

Economic Evidence on the Effects of the Indian Gaming Regulatory Act on Indians and Non-Indians

*Katherine Spilde, Ph.D.
Jonathan B. Taylor*

Introduction

The history of United States policy displays a pattern of great swings between the federal government's support for the self-determination of American Indian governments and its attempts to dissolve or suppress it. While the 1970's ushered in what is often referred to by those who work in Indian affairs as the "self-determination era," tribes could count on little federal support for tribal government enhancement or development despite significant demonstrated need. In the 1980's, as Indian households lost ground relative to mainstream America, many tribes began to take matters into their own hands by exercising sovereignty, strengthening their governmental autonomy and stimulating their economies.

The most high profile of these tribally driven self-determination efforts in the late 1970's and early 1980's was the introduction of tribal gaming in a few key states, including Florida, Minnesota and California. After establishing through the courts that tribal civil regulatory authority extends to permitted gambling in these (and all) states, tribal governments expanded and developed a robust gambling industry, acting to create jobs, rebuild their native nations, revitalize their cultures, and achieve other community objectives.¹ When Congress passed the Indian Gaming Regulatory Act (IGRA) in 1988, some tribal leaders perceived the state compacting provision required for casino-style gaming on tribal lands as an erosion of tribal sovereignty that could undermine their early economic development successes and disrupt a precariously successful federal-tribal relationship with regard to tribal self-determination.²

In hindsight, however, the substantial growth and myriad positive impacts of the first twenty years of tribal gaming under IGRA reveal the ways that the federal regulatory framework laid out in the law resolved numerous legal dilemmas that had plagued tribal gaming expansion. It is now clear that the predictability provided by successful tribal-state compact negotiations allowed the necessary capital investments to produce a robust tribal government gaming industry across much of Indian Country. Therefore, an analysis of tribal government gaming's impacts on tribal communities and neighboring localities is best framed in the context of the federal law that continues to shape the industry today.

Legislative History of IGRA

The Senate Committee Report on S. 555, the bill which would eventually become the Indian Gaming Regulatory Act (IGRA), provides a succinct background on the discussions and negotiations that took place to develop legislation that would simultaneously, "preserve the right of tribes to self-government while, at the same time... achieve a fair balancing of competitive economic interests."³ Among other things, the report provides an early assessment of the size of the Indian gaming industry, which

Katherine Spilde, Ph.D.
San Diego State University
Email: kspilde@mail.
sdsu.edu

Jonathan B. Taylor
Taylor Policy
Email: jonathan@
taylorpolicy.com

1 See CALIFORNIA v. CABAZON BAND OF MISSION INDIANS, 480 U.S. 202 (1987)

2 For example, the Red Lake Band of Chippewa Indians challenged the constitutionality of IGRA through federal litigation in *Red Lake Band of Chippewa Indians vs. Swimmer*, 740 F.Supp. 9 (D.C. 1990)

3 Senate Report 100-446 on the Indian Gaming Regulatory Act, to accompany S. 555. August 3, 1988.

numbered at that time over 100 bingo operations earning more than \$100 million in annual revenues.⁴ The Senate report also highlights the essential and governmental nature of tribal government gaming: “bingo revenues have enabled tribes, like lotteries and other games have done for State and local governments, to provide a wider range of government services to tribal citizens and reservation residents than would otherwise have been possible.”⁵

The legislative history from the U.S. House of Representatives further emphasizes the intent to strengthen tribal self-determination and enhance tribes’ ability to provide critical governmental services through gaming revenues. Congressman Oberstar from Minnesota remarked that bingo, “is a very important source of revenue for Indian reservations in our State of Minnesota and in my congressional district where reservations are using the money wisely to invest in health care, education and economic development, the revenue derived from high-stakes bingo.”⁶ Congressman Sikorski, also from Minnesota, reiterated what tribal governments were doing there, stating, “to most reservations it is the very small difference between survival and total dependence on the ‘Big White Father’—the federal government. On the reservations, this little money is the difference between a drug rehabilitation program and no program; between the successful child nutrition program and no program; between an alternative school or a senior citizen center and nothing.”⁷

Ten years after the passage of IGRA, the federal government assembled a study commission, the National Gambling Impact Study Commission (NGISC) to “conduct a comprehensive legal and factual study of the social and economic impacts of gambling in the United States.”⁸ One focus of the study was a “review of existing Federal, State, local and Native American tribal government policies and practices.”⁹ After two years of research and testimony the NGISC (1999) found that, “the revenues from Indian gambling have had a significant—and generally positive—impact on a number of reservations” (6-14). While these positive impacts were uneven, the NGISC also found that, “for some, Indian gambling provides substantial new revenue for the tribal government. For others, Indian gambling has provided little or no net revenue to the tribal government but has provided jobs for tribal members” (6-15). The NGISC concludes that, “there was no evidence presented to the Commission suggesting any viable approach to economic development across the broad spectrum of Indian country, in the absence of gambling” (6-7).

This paper extends the NGISC’s analysis in critical directions, including across more dimensions and extending through the next decade to include twenty years of social and economic gains linked to gaming. As in the first decade, tribal government gaming continues to loosen the budget constraints that anemic federal funding and thin tax bases impinge on reservation governments. Tribal gaming continues to be both a consequence of tribal self-determination and a support for it. For example, tribal government gaming revenues directly or indirectly underwrite water quality programs (Sandia Pueblo, White Mountain Apache), economic diversification (Winnebago of Nebraska, Tulalip), public safety (Gila River, San Manuel), drug treatment and dialysis centers (Squaxin Island & Tohono O’odham), and a host of other investments in American Indian quality of life. And tribal gaming remains a burgeoning sector of the industry. While the recession of 2007-08 saw Indian gaming revenue growth stall, Indian gaming continues to provide essential revenues necessary to insulate tribal communities from significant losses.

This article collects evidence on the economic consequences of tribal government gaming for Indians and non-Indians. It begins with a review of prior empirical research. The subsequent section shows the growth of Indian gaming over time and across geography. The last two sections examine changes in income among Indians living on reservations and among non-Indians nearby, respectively.

4 *Ibid.* p. 2.

5 *Ibid.*

6 Legislative History-S. 555-Proceedings in the House—9/26/88, p. A204.

7 Legislative History—S.555—Proceedings in the House—9/26/88, p. A207.

8 National Gambling Impact Study Commission Act, P.L. 104-169.

9 P.L. 104-169 Sec. 4 (a)(2)(1)(A).

Prior Empirical Work

Empirical research on the economic and social effects of casino gambling is developing. There have been numerous casino impact studies marshaled by proponents and opponents of gambling expansion. A meta-analysis of more than 100 studies and articles by Adam Rose concluded:

Economic theory and the preponderance of evidence indicate that the aggregate direct and indirect impacts of the construction, operation, and taxation of casinos are significantly positive. Broader economic costs relating to such factors as the use of government services and changes in property values are not insignificant, but they do not come close to canceling out the more conventional output, income, and employment gains. Moreover, these broader negative impacts might be offset by some longer-term positive impacts stemming from increased spending of tax revenue on education, infrastructure, and redevelopment (Rose, 1998; 2001)

However, peer-reviewed empirical analyses of casino introductions more generally have been rare. At the end of the nineteen-nineties, William Eadington observed

the methodology to distinguish fully between absolute measures of economic impacts and incremental impacts—in comparison to what would have taken place in the absence of casino authorization—is still in need of considerable refinement (1999, p. 187).

