



Does Tribal Gaming Generate Net Benefits?

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Abstract: Since the late 1980s, casino-style gaming has become an increasingly popular economic development strategy for federally-recognized tribes throughout the United States. What is the net effect of tribal gaming? According to economic theory, the opening of a casino could have negative economic ramifications that offset initial improvements in employment and wages. However, my research suggests otherwise. I find that tribal gaming is responsible for sustained improvements in employment and wages on federal reservations. These labor market gains appear to be concentrated on Indigenous people living on the host reservations. I also find evidence of rising prices on reservations that open casinos, but the average price increase is smaller than the average wage increase, suggesting that tribal gaming generates net benefits locally.

The Origins of Tribal Gaming

The historical origin of tribal gaming [dates back to pre-colonization](#), but the pivotal moment for gaming as an industry came in 1987 with the U.S. Supreme Court case that pitted the state of California against the Cabazon Band of Mission Indians in *Cabazon v. California*. The state sought to shut down the Cabazon Band's card room facilities. Ultimately, the Supreme Court ruled that state gambling laws were civil or regulatory, rather than criminal or prohibitory, which means that state statutes do not apply to tribal gaming operations taking place on homelands designated as federal Indian reservations. This ruling led to the passage of the 1988 [Indian Gaming Regulatory Act](#) (IGRA), which created the National Indian Gaming Commission and established a three-class system of regulation. After the passage of the IGRA, revenues from tribal gaming facilities increased rapidly as casinos opened up across the United States.

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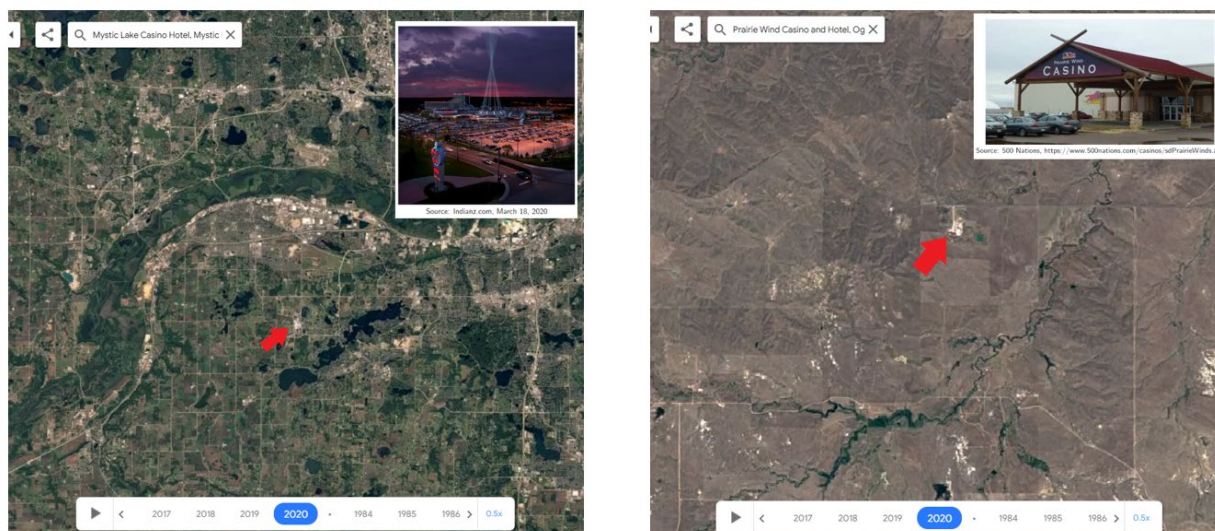


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Gaming has become the most important economic development strategy for tribal governments across the United States (Akee et al., 2015). Annual revenues from tribal government-owned gaming facilities now surpass revenues from all commercial gaming facilities in the United States. In 2019, tribally-owned casinos generated almost two times as much revenue as the 25 largest Las Vegas Strip casinos combined (National Indian Gaming Commission, 2020; Nevada Gaming Control Board, 2020). The size of the tribal gaming industry is all the more impressive considering that the industry is legally confined to federal reservations, which make up a small fraction of the geography of the United States.² How does an industry this large affect the well-being of Indigenous people and communities?

