming has had strongly progressive spillover effects, with the poorest (in 1990) communities capturing the largest increases in median family income over the following decade due to the establishment of tribal government gaming. Indeed, the fact that the positive effects of gaming on income are observed only for tracts having median family income of less than \$27,500 (in 2000 \$s) implies that only the poorest one-third of tracts in the state benefited from the establishment of gaming (Figure 3).

The convergence result from the tract-level analysis is in contrast to the convergence result obtained from the reservation-level analysis, which shows that the positive income effects associated with gaming were larger for the more prosperous Indian reservations than for the less prosperous reservations. What this suggests is that the establishment of gaming was associated with a worsening of the income distribution across Indian reservations but an improvement in the distribution of income across tracts. This likely occurred because both poor and better-off Indian reservations are generally located in the poorest regions of the state; hence, any improvement in income in these reservations and surrounding areas would have the effect of improving the inter-tract distribution of income.

**CUMMULATIVE DISTRIBUTION OF MEDIAN FAMILY INCOME  
IN 1990 (IN CONSTANT 200\$) IN GAMING TRACTS IN  
CALIFORNIA**



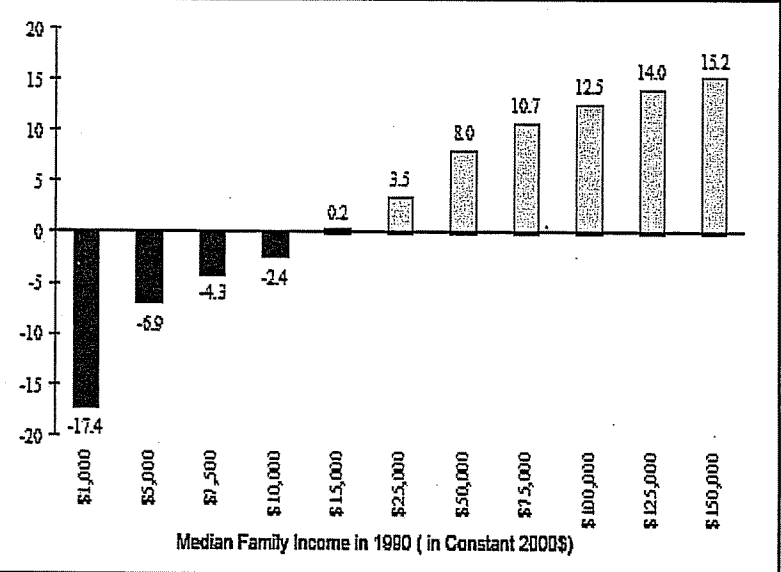
### DECLINE IN THE NUMBER OF POOR PERSONS IN CALIFORNIA'S POOREST REGIONS

The Census data suggest that there was a sharp increase in the number of persons below the poverty line in both the gaming and the non-gaming tracts. If anything, the relative increase in the population of the poor was somewhat larger in the gaming tracts than in the non-gaming tracts (33 versus 27 percent), although the difference is not statistically significant (lower figure).

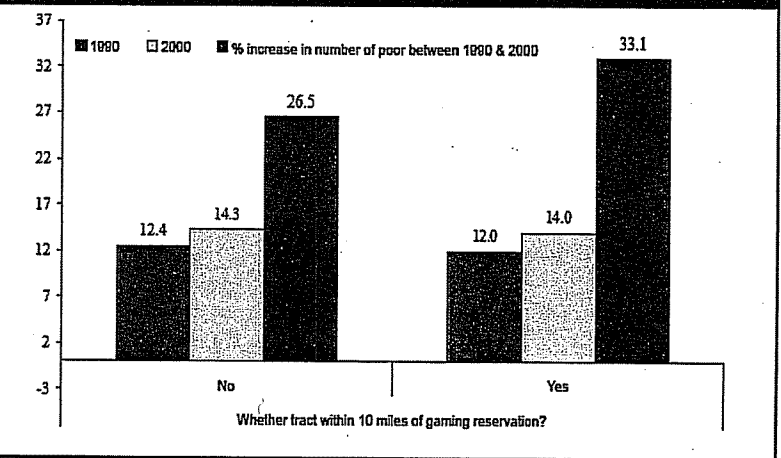
The results of the regression analysis suggest a more complex story. They indicate that the establishment of gaming reduced significantly the number of poor persons between 1990 and 2000, but only in the poorest tracts in the state. For instance, in tracts having a median family income of only \$5,000 (in 2000 dollars) in 1990, gaming was associated with a 7 percent decline in the number of poor persons between 1990 and 2000 (upper figure).