About that time, the National Opinion Research Center (NORC) conducted a statistical examination of casino effects on behalf of the National Gambling Impact Study Commission. That analysis found casino introductions to be associated with lower unemployment; decreased reliance on unemployment insurance and income transfers; and no discernible change in total income, notwithstanding the declines in income from income maintenance and transfer programs (Gerstein, Volberg, Harwood, & Christiansen, 1999). Also at that time, Doug Walker and John Jackson published empirical work linking casinos and economic growth in states from 1991 to 1996 (1998; 1999).

Almost a decade later, Walker noted that “there have been few studies [other than his with Jackson] that have empirically examined the actual growth effects from casino gambling,” and he further claimed that his Granger causation test with Jackson was “the only study of its kind to have been published in the peer reviewed economics literature” (Walker, 2007, p. 33). Earl Grinols’s *Gambling in America: Costs and Benefits* (2004) took up the question of net economic benefits, but it modeled costs and benefits rather than undertaking an empirical search for them. Recently Walker and Jackson published research examining a longer time horizon (1992 to 2005) and found “no Granger-causal relationship between real casino revenues and real per capita income at the state level,” contradicting their earlier finding (2007, p. 593).

If the empirical economic research on the net economic effects of casinos can be characterized as developing, the research on Indian casinos ought to be considered nascent. As will be made clear below, the empirical economic work on the effects specific to Indian casinos is only gradually accumulating; nonetheless, it is interesting in its own right. First, it speaks to changing conditions for the poorest minority identified in the US Census—American Indians living on reservations (Henson, et al., 2008). Second, it highlights the consequences of casinos in a unique institutional context: government ownership. IGRA requires tribal government ownership of Indian casinos, and the *in situ* expenditure of 100% Indian gaming profits contrasts starkly with the normal dispersion of casino profits to shareholders around the globe (notwithstanding typically higher-than-average taxes on gambling). Thus, in addition to the usual employment and purchasing consequences, gaming facilities owned by tribal governments bring intensified local government expenditure on social, health, educational, cultural, and environmental programs and on reservation economic diversification. Third, empirical economic work on Indian gaming will help us understand casinos in a particular non-Indian economic context. American Indian reservation economies are incapable of autarky and are generally found in poorer areas of the country, potentially making them local engines of income growth for non-Indians by way of regional exports or import substitution.

Twenty Years after the Indian Gaming Regulatory Act (IGRA)

While the wide and deep social and economic impacts of tribal government gaming are well known to tribal communities themselves, the data that captures the lived experience of reservation life has been slower to emerge. Data collection faces numerous constraints across Indian Country, not least of which is tribal prerogative not to share data. Rather than review the familiar and broad outlines of tribal government gaming, this paper aims to peer more deeply in a few key areas. Many of the economic aims and impacts of IGRA are widely known, and we have expounded on them (see, e.g., Center for California Native Nations, 2006; Cornell, Kalt, Krepps, & Taylor, 1998; Grant, Spilde, & Taylor, 2004; Marks & Contreras, 2007; Taylor, 2005, 2006, 2007). The aim here is to uncover new insights about tribal government gaming that might appear from the retrospective vantage point of more than twenty years after IGRA's passage. Most everyone knows that the growth of tribal government gaming was superlative over its first two decades, but few appreciate how it ranks with non-Indian gaming or varies in time or across space. We see now that there are policy lessons to draw from its variations. Most everyone knows that tribal government gaming brought new governmental revenue and employment to reservations, but the changes in per capita income do not appear in relief as starkly as one might expect nor does access to regional markets explain as much of the variation as most might presume. Most everyone knows that casinos employ and buy from off the reservation—often heavily so—yet the misperception persists that tribal government gaming drains non-Indian economies and treasuries. The evidence keeps mounting that Indian gaming also benefits non-Indians, but the argument around “who wins” continues on in spite of the facts. Each of the next three sections takes one of these explorations in turn.

IGRA and the Growth of Indian Gaming

In recent years the federal agency that regulates tribal gaming, the National Indian Gaming Commission (NIGC), has regularly released tables and charts reporting the gross gaming revenues of tribal gaming facilities—that is, the total revenues net of prizes paid for every tribal casino and bingo hall across the country. Predictably when these data are released, commentators note the burgeoning tribal sector of America's growing gambling industry. Upon the release of gaming revenue figures representing the first twenty years, which reached \$26 billion in 2007, the NIGC Chairman, Philip N. Hogen noted,

The continued growth [of Indian gaming revenue] is significant considering recent economic struggles throughout the country...The Indian gaming industry has experienced tremendous growth since the inception of the Indian Gaming Regulatory Act (IGRA) twenty years ago in 1988...(NIGC, 2008b)

The numbers warrant Hogen's accolades of “significant” and “tremendous” (Figure 1). In inflation-adjusted terms, tribal government gaming exploded more than a hundred-fold from \$171 million in 1985 to \$26 billion in 2007, for an average compound growth rate of 26% per year after inflation.¹⁰ As the red dotted line in Fig. 1 indicates, Indian gaming grew rapidly in comparison with the commercial casino sector as well, jumping from two percent of its size in 1988 to more than three quarters in 2007. Back in the opening days of bingo halls at Penobscot, Seminole, Shakopee, and elsewhere, few observers had any inkling that such growth was in store for Indian Country. Yet while the growth of Indian gaming in the first twenty years appropriately deserves its many superlatives, growth was not uniform over time or across space and continues to develop unevenly based on numerous factors.

¹⁰ Unless otherwise noted, all dollar figures are denominated in 2008 dollars, adjusted by the CPI-U for inflation (Bureau of Labor Statistics, 2009).

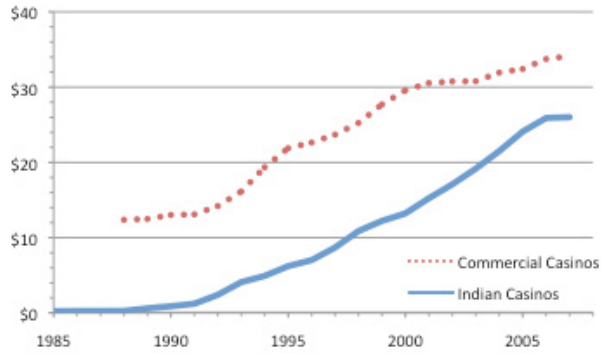


Figure 1. Growth in Tribal Gaming Revenue, 1985-2008, in billions of 2008 dollars. (American Gaming Association, 2000, 2008; Christiansen, 1999, 2000; NIGC, 2008a; US GAO, 1997)

IGRA and Gaming Revenue Over Time

To the human eye, the growth of Indian gaming revenue in Figure 1 appears simply “exponential.” That it is, but there is more than meets the eye: the exponential growth is not consistently so. When the same data is portrayed on a log scale, wherein the intervals between grid lines change from constant increments (Figure 1) to constant proportions (Figure 2), it becomes clear that the pace of Indian gaming growth had three major phases. On the log scale, steady rates of compound growth in Indian gaming revenue appear as straight lines, and there are three roughly straight-line periods in the graph. Up until 1988, compound annual revenue growth was modest—in the single digits. For the five years beginning in 1988, growth leapt to an average of seventy-nine percent per year (red dotted line in Figure 2). And beginning in 1993, growth cooled substantially to a steady 14% per year over the 1993-2008 period. Virtually no growth took place in the last two of those years: growth was three-tenths of a percent after inflation.