Image 1: Images of Tribally-owned Casinos and their Surroundings



Note: There is a great deal of variation across casinos in terms of size. Casino size tends to correspond to proximity to major metropolitan areas. For comparison, the Mystic Lake casino (left image) owned by the Shakopee Mdewakanton has 150,000 square feet of gaming space, whereas the Prairie Wind casino (right image) on Pine Ridge Reservation has only 30,000 square feet. Satellite images from 2020 were obtained from <https://earthengine.google.com/timelapse/>

Positive Economic Shocks and Local Well-Being

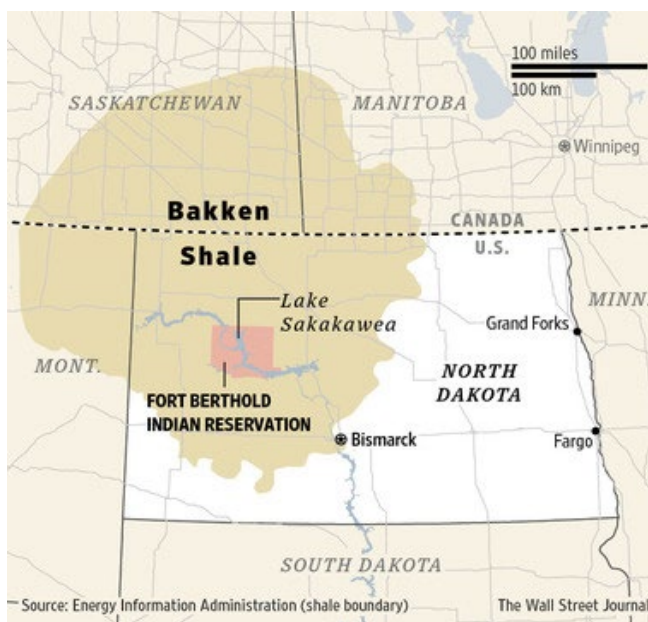
The relationship between economic shocks and well-being is complicated and perhaps best understood through an example. Let's consider some of the consequences of the Bakken shale oil boom across Western North Dakota. Fort Berthold Reservation, which is home to the Mandan, Hidatsa, and Arikara Nations, sits entirely on the Bakken shale formation (see Image 2). In the late 2000s, technological advancements in hydraulic fracturing revived an oil industry that had gone bust in the 1980s. As production surged, millions of dollars of tax revenue were generated, supporting investments in schools, infrastructure projects, and new housing developments. Increased demand for workers opened up thousands of new employment opportunities. But the oil boom was accompanied by a number of unintended negative effects, as well. For instance, the economic opportunities on and near Fort Berthold attracted workers from all over the country.³ Anecdotally, the new migrants precipitated [violence](#) and rising housing and food prices. In addition, the multibillion-dollar oil industry created inequities, leaving some tribal businesses [out of lucrative contracts](#). The oil boom also brought

² In the United States, approximately 7 in 10 federally recognized tribes in the lower 48 now have casino-style gaming on their lands.

³ In 2021, McKenzie County, which includes part of Fort Berthold, was the fastest growing county in the United States.

environmental hazards such as burst pipelines that [spilled oil and fracking chemicals](#) and [leaked millions of gallons of saltwater](#). Overreliance on the oil industry for tax revenues also proved to be a point of economic vulnerability, which was especially prominent when the coronavirus pandemic dramatically reduced demand for fossil fuels.⁴ Given the complex nature of this economic shock, was the average local resident of the Fort Berthold Reservation better off as a result of the oil boom? That is an empirical question.

Image 2: Fort Berthold Indian Reservation and the Bakken Shale Formation



Source: The Wall Street Journal (Feb. 28, 2013). *Shale-Oil Boom Divides Reservation*. [Image, screen capture.] Retrieved from: <https://www.wsj.com/articles/SB10001424127887323293704578331030315441350>

Of course, a comprehensive definition of well-being would draw on Indigenous Knowledge. It would define well-being in a holistic sense, considering all the various pillars of economic development, including control of assets, kinship, spirituality, and personal efficacy (Wuttunee, 2004). Well-being may also encompass things like cultural restoration and language revitalization. And, ideally, well-being should be differentially defined by communities depending on their priorities. Unfortunately, researchers who study the effects of economic shocks typically lack the tools to adequately capture all the changes in the various elements that comprise well-being. Instead, we construct a crude measure of well-being that compares changes in the different markets that may be affected.

Similar to an oil boom, the opening of a casino on a federal reservation represents a powerful economic shock that affects not only employment and wages but also housing prices and migration decisions. Drawing on economic theory, we would expect to see the following series of changes in response to the casino opening.⁵ First, the most immediate change would be an increase in nominal wages, as

⁴ For many resource-reliant nations, up to 90% of their tax base is provided by oil production. The production crash in 2014 was another event that underscored the risks associated with such a high degree of reliance on one industry.