Thus, not only was gaming associated with a large increase in median family income in the poorest tracts of the state, it was also associated with a significant decline in the number of poor persons residing in these poorest tracts.

**ESTIMATED PERCENT CHANGE IN THE NUMBER OF POOR PERSONS IN A TRACT BETWEEN 1990-2000 DUE TO THE ESTABLISHMENT OF GAMING, BY INITIAL LEVEL OF MEDIAN FAMILY INCOME IN 1990**



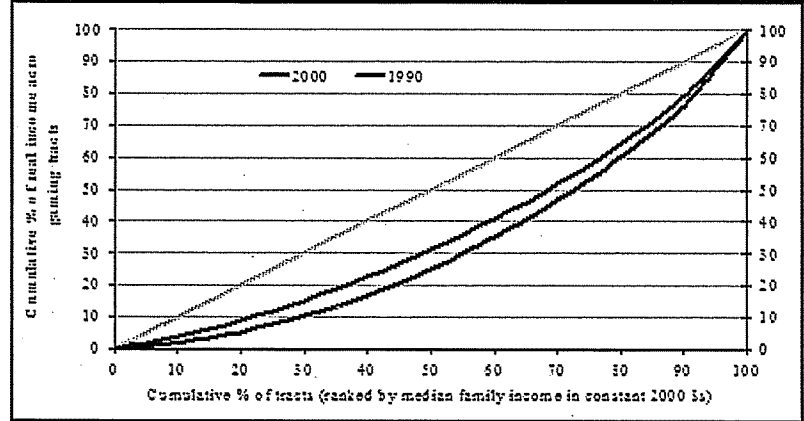
**PERCENT OF POPULATION BELOW THE POVERTY LINE IN 1990 AND 2000 AND PERCENT CHANGE IN THE NUMBER OF POOR BETWEEN 1990 & 2000 BY PROXIMITY OF TRACT TO GAMING RESERVATION**



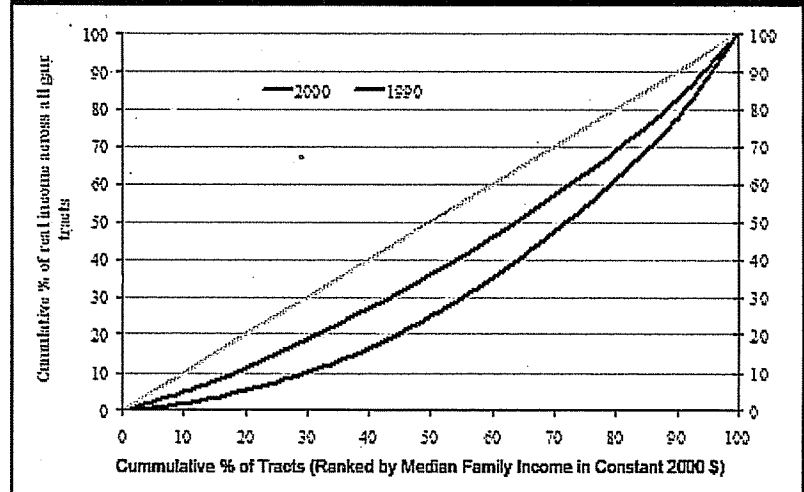
### IMPROVEMENT IN DISTRIBUTION OF INCOME

As noted earlier, since tribal government gaming was associated with more rapid income growth in the poorer than in the better-off tracts, one would expect the inter-tract (but not necessarily the inter-personal) distribution of income to have improved as a result of gaming. These figures display the distribution of median family income across tracts in 1990 and 2000 in both gaming and non-gaming tracts in the form of four Lorenz curves. A Lorenz curve shows the cumulative share of different income deciles (i.e., the poorest 10 percent, the next 10 percent, etc.) in a population in aggregate income. A perfectly equal distribution of income across tracts would be indicated by the straight, 45-degree line in these figures. The two figures show a remarkable improvement in the inter-tract distribution of income in both gaming and non-gaming tracts. However, the distribution of income clearly improved to a much greater extent in the tracts that were in close proximity to gaming reservations than in tracts that were not in close proximity.<sup>12</sup>

**LORENZ CURVES OF REAL MEDIAN FAMILY INCOME ACROSS TRACTS NOT IN PROXIMITY OF A GAMING RESERVATION, 1990 & 2000**



**LORENZ CURVES OF REAL MEDIAN FAMILY INCOME ACROSS TRACTS IN CLOSE PROXIMITY OF A GAMING RESERVATION, 1990 & 2000**



<sup>12</sup> In the non-gaming tracts, the Gini ratio of median family income – a summary measure of income inequality which ranges from 0 (perfect equality) to 1 (perfect inequality) – declined from 34 percent to 27 percent, but in the gaming tracts the Gini fell significantly more – from 34 to 20 percent.