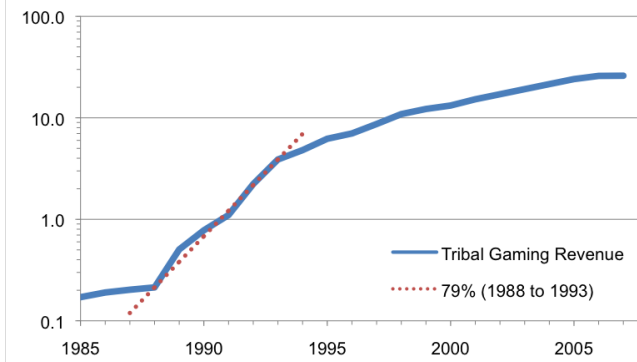


Figure 2. Log Scale Growth in Tribal Gaming Revenue, 1985-2008, billions of 2008 dollars

The log scale shows steady compound growth rates as straight lines. Abrupt corners in a graph like Figure 2 beg further examination. That Indian gaming grew quickly in the five years after IGRA probably does not strike knowledgeable participants from that time as news, but the period when that growth took place is striking in retrospect. The Supreme Court decided in favor of tribal regulatory authority for gaming in the *Cabazon* decision in 1987, and IGRA became law in 1988. The coincident uptick in growth points directly to the power of these significant actions to unleash capital flows—of both financial and human capital—to Indian Country. Clearly, the *Cabazon* decision certified to the outside world the civil and regulatory freedoms tribal governments had been asserting all along, but this strong evidence suggests that the passage of IGRA provided a critical framework for opening to doors for significant investment in Indian Country as well.

Legal and political observers, most importantly tribal leaders and representatives, often (and correctly) note that Congress, through the regulatory structure outlined in IGRA, constrained American Indian powers of self-determination in gaming relative to what was afforded by the courts in the *Cabazon* decision. But in a very real sense IGRA also lifted from tribal government gaming the heavy burdens of political and regulatory uncertainty, in particular the ability for tribal governments to legitimately “opt out” of Johnson Act constraints on electronic gaming devices through the mechanism of signing a tribal-state compact. Of course, the effect of this legal and regulatory clarity with regard to the scope of legal gaming in Indian Country was neither complete nor uniform. For example, gubernatorial recalcitrance held down investment in California for more than a decade after IGRA’s passage (see, e.g., Center for California Native Nations, 2006). “Friendly” and unfriendly lawsuits in Washington, New Mexico, and elsewhere were necessary to settle the nature of compacting authority, game types, revenue sharing, and a host of other issues relevant to the tribal government gaming investment climate. The *Seminole* decision, of course, vitiated a central Congressional assumption in the compacting framework that was intended to reflect the retained regulatory authority so clearly articulated in *Cabazon* (see, e.g., Skibine, 1997). Notwithstanding its shortcomings, however, IGRA went far in organizing the process by which state and tribal regulatory claims could be resolved.

Economic evidence presented here suggests that tribal government gaming revenue would have continued at a slower pace of growth under a *Cabazon*-only rubric as it had done under a *Butterworth*-only framework since the legal certainty for offering electronic gaming devices in Indian Country was not resolved by these decisions. Both state governors and members of Congress were up in arms about regulation and competition against non-Indian casinos, who understood that casino-style games offer the highest returns. For how long would tribal governments have suffered slow gaming growth through a more limited scope of legal gaming, and at what loss of net present value for tribal government budgets? Any delay in the arrival of the steep upward slope indicated by the red dotted line in Figure 1 would have carried consequences in the tens of billions of dollars for Indian Country.

It may forever be impossible to disentangle IGRA’s various abetting and hindering influences from *Cabazon*’s broad acknowledgment of tribal regulatory authority because the two come so close together in time, but the acceleration in growth visible in Fig. 2 raises the bar for those who lament the state compacting provisions in IGRA. Yes, IGRA constrained the tribal sovereignty that is so essential to American Indian economic development (Harvard Project on American Indian Economic Development, 2008). Yes, IGRA’s shortcomings as a framework for accommodating tribal and state interests effectively and efficiently are plainly evident. On the other hand, we assert that five consecutive years’ worth of seventy-nine percent compound annual growth provides necessary proof that IGRA made investors—and tribal governments themselves—feel much more secure about directing resources toward Indian gaming development. Indeed, it is IGRA’s state compacting provision that created the environment where it made economic sense for electronic gaming machine companies to invest in Class II technologies in order to strengthen tribal governments’ negotiating positions. Good institutions of government make investors feel secure by reducing political, legal, and regulatory uncertainty, and IGRA created an environment that clarified tribes’ role in the federalist matrix of government-to-government relations in a way that was more than just good enough to get that job done. From a vantage point over twenty years later, it seems obvious that the clarity provided by the *Cabazon* decision alone would not have done as much to attract the much-needed private investment.

The second “corner” of Figure 2 comes in 1993 and presents puzzles in itself and perhaps even challenges the above explanation for the significant uptick in 1988. If IGRA created beneficial investment conditions in 1988, did something make them less attractive after 1993? That year brought with it a new federal administration, and it is conceivable that procedural changes within the Bureau of Indian Affairs (BIA) or another federal agency introduced delays or uncertainties. A more plausible scenario is that in May of 1994—the year growth fell substantially—the state of Connecticut and the Mohegan Tribe of Connecticut signed their tribal-state gaming compact, which among other things extended Mashantucket Pequot’s twenty-five percent revenue-sharing terms to a second tribe. Perhaps that compact introduced higher stakes into compact negotiations around the country, thereby introducing uncertainty. On the other hand, that compact extended statewide exclusivity to Mohegan, which would tend to accommodate

growth in investment. It may also be the case that the uptick in 1988 was an accounting anomaly because revenues prior to IGRA were not centrally monitored as closely as they were after IGRA, which created the National Indian Gaming Commission (NIGC) as a central repository. This explanation may be weakest because an improvement in the accuracy of reporting would probably not begin and end abruptly over five years. Whatever their underlying causes, the discontinuities in the revenue trend in Figure 2 are remarkable in their own right, and an invitation to more investigation.

IGRA and the Geography of Gaming Revenue

In addition to growing unevenly in time, tribal government gaming revenue has grown unevenly across tribal communities and localities. In 1995 the Government Accounting Office (GAO) analyzed the profits transferred from casinos to tribal governments (Figure 3). The data is outdated, but it remains one of the only snapshots of tribal government net income and highlights the early skew in the distribution of gaming-generated funds. Seventy-three out of 106 surveyed tribal gaming operations transferred ten million dollars or less to their owner government.

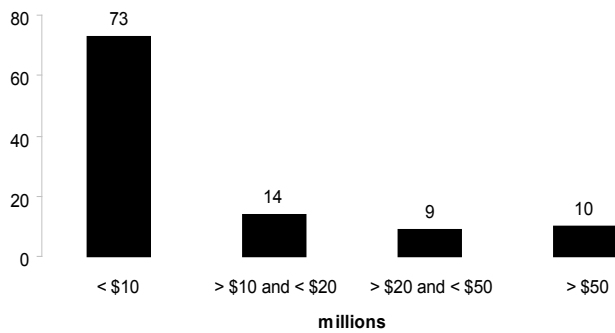


Figure 3. Distribution of Funds Transferred from Indian Gaming Operations to Tribes (Number of Tribes, in 1995 dollars)

A slightly more recent analysis by the Associated Press examined total gaming revenues and tribal populations (Figure 4). This analysis showed a steep skew in the revenues earned. More than half of the total revenues earned by Indian gaming facilities in 1998 were earned by facilities owned by only a twentieth of the population of American Indians in the sample. Conversely, more than half the American Indian population was associated with those tribal communities whose facilities earned a combined twentieth of the gaming revenues.