⁵ This series of effects is particularly likely to be true in places where casinos provide a large share of the employment and tax revenue. In urban places, the general equilibrium effects of casinos may be more limited. When the gaming industry represents a small share of total employment in an area, wage changes tend to be concentrated within the gaming industry itself, thus muting the effect of the casino on the local markets in the area (Humphreys & Marchand, 2013).

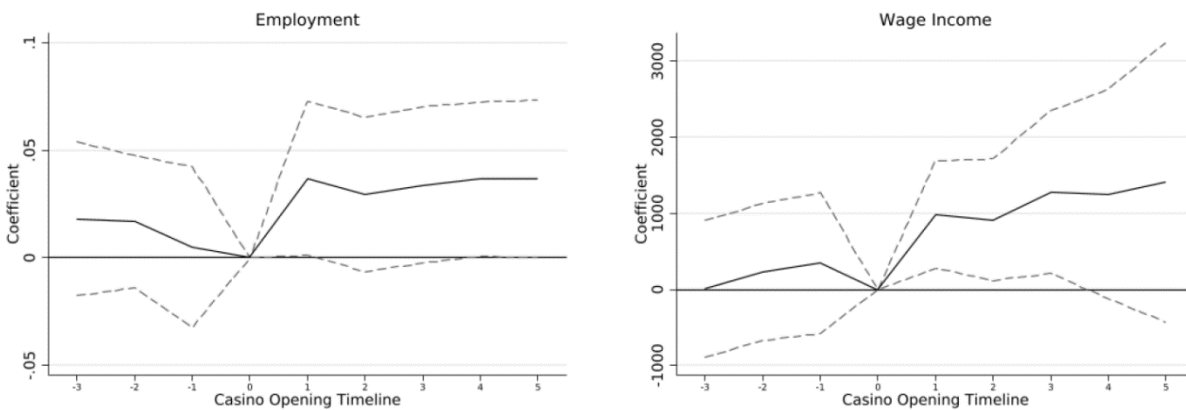
employers need to attract workers to staff the casino and related establishments. Higher wages and new employment opportunities will typically draw in workers from other places, leading to migration into the host community. Higher wages combined with a larger population base increases the demand for housing and other goods, putting upward pressure on prices. Economic models predict that the increase in the cost of living will more or less cancel out the benefit of the wage increase.⁶ Simply comparing the changes in the labor and the housing markets suggests that, in the long run, the opening of the casino may not actually benefit the local population.

Tribal Casinos and Local Well-Being: The Evidence

In the end, have members of tribal communities experienced net improvements in well-being due to casinos? Actually, my own research suggests the answer is yes. (Albeit, my research uses a narrow definition of well-being).

I use confidential Census microdata and data from a casino gaming database to examine the economic relationship between tribally-owned casinos and the labor market, the housing market, and population growth on federal reservations in the United States.⁷ I find that, on average, the opening of an Indigenous-owned casino increases long-run employment and wages on reservations by 2.4 percentage points and 5.6%, respectively.⁸ Figure 1 shows that the employment effect is initially large and persists over time (left panel), whereas the wage effect is initially large and actually continues to increase over time (right panel).

Figure 1: The Labor Market Effects of Casino Openings



Note: The graphs depict the results of an event study analysis that uses data from a sample of people living on federal reservations.⁹ The solid lines indicate the estimated effects of opening a casino at the time of opening (x=0) and years later. Each unit on the x-axis represents five years. The dashed lines show the confidence intervals.

⁶ Standard spatial equilibrium models would predict that the benefits of the economic shock would accrue to the owners of housing. This is in a world where workers are perfectly mobile and housing supply is inelastic (Kline & Moretti, 2014). In many ways, the assumptions of standard models may be unrealistic.

⁷ Casino gaming data are pieced together from other researchers who used public sources, namely CasinoCity.com.