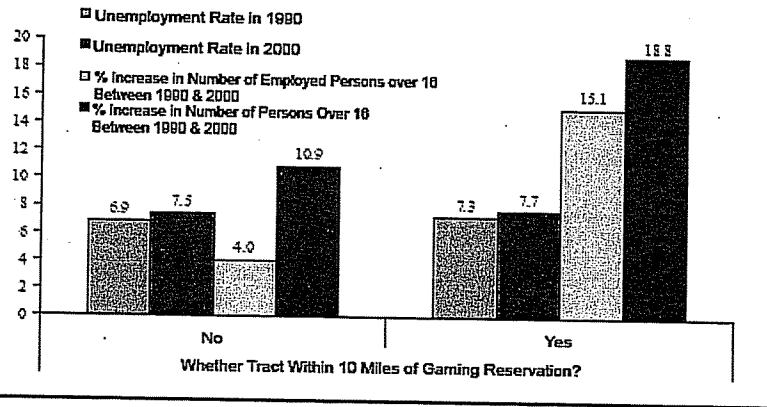
## IMPACT OF TRIBAL GOVERNMENT GAMING ON UNEMPLOYMENT RATES IN CALIFORNIA

One vehicle by which tribal government gaming contributes to income growth is by stimulating employment growth. The establishment of tribal gaming creates a number of new jobs, not only in the gaming industry but also in ancillary service industries, such as hotels, restaurants, and transport. Here we identify evidence that tribal government gaming in California was associated with greater job growth beyond Indian reservations.

A comparison of unemployment rates across gaming and non-gaming tracts in 1990 and 2000 suggests no discernable difference across the two types of tracts (upper figure). In both types of tracts, unemployment rates increased, albeit not very much. However, the number of employed persons over 16 years of age increased significantly more between 1990 and 2000 in gaming than in non-gaming tracts (15.1 versus 4 percent). This figure indicates that the population of persons over the age of 16 years also grew more rapidly in the gaming tracts than in the non-gaming tracts (18.8 versus 10.9 percent). Thus, tracts in close proximity to gaming reservations did experience more rapid employment growth than tracts not in close proximity even after controlling for population growth.

The fact that the unemployment rate actually increased between 1990 and 2000 despite employment growth suggests that the number of job-seekers among those over 16 years of age grew even more rapidly than employment. This dynamic is common in an economy during the initial period of economic recovery. Employment grows, and this growth encourages many individuals who had dropped out of the labor force to re-enter the labor force. As the number of job seekers swells, the unemployment rate actually rises even as overall employment is increasing.

### UNEMPLOYMENT RATE IN 1990 & 2000 AND % CHANGE IN NUMBER OF EMPLOYED PERSONS OVER 16 YEARS, BY PROXIMITY OF TRACT TO GAMBLING RESERVATION