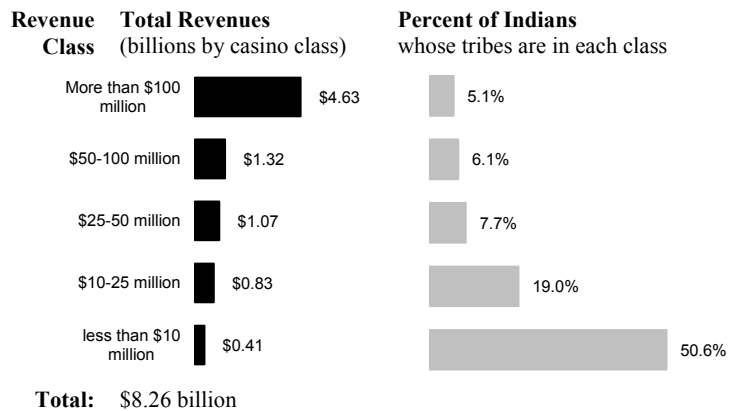


Figure 4. Distribution of Indian Casino Revenues and Associated Tribal Populations, in 1998 dollars. (The Associated Press, 2000)

The NIGC data available at approximately the twenty-year anniversary of IGRA confirmed that this general pattern of distribution persists (Table 1). Among operations whose fiscal years ended in 2007, almost one-fifth the facilities earned nearly three-quarters of the revenue, while more than half of the facilities together earned less than seven percent of the revenues.

Table 1

Tribal Gaming Revenues and Facilities (Revenues in millions of 2007 dollars)

Gaming Revenue	Operations	Percent	Revenues	Percent
\$250 million and over	22	5.8%	\$11,000	42.3%
\$100 million to \$250 million	47	12.3%	\$7,807	30.0%
\$50 million to \$100 million	46	12.0%	\$3,282	12.6%
\$25 million to \$50 million	57	14.9%	\$2,037	7.8%
\$10 million to \$25 million	85	22.3%	\$1,443	5.5%
\$3 million to \$10 million	66	17.3%	\$392	1.5%
Under \$3 million	59	15.4%	\$55	0.2%
Total	382		\$26,016	

Note. (NIGC, 2008c)

That tribal government gaming revenues are not evenly distributed across the tribes should surprise no one familiar with Indian Country. Nonetheless critics often raise the unequal distribution of revenues as evidence that Indian gaming is not “working.” The presumption that Indian gaming is a federal program intended to affect all tribes in equal measure often motivates that view, but no such intent existed. Rather than aim for equality of outcomes, IGRA provides a framework for regulating gaming on Indian lands for those tribes that choose to pursue gaming. Congress envisioned Indian gaming as an “opt-in,” an economic development tool that tribal governments could choose to employ according to their own cultural, political, and governmental needs and economic circumstances. That the resulting distribution of gaming revenues should be skewed is no more surprising than the fact that tribal government revenues from skiing are concentrated in reservations endowed with high, snowy mountains. Some reservations lie near interstates or large population centers that support tribal gaming facilities, and others do not.

IGRA and the Incomes of Indians on Reservations

While critics may point to the uneven distribution of Indian gaming’s social and economic benefits, it is important to clarify the metrics of analysis in the assumption that there is a straight-line relationship between economic and social outcomes. For example, in too many cases, income receives unthinking treatment as a be-all, end-all summary statistic for quality of life. In Indian Country, life derives a significant measure of its quality from subsistence hunting, religious practice, child-rearing in a traditional language, and other activities that cannot be properly viewed through the lens of household budgets. Nonetheless, low earnings and associated social ills continue to distinguish Indian reservations from the rest of America, making American Indian income a target of inquiry and public policy. Moreover, since personal income constitutes the preponderance of gross economic product around the United States, reservation personal income approximates reservation economic growth.¹¹ Thus, an examination of American Indian income per capita on the reservations between the 1990 and 2000 censuses provides a somewhat dated, but detailed picture of reservation economies during the decade of Indian gaming’s greatest growth.

To the casual observer, tribal government gaming appears to have brought fabulous wealth to individual Indians across the board. This general perception propagates far beyond what its anecdotal foundations warrant.¹² To talk about

¹¹ Measuring gross reservation product (GRP) requires statistics on business proprietor, rental, and other income that is simply unavailable from the Census Bureau, the Internal Revenue Service, and the other usual sources of data for national income tabulation. Tribal surveys have been undertaken to ascertain GRP in some states like Washington, but the coverage remains incomplete.

¹² “Creating a Political Space for American Indian Economic Development.” *Local Actions: Cultural Activism, Power and Public Life in America*, Eds. Maggie Fishman and Melissa Checker. New York: Columbia

“billions and billions of dollars” and “thousands upon thousands of jobs” reduces and homogenizes a wide variety of experience and masks the uneven social returns to gaming in tribal life. To those who live and work in Indian Country this is not news. They understand that Indian nations display variety in almost every facet of community life. But just how much variety is there in experience with gaming and what drives it? Most people who have been to more than a handful of tribal gaming facilities intuitively appreciate that the size and success of Indian gaming depends upon the geography of customer bases. Most American Indians living in populous nations understand that gaming profits spread more thinly across households in their nation than in some of the smaller communities of Connecticut or California. But how much so?

Answering the question is complicated by gaming’s inextricability from self-determination. American Indian self-determination brought unprecedented economic growth to Indian Country in the 1990s. Prior to the 1990s, incomes on reservations ebbed and flowed with the tide of federal funding (Trospen, 1996). Real per capita spending on American Indian programs rose with the Great Society programs and fell during the Reagan-era budget cuts (dotted line in Figure 5). Along with it, American Indian incomes rose by half over the 1970s and then fell by eight percent in the 1980s (shaded bars in Figure 5). Remarkably, in the 1990s, average American Indian incomes decoupled from federal spending trends as incomes on reservations grew by a third (three times the national rate) in a decade that saw American Indian spending fall behind comparable US levels (right-hand side of Figure 5).

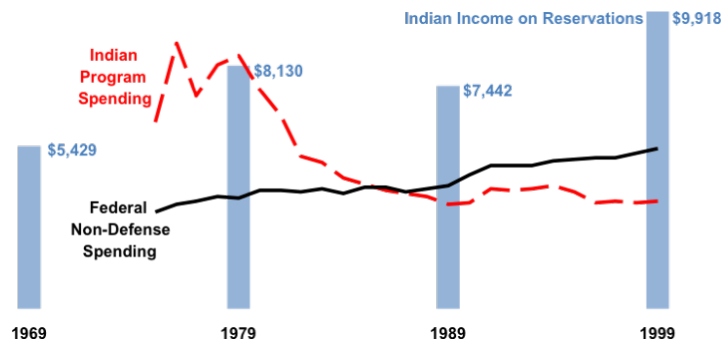


Figure 5. Income Change and Federal Funding, 2007 dollars per capita. (Taylor & Kalt, 2005; Walke, 2000)

Since reservation personal income approximates reservation economic growth, the conclusion can be drawn that American Indian reservation economies grew like never before under policies of self-determination. American Indian and national policy makers surely welcomed this trend—after all, American Indians on reservations have been the poorest class of Americans in census after census (e.g., Kalt & Singer, 2004). But policymakers had a right to be sober about the trend, too. At 1990s rates it would take more than half a century for American Indians on reservations to close the income gap with average Americans (Taylor & Kalt, 2005).