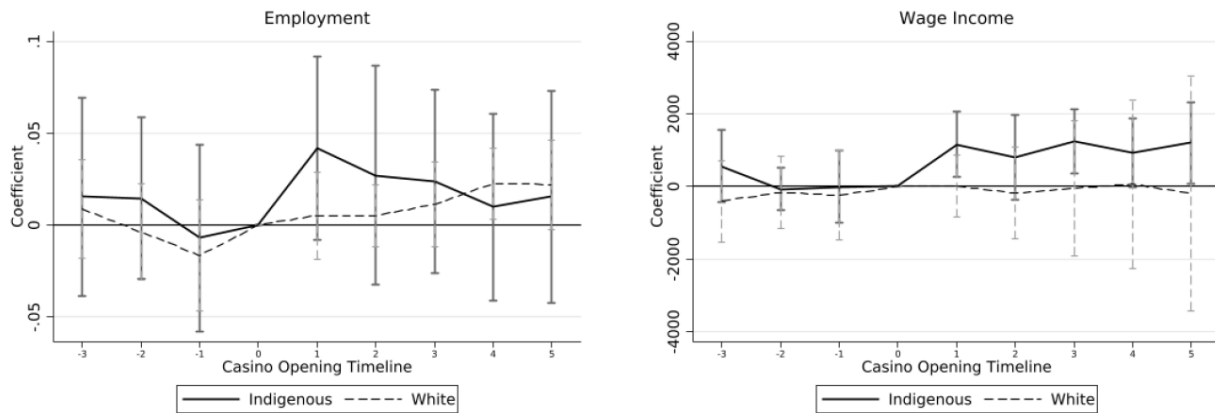
⁸ I define the “long run” as the average across all post-adoption time periods. The 5.6% increase in wage income is defined relative to the average wages of employed people living on reservations that never opened a casino during my sample timeframe. Those who are not in the labor force are considered unemployed. Wage income is in 2000 dollars and is winsorized at the 95th percentile.

⁹ The event study specification is $Y_{irt} = \sum_{k=-20}^{20} \gamma_k \delta_{k,rt} + \alpha_r + \alpha_t + X'_{irt} \cdot \gamma + \epsilon_{irt}$ where $\delta_{k,rt}$ is a time-since-implementation dummy that equals 1 if reservation r is k years relative to the casino opening and is equal to 0 otherwise. Years since implementation are grouped in five-year bins. The omitted category is the adoption or “event” year.

These results suggest that the local labor market effects of tribally-owned casinos are positive, meaningful, and long-lasting; however, these results don't tell us much about who benefits. Past research has shown that benefits of policies targeted at Indigenous communities may, in some cases, unintentionally accrue to non-Indigenous people (e.g., Pendakur & Pendakur, 2021; Aragon & Kessler, 2020). In the case of tribally-owned casinos, for example, non-Indigenous people living on or near the reservation may get hired to work at the casino and may experience a portion of the labor market benefits.¹⁰ On the other hand, tribal casinos may have preferential hiring practices that give Indigenous workers an advantage in the labor market.

To explore the question of who benefits, I study the labor market outcomes separately for Indigenous people and white people living on the reservation.¹¹ The results are shown in Figure 2. As you can see, the confidence intervals are large, which means that I cannot detect differences between the population groups with statistical certainty; however, the figures paint a suggestive picture. Figure 2 suggests that the positive employment and wage effects are being driven by the Indigenous population on the reservation, not by the white population.

Figure 2: The Labor Market Effects of Casino Openings by Race



Note: The graphs depict the results of an event study analysis that uses data from a sample of people living on federal reservations. The lines indicate the estimated effects of opening a casino at the time of opening ($x=0$) and years later. The solid, dark lines indicate the estimates for Indigenous people living on the reservation, and the dashed lines indicate the estimates for white people living on the reservation. The vertical bars show the confidence intervals. Each unit on the x-axis represents five years.

So far, we've seen evidence that tribally-owned casinos have positive effects on the labor market, both in the short and long run, and that these effects appear to be driven by Indigenous people living on the reservation. But these results don't tell us about well-being. In order to say something about well-being, we need to know the net effect of opening a casino. One specific concern is that the opening of a casino may induce migration from surrounding areas, thereby increasing the price of consumption goods such as housing. Based on my analysis, casino openings do have an effect on the housing market. The opening of a casino changes the housing composition on a reservation such that the rate of

¹⁰ Due to historical legislation, a fraction of land on federal reservations in the United States is associated with fee simple ownership, meaning broadly that ownership rights can be transferred to anyone, irrespective of tribal membership. From my data, I observe that approximately 50% of the people living on reservations in my sample are white. The white people living on reservations get paid higher wages on average (\$16,000 versus \$9,000) and are more likely to be employed (55% versus 39% employed) than the Indigenous people on reservations.