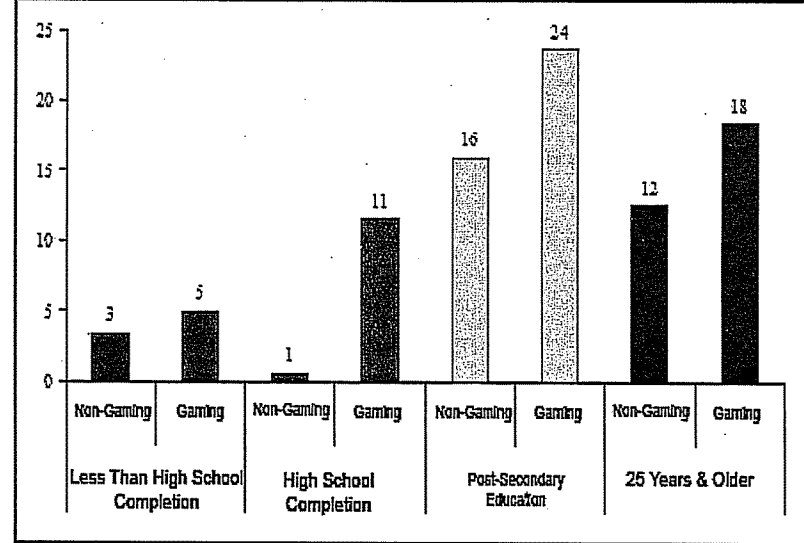


### IMPACT ON EDUCATIONAL EXPANSION

Another area of investigation examines the relationship between tribal government gaming expansion and an expansion of education. A comparison of the increase (over 1990-2000) in the population aged 25 years and older by completed educational level across gaming and non-gaming tracts indicates that the population of individuals who completed high school increased significantly faster in gaming than in non-gaming tracts (11 versus only 1 percent).

Likewise, the population with post-secondary (typically college) schooling also increased significantly faster in gaming than in non-gaming tracts (24 versus 16 percent). While showing growth, the difference between gaming and non-gaming tracts with regard to the growth of the population with less-than-high-school education was much smaller (5 versus 3 percent). Thus, areas in close proximity to gaming reservations saw a much larger increase in the population of better-educated persons than areas not in close proximity to a gaming reservation.

**PERCENT INCREASE (OVER 1990-2000) IN POPULATION OF INDIVIDUALS AGES 25 YEARS AND OLDER BY COMPLETED EDUCATION, BY PROXIMITY OF RESIDENTIAL TRACT TO AN INDIAN GAMING RESERVATION**



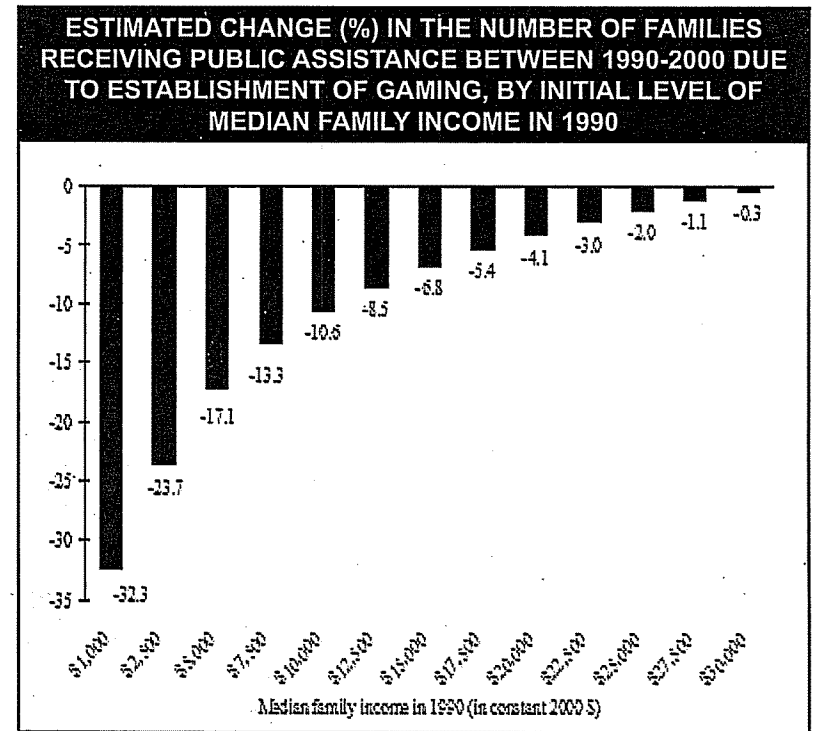


**PUBLIC ASSISTANCE IMPACTS**

Our analysis of changes in public assistance among California Census tracts does not indicate any effect of gaming on the average amount of public assistance received by families on public assistance, but does show that gaming reduces the number of families receiving public assistance. The latter effect becomes progressively smaller in tracts with higher levels of median family income in 1990.

For instance, this figure shows that in tracts having a median family income of \$5,000 (in constant 2000 dollars) in 1990, the establishment of gaming was associated with a 17% decline in the number of families receiving public assistance. At a level of \$15,000 in median family income, the estimated effect of gaming on the number of families on welfare declines to only 7%, and it all but vanishes at a median family income of about \$30,000.

Such a result is to be expected since tribal government gaming is associated with an increase in income growth and with a decline in the number of poor individuals in the poorest tracts. Since the poor are the ones most likely to be on welfare, it follows that tribal government gaming results in a reduction in the number of families receiving public assistance.



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