How much of this trend can be attributed to the development of tribal government gaming? At first impression, the presence of a gaming facility does not appear to drive income growth (or other socioeconomic change in the 1990s) as much as one might expect. Average income on reservations that pursued gaming by January 1, 2000 grew by thirty-six percent, whereas it grew by thirty percent on reservations without gaming (Taylor & Kalt, 2005). A closer examination of the data reveals that strong growth on a superlative reservation—the Navajo Nation—dominates the non-casino averages, so much so as to render the comparison a gaming-versus-Navajo comparison more than a gaming-versus-non-gaming comparison. Holding the very important question of what drove Navajo income growth during the decade for another day, a comparison of the remaining non-gaming reservations against those that developed gaming by 2000 indicates a significant but by no means overwhelming difference: thirty-six versus twenty-one percent growth (Table 2). Gaming is associated with socioeconomic improvement in the 1990s but lacking a gaming facility did not constrain

University Press. 2003.

tribes to mediocre rates of change. Reservations without gaming facilities witnessed poverty declines, income gains, unemployment declines, and other socioeconomic changes at multiples of the US rate of improvement (Table 2).

Table 2

*Socioeconomic Change on Indian Reservations, 1990 – 2000**

	Non-Gaming	Gaming	U.S.
Real per capita income	+21%	+36%	+11%
Median household income	+14%	+35%	+4%
Family poverty	-6.9	-11.8	-0.8
Child poverty	-8.1	-11.6	-1.7
Deep poverty**	-1.4	-3.4	-0.4
Public assistance**	+0.7	-1.6	+0.3
Unemployment	-1.8	-4.8	-0.5
Labor force participation	-1.6	+1.6	-1.3
Overcrowded homes**	-1.3	-0.1	+1.1
Homes lacking complete plumbing	-4.6	-3.3	-0.1
Homes lacking complete kitchen**	+1.3	-0.6	+0.2
College graduates	+1.7	+2.6	+4.2
High school or equivalency only	-0.3	+1.8	-1.4
Less than 9th grade education	-5.5	-6.3	-2.8

Note. Changes in points unless indicated as %. *Includes neither the Navajo Nation nor Oklahoma or other Tribal Statistical Areas. **Indicates all races data rather than American Indian / Alaska Native only. (Taylor & Kalt, 2005)

Averages mask variation, of course, and in income, reservation averages display a wide range in 1990 and even wider variation at the end of the decade (Figure 6). In the figure, the diagonal line shows income equality in the two censuses, that is to say, no growth after inflation. In 1990 a very apparent (and empty) horizontal gap lies between all reservations and the United States all-races average. In 2000 the (vertical) gap still remains pronounced for the bulk of reservations, but a few appear to be closing it. One reservation, the Morongo Reservation in California, even exceeded the US average in 2000.

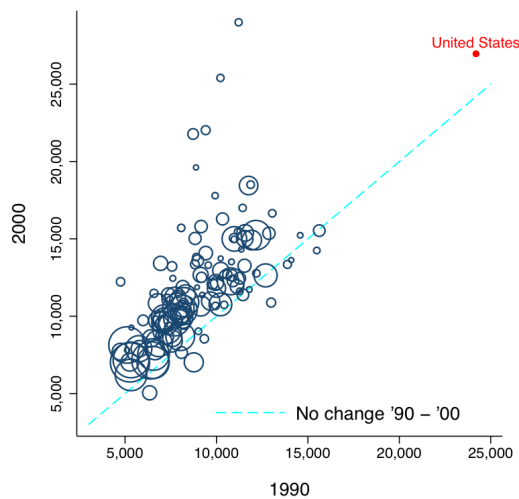


Figure 6. Average Indian Income on Reservations, in 2007 dollars.
Note. Markers scaled by 1990 Indian population. Reservations in the lower 48 states with Indian population greater than 150, not including Navajo. (US Census, 1990, 2000).

Of the 133 reservations shown, 117 are above the diagonal line—that is to say, they experienced income gains over the decade. These 117 reservations contain within them 97% of the 1990 on-reservation American Indian population. Even more hopefully, 106 reservations totaling 92% of on-reservation Indian population experienced income gains greater than the US average growth of 11 percent. The very top gainers are lightly populated reservations. The top five, for example, experienced more than a doubling in American Indian income, yet only one of those contained a population in excess of 1,000 Indians in 2000.¹³

The pat observation that “the rich get richer and the poor get poorer” has been applied to Indian Country, and a general perception persists that reservations with higher incomes have better opportunities to grow. Maybe they find themselves closer to large metropolitan areas and have more diverse opportunities, better access to markets, or easier access to university education. But the lay hypothesis that the “rich get richer” also neglects readily available evidence that growth rates often slow down as income rises: England’s income grows more slowly today than China’s. So what happened in Indian Country in the 1990s? Did the Indian nations that were better off in 1990 do better over the decade or was it the other way around?

The evidence from Figure 6 makes immediately clear that the designation “richer” must be understood across Indian Country to mean “less bad off.” The American Indians on the median reservation in 2000—Lac Courte Oreilles in Wisconsin—displayed average American Indian income of \$11,380 per person, less than half the US average of \$26,940 (in 2007 dollars). More to the question here, Figure 6 indicates that reservations with higher incomes in 1990 did not experience superior dollar gains over the 1990s. To put it in graphical terms, the vertical gains above the blue line are about constant across the span of 1990 starting points. Quantitatively, reservations witnessed an average gain of about \$3,000 per person, regardless of whether the reservations began the 1990s at \$5,000 per capita or \$12,000 per capita. On average, reservation income grew by a similar amount across the spectrum of starting incomes.

By definition, constant dollar gains across the spectrum imply higher growth *rates* at the low end, and Figure 7 makes this point clear by comparing 1990 income to growth from 1990 to 2000. It shows an inverse relationship between starting point and growth rates. On average, a ten percent lower average income in 1990 implied a 1.4 percent improvement in the decade’s growth.¹⁴ Thus, the assumption that uneven development privileges the “high end” gets it backward for Indian Country in the 1990s: the poorer reservations closed the gap at a faster pace than those that were better off. Interestingly, this trend is statistically indistinct between gaming and non-gaming tribes, suggesting that self-determination or another non-gaming feature of tribal government policies and American Indian economies is responsible for the “poor getting richer” at a faster pace.

In California, where the first tribal-state compacts were not ratified until 2000, the rate at which the economically-disadvantaged tribes surpassed the better off tribes during the 1990s was even more pronounced. Given the uncertain legality of tribal government gaming in California during the 1990’s, most tribal governments chose not to engage in gaming during that decade. Those tribes that did, however, were more likely to be in counties that were less well off than those counties where either there was not a tribal presence or the tribe(s) did not pursue un-compacted gaming. For example, tribal and non-Indian residents of gaming counties in the 1990’s earned less money, had less education and were more likely to reside in poor families than their non-gaming counterparts. Only 18% of the adult population in counties with the possibility of casino employment had college degrees, while 24% the population in counties without casino employment had college degrees. This trend suggests that tribal gaming in California first opened in the most impoverished areas of California and then expanded to relatively better off parts of the state. While perhaps more an unintended consequence than a policy decision, tribal government gaming in California in the 1990’s created employment and alleviated poverty in those areas of California that lagged the most behind the state averages, suggesting that tribal gaming first benefited those communities that needed it the most.¹⁵

13 Morongo (583 Indians), Mille Laes (972), Isabella (1,371), Soboba (438), and Fort McDowell (748). The ranks of the top twenty include some large tribes like Tohono O’odham in Arizona (9,800) and Yankton Sioux (2,700).

14 As measured by the ratio of 2000 income to 1990 income.

15 See “Lands of Opportunity: Social and Economic Effects of Tribal Gaming on Localities.” Policy

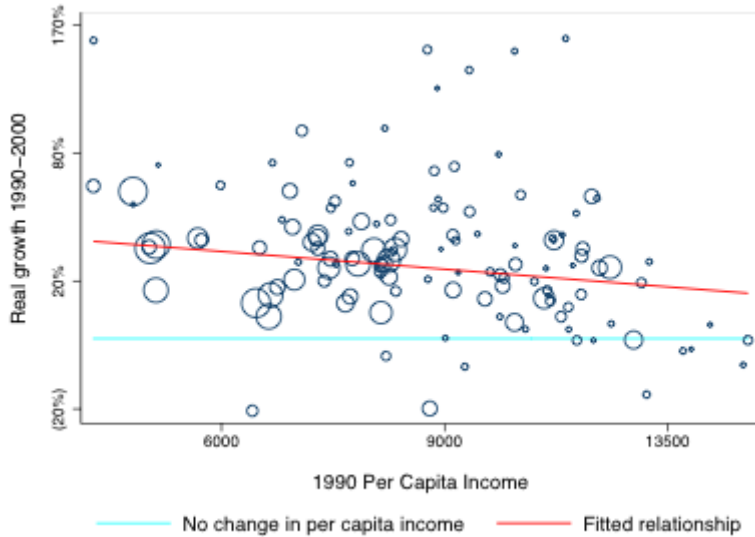


Figure 7. Income Growth and 1990 Income Starting Point, in 2007 dollars.
Note. Markers scaled by 1990 Indian population. Reservations in the lower 48 states with Indian population greater than 150, not including Navajo. Relationship fitted by weighted regression. (US Census, 1990, 2000).

Off-reservation population correlates positively with rising incomes (see Figure 8). On average, if a reservation had twice as many adults within fifty miles of its geographic center, it experienced income growth 1.7 percent greater.¹⁶ Perhaps proximity to large population centers correlates with growth because it provides the strength of economic variety, but the more dominant influence on reservation incomes appears to be access to larger consumer markets.

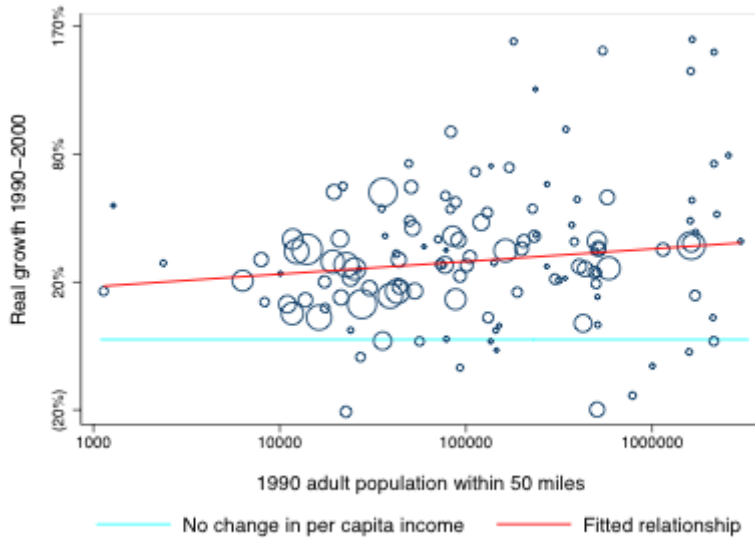


Figure 8. Income Growth and Population within Fifty Miles
Note. Markers scaled by 1990 Indian population. Reservations in the lower 48 states with Indian population greater than 150, not including Navajo. Relationship fitted by weighted regression. (US Census, 1990, 2000).

Matters, UC-Riverside. Summer, 2007.

16 Expressed as the ratio of 2000 income to 1990 income. Note that the variation in access to potential adult consumers is extraordinary: the maximum population within 50 miles is more than 2600 times larger than the minimum.

Among reservations without gaming (on the right-hand side Figure 9), population in proximity to a reservation demonstrates no systematic relationship with income growth.¹⁷ Yet for reservations that did have a casino by the end of the 2000 (on the left of Figure 9), the relationship between nearby population and income growth was strong: a casino reservation with double the nearby population experienced an average of 2.7% percent more income growth (rather than 1.7% per Figure 8). It must be said that the development of non-gaming amenities by particular Indian nations such as the construction of hunting and fishing lodges, concert arenas, or museums may also explain income growth moving with consumer access, but tribal government gaming as a new and quasi-monopolistic development in the 1990s clearly dominates other explanations. Despite gaming's strong influence, however the size of the consumer market within fifty miles does not explain much: the reservations are widely dispersed about the fitted lines. For the reservations with gaming, the fitted relationship explains only eight percent of the variation, and even provisionally controlling for college education levels, initial unemployment, and initial population size, more than four-fifths of the variation remains to be explained. Gaming and the correlates of its success explain less than one would expect and much more needs to be understood about the economic outcomes resulting from gaming.

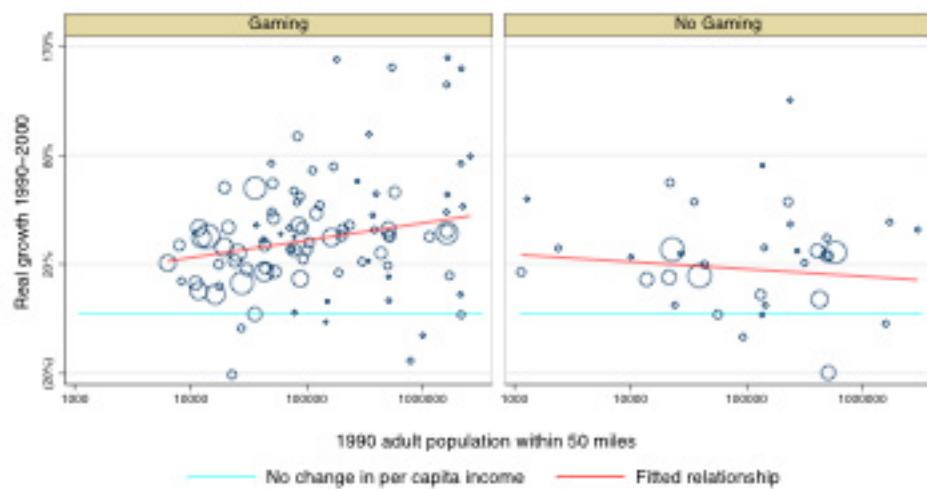


Figure 9. Nearby Population and Reservation Income Growth for Reservations with Casinos vs. Without Casinos.

Note. Markers scaled by 1990 Indian population. Reservations in the lower 48 states with Indian population greater than 150, not including Navajo. Relationship fitted by weighted regression. Fitted relationship for No Gaming was not statistically different from zero. (US Census, 1990, 2000).

IGRA and Non-Indian Incomes

A common misperception about tribal government gaming holds that that tribal gaming facilities draw economic vitality from the communities around them—that is to say, *draw down* the economic strength of non-Indian economies from which they attract customers. The arguments run from the easy-to-dismiss hypothetical thought experiment and the garbage-in, garbage-out computer forecast to the peer-reviewed, ex-post statistical analysis. On the basis of a hypothetical night on the town and its tax consequences, the Washington Research Council argued:

State and local governments have limited ability to collect taxes from activities on tribal lands. Money spent at non-taxed tribal businesses would, in the absence of those businesses, be spent in ways that generate state and local government revenue. The amount of foregone revenue is not trivial. (2002)

17 In statistical terms, the fit of the “fitted relationship” is indistinguishable from no relationship whatsoever, whereas the fit in Fig. 9 and in Fig. 10 and on the left-hand side of the Fig. 11 are statistically significant.

Economists working for the opponents of the Match-E-Be-Nash-She-Wish Tribe (the Gun Lake Band of Pottawatomi Indians) used a “sophisticated” computer model to conclude that while a proposed Gun Lake casino would bring growth to the surrounding Allegan County and southwest Michigan, the rest of Michigan—all of it—would experience recessionary GDP shrinkage in excess of the gains made in the southwest (Anderson, 2003).

Econometricians from Arizona State University West examined tax collections in Maricopa County over fifty months for structural changes and found “revenue leakages” indicating that “the introduction of Indian gaming may have shifted consumer spending from taxable to non-taxable sectors” (Anders, Siegel, & Yacoub, 1998). As they noted:

The major implication of this study is that because of lost tax revenue, the State of Arizona may be justified in attempting to renegotiate gaming compacts to share casino profits (1998).

These arguments and their more superficial counterparts emanating in lay opinion (e.g., Bennett as cited in Beebe, 2007; Esmonde, 2007) implicitly critique IGRA for imposing economic burdens on the communities around Indian reservations, but they do so with inadequate economic foundation. To begin, the line of argument bungles fundamental facts. Reservations are not inherently or universally free of state taxation. Tribes impose taxes. The bulk of putatively “untaxed” businesses on reservations are owned by governments (per IGRA, among other things), and tribal governments appropriate *all* revenues at their discretion. The “tax” rate is effectively 100%.

But what is the net effect of tribal government economic and social interdependence with local non-Indian communities? Detailed payroll and expenditure data from four diverse tribes in Washington State confirm that virtually all the payroll and more than three-quarters of the total of combined payroll and vendor outlays go to in-state households or businesses (Taylor, 2006). A statistical examination of 268 tax districts in Washington State over the period 1990 – 2003 finds no statistically discernible effect of the introduction of an Indian casino within 5 or 15 miles on a district’s taxable sales or property (Taylor, 2005). Across other localities, it appears that the gains to off-reservation economies of reservation purchasing and hiring are more than offset by the losses of customer discretionary spending to the casinos. Indeed, a growing body of evidence indicates no discernible harm and probably the reverse.

These findings cohere with other research associating casinos with economic vitality. As noted above, the bipartisan National Gambling Impact Study Commission (NGISC) solicited a meta-analysis of casino economic impact studies that found the direct and indirect effects were positive. A second NGISC-directed study performed by the University of Chicago found that, relative to communities that did not witness casino introductions in a sixteen-year period, communities within fifty miles of a casino introduction experienced:

- A 12% net decline in unemployment (approx. a one-point decline);
- A 13% net decline in income from income maintenance programs;
- A 17% net decline in income from unemployment insurance programs;
- A 3% net decline in income from other transfer payment programs
- No discernible net change in total incomes despite the decline in income from income maintenance and transfer programs; and
- No discernible change in business or non-business bankruptcy filings, in seven crime indicators, or in infant mortality (Gerstein, et al. 1999).

A subsequent refinement of that study identified the effect of Indian casino introductions on non-Indian communities and found that those non-Indian communities began the period of analysis systematically worse off and finished it better off (Figure 10).

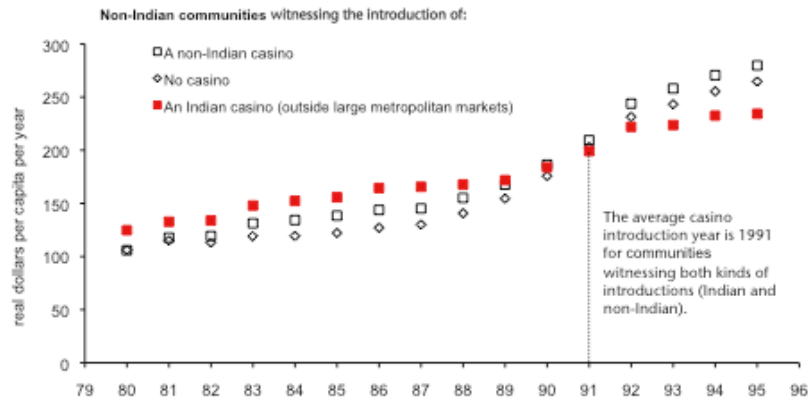


Figure 10. Average Income from Income Maintenance Programs. (Taylor, Krepps, & Wang, 2000)

In addition, the study by Anders, *et al.* (1998)—when its factual context is properly understood—actually undermines its own central conclusions and helps build the case that tribal government gaming generates positive off-reservation impacts. Anders *et al.* examined a variable of concern over time to see if statistically significant changes in its rise and fall could be identified. When they identified a statistically significant decline in transaction privilege tax (TPT) collections in Maricopa County in July and August of 1993 and noted that Arizona and three tribes in that county signed gaming compacts June of that summer, they concluded: “after casinos came on-line, forecasted revenues exceeded actual revenues” (353-4). The authors associated the decline in collections with the “introduction” of gaming.

Fatally for their analysis, however, casinos did not “come on-line” nor were they “introduced” in the summer of 1993. The Ft. McDowell casino opened in July of 1991 and in May of the subsequent year, federal agents closed the facility. Ft. McDowell reopened it in January of 1993. The casinos of the other two tribes under analysis did not open their casino doors until nearly a year later.

Figure 11 reproduces the authors’ central graph. The horizontal lines indicate 95% and 99% confidence levels for the hypothesis that actual collections have deviated from expectations. To the left of the vertical dotted line marked Jul-93, TPT collections meet expectations (TESTSTAT is below the 95% confidence line). To the right, collections are statistically different from expectations, and as the authors discuss in the text, collections are below expectations.

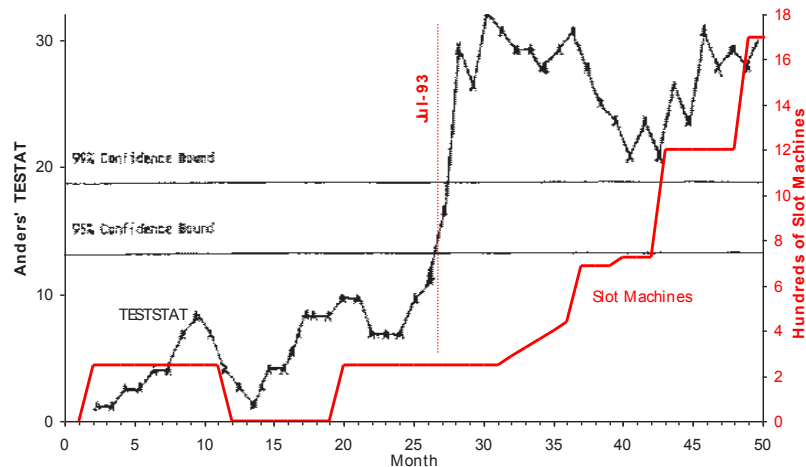


Figure 11. Arizona Tax Collections and Casino Capacity, Maricopa County, 7/90-12/96
 Note. The registration of the horizontal scale for Slot Machines and the Anders, *et al.* data may be off by one month. Discussion in the text and reproduction of Anders *et al.* (1998) Figure 1 from Taylor (2005).

The problem with the analysis appears when slot machine capacity available to consumers in open casinos (the solid line Slot Machines) is plotted against TESTSTAT. The bulk of capacity is not accessible to customers until *after* the threshold Anders, *et al.* identified. They misattributed a discovered threshold to Indian casinos, and at a minimum their conclusion must be discarded. It may even be the case that the conclusion should be reversed because when the vast bulk capacity eventually and *actually* “comes on-line,” TESTSTAT is unperturbed.

Altogether this evidence raises the empirical bar for those who allege that tribal government gaming facilities drain their neighbors’ economies and treasuries. Taken together, the evidence points to the opposite conclusion, namely that tribal gaming brings economic growth to the economies around Indian reservations. Given that gaming facilities are not distributed around the United States by the dictates of market forces (as malls, movie theaters, and fast-food restaurants are), one would expect places where casinos are to have more economic growth, if only because a gaming facilities can pull customers from a greater distance. American Indian reservations are often found in remote, rural areas with depressed economic environs to begin with, and thus are systematically more likely to bring growth than would otherwise be the case.

References

- American Gaming Association. (2000). *State of the states: The AGA survey of casino entertainment*. Washington, DC: American Gaming Association.
- American Gaming Association. (2008). *State of the states: The AGA survey of casino entertainment*. Washington, DC: American Gaming Association.
- Anders, G. C., Siegel, D., & Yacoub, M. (1998). Does Indian Casino Gambling Reduce State Revenues? Evidence from Arizona. *Contemporary Economic Policy*, XVI, 347-355.
- Anderson, P. L. C. C. S. W. S. D. (2003). *Market and economic impacts of a tribal casino in Wayland Township, Michigan*. Lansing, MI: Anderson Economic Group.
- Beebe, M. (2007, February 23). Seneca impact on WNY economy positive, study shows. *Buffalo News*.
- Bureau of Labor Statistics. (2007, 12/14/07). *Consumer Price Index, All Urban Consumers (CPI-U), US City Average*. Retrieved 12/17/2007
- Center for California Native Nations. (2006). *An impact analysis of tribal government gaming in California*. Riverside, CA: Center for California Native Nations.
- Christiansen, E. (1999, August). The United States 1998 gross annual wager. *International Gaming and Wagering Business*.
- Christiansen, E. (2000, August). The United States 1999 gross annual wager. *International Gaming and Wagering Business*.
- Cornell, S., Kalt, J. P., Krepps, M. B., & Taylor, J. B. (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.
- Eadington, W. R. (1999). The Economics of Casino Gambling. *Journal of Economic Perspectives*, 13(3), 173–192.
- Esmonde, D. (2007, October 5). Elephants in room with casino plan. *Buffalo News*.
- Gerstein, D., Volberg, R., Harwood, H., & Christiansen, E. (1999). *Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission*. Chicago, IL: National Opinion Research Center at the University of Chicago.
- Grant, K. W., Spilde, K. A., & Taylor, J. B. (2004). Social and Economic Consequences

- of Indian Gaming in Oklahoma. *American Indian Culture and Research Journal*, 28(2), 97-129.
- Grinols, E. L. (2004). *Gambling in America: Costs and Benefits*. Cambridge University Press.
- Harvard Project on American Indian Economic Development. (2008). Economic Development. In *The state of the Native nations: conditions under U.S. policies of self-determination* (pp. 111-143). New York: Oxford University Press.
- Henson, E. C., Taylor, J. B., Curtis, C. E. A., Cornell, S., Grant, K. W., Jorgensen, M. R., et al. (2008). *The State of the Native Nations: Conditions under U.S. Policies of Self-Determination*. New York: Oxford University Press, USA.
- Jackson, J. D., & Walker, D. M. (2007). Do Casinos Cause Economic Growth? *American Journal of Economics & Sociology*, 66(3), 593–607. doi:10.1111/j.1536-7150.2007.00528.x
- Kalt, J. P., & Singer, J. W. (2004). *Myths And Realities of Tribal Sovereignty: The Law And Economics Of Indian Self-Rule*. Cambridge, MA: Harvard Project on American Indian Economic Development.
- Marks, M., & Contreras, K. S. (2007, Summer). Lands of opportunity: Social and economic effects of tribal gaming on localities. *Policy Matters*.
- NGISC. (1999). *Final Report of the National Gambling Impact Study Commission*. Washington, DC: National Gambling Impact Study Commission.
- NIGC. (2008a). *Gaming revenues, 1999-2007*. Retrieved September 20, 2008, from <http://www.nigc.gov/Default.aspx?tabid=67>
- NIGC. (2008b). *NIGC announces 2007 Indian gaming revenues*. National Indian Gaming Commission.
- NIGC. (2008c). *NIGC Tribal Gaming Revenues*. Retrieved October 10, 2008, from <http://www.nigc.gov/Portals/0/NIGC%20Uploads/Tribal%20Data/gamingrevenues2007.pdf>
- Rose, A. (1998). *The regional economic impacts of casino gambling: Assessment of the literature and establishment of a research agenda*. State College, PA: Adam Rose and Associates.
- Rose, A. (2001). The regional economic impacts of casino gambling. In M. L. Lahr & R. E. Miller (Eds.), *Regional Science Perspectives in Economic Analysis : a Festschrift in Memory of Benjamin H. Stevens*. Amsterdam; New York: Elsevier.
- Skibine, A. T. (1997). Gaming on Indian reservations: Defining the trustee's duty in the wake of Seminole Tribe v. Florida. *Arizona State University Law Journal*, 29(121).
- Taylor, J. B. (2005). *Indian self-government in Washington, Vol. I, Tribal self-government and gaming policy: The outcomes for Indians and Washington State*. Cambridge, MA & Olympia, WA: Taylor Policy Group, Inc. and Washington Indian Gaming Association.
- Taylor, J. B. (2006). *Indian self-government in Washington, Vol. II: The character and effects of the Indian economy in Washington State*. Cambridge, MA & Olympia, WA: Taylor Policy Group, Inc. & Washington Indian Gaming Association.
- Taylor, J. B. (2007). *The Seneca Nation economy: Its foundations, size, and impact on New York and the western New York Region, 2005*. Cambridge, MA: Taylor Policy Group, Inc.
- Taylor, J. B., & Kalt, J. P. (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.

- Taylor, J. B., Krepps, M. B., & Wang, P. (2000). *The national evidence on the socioeconomic impacts of American Indian gaming on non-Indian communities*. Cambridge, MA: Harvard Project on American Indian Economic Development.
- The Associated Press. (2000). *A breakdown of Indian casino revenues*.
- Trosper, R. L. (1996). American Indian Poverty on Reservations, 1969-1989. In G. D. Sandefur, R. R. Rindfuss & B. Cohen (Eds.), *Changing numbers, changing needs: American Indian demography and public health* (pp. 172-195). Washington, DC: National Academy Press.
- US Census. (1990). *Census 1990 Summary Tape File 3*. Washington, DC: Bureau of the Census.
- US Census. (2000). *Census 2000 Summary File 3*. Washington, DC: Bureau of the Census.
- US GAO. (1997). *Tax policy: a profile of the Indian gaming industry (Vol. GAO/GGD-97-91)*. Washington, DC: US General Accounting Office.
- Walke, R. (2000). Indian-Related Federal Spending Trends, FY 1975-2001, US Congressional Research Service memorandum, March 1, 2000. In *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).
- Walker, D. M. (2007). *The Economics of Casino Gambling* (1st ed.). Springer.
- Walker, D. M., & Jackson, J. D. (1998). New Goods and Economic Growth: Evidence From Legalized Gambling. *Review of Regional Studies*, 28(2), 47-70.
- Walker, D. M., & Jackson, J. D. (1999). State Lotteries, Isolation and Economic Growth in the U.S. *Review of Urban and Regional Development Studies*, 11(3), 187-192.
- Washington Research Council. (2002). *Special Report: Untaxed and Lightly Regulated*. Seattle, WA: Washington Research Council.