¹¹ According to my data, almost everyone who lives on reservations identifies as either Indigenous or white. Other race groups are not well represented and therefore not included in this subgroup analysis.

homeownership decreases 5.3 percentage points and the rate of renting or occupying housing without paying increases by 3.8 and 1.5 percentage points, respectively. In addition, rental prices increase in response to casino openings. I find that the opening of a casino is associated with a 4% increase in rental price.¹²

If casinos increase wages but also increase the price of housing, do they actually improve the living standards of people living on reservations? Real wages provide a measure of the net effect of casinos on well-being. Real wages are calculated by subtracting the increase in rental prices from the increase in nominal wages. Using this method, I find evidence of a net positive effect associated with the casino shock. In other words, my research indicates that tribally-owned casinos do improve well-being, as I have narrowly defined well-being. In fact, my calculations suggest that tribally-owned casinos are responsible for a 3.7-5.2% increase in the welfare of people living on the reservations where the casinos open.

Finally, although tribally-owned casinos have large impacts on reservations, I find little evidence to suggest that these casinos significantly affect the markets in the surrounding counties. In my research, I test whether the opening of a casino on a reservation has a spillover effect on the part of the county that surrounds the reservation. By and large, the effects of the casino appear to be contained to the markets within the borders of the reservations.¹³

The Institutional Context Matters

How does tribal gaming result in such uniquely concentrated benefits for Indigenous people living in host communities? The answer to that question is beyond the scope of my research, but there are a number of institutional features that are likely important.

In many respects, the IGRA was designed specifically to foster local economic development. The Cabazon decision explicitly acknowledges that tribal gaming would be a source of revenue for the provision of essential government services. The case law states that “The Cabazon and Morongo Reservations contain no natural resources which can be exploited,” recognizing that not all reservations are rich in oil like the example of Fort Berthold. To ensure that tribal gaming would promote sustainable, local economic development, the IGRA stipulates that Indigenous gaming operations must be owned by tribal governments and operated within the confines of the reservation. Also, the IGRA requires that net revenues from “any tribal gaming” are used specifically to improve tribal welfare.¹⁴ Qualitatively, we know that gaming revenues tend to be invested in anti-poverty programs and tribal services (e.g., Akee et al., 2015). One of the most common investments has been in education. For instance, the Osage Nation started offering college scholarships funded by gaming revenues, and the Cherokee instituted language revitalization programs.

¹² This is a 4% increase in rental price relative to the mean rental price for renters living on reservations that did not open casinos. In a separate analysis, I perform a decomposition and find that the increase in rental price is being driven by an increase in the rate of renting (the extensive margin) rather than by an increase in the price paid conditional on renting (the intensive margin).

¹³ These effects are estimated for a full sample of counties bordering federal reservations in the United States, including urban and rural counties. When I restrict analysis to counties that are rural in nature, I find that the casino opening on the reservation does have labor and housing market effects on the surrounding county.

¹⁴ The Court has consistently demonstrated a preference for economic activities that would take place on the reservation and reflect a long-term commitment to economic development. In *Washington v. Confederated Tribes of the Colville Indian Reservation*, Judge McKay wrote that “tribes do have an interest in raising revenues for essential governmental programs, [and] that interest is strongest when the revenues are derived from value generated on the reservation by activities involving the tribes and when the taxpayer is the recipient of tribal services.”

There are several other ways in which tribal governments have leveraged casino shocks specifically to benefit their communities. For example, some tribal casinos may institute preferential hiring practices, a move that has its legal basis in the sovereignty of Native Nations. Unemployment on federal reservations has been persistently high relative to the United States average.¹⁵ To target employment benefits at tribal members, some tribal casinos such as the Mohegan Sun have [express preferences](#) for hiring Native American applicants. Hiring preferences could explain the differential employment and wage effects by race that I found in my research, although I don't have employment data from the casinos themselves. As another example, many gaming tribes have used casino revenues to improve access to finance within their communities. Casino revenues improve a tribe's credit rating, which reduces the cost of capital. The Seneca Gaming Corporation, for instance, has significantly reduced the current cost of capital for the Seneca Nation by [refinancing its \\$500 million bonds](#), propelling the community closer to their goals of economic self-sufficiency.

To a certain extent, the IGRA upholds the autonomy of tribal nations to enter into the gaming industry and decide how to invest their revenues for the benefit of their community members. But there are limits to this autonomy – limits that are particularly evident when tribal governments want to open casinos rather than smaller gaming facilities. Casino-style gaming falls under Class III of the IGRA's three-class system of regulations. Because Class III gaming is perceived to be the biggest competitive threat to commercial casinos, the IGRA requires that compacts are negotiated between tribes and the state where the facility will be located. Although in principle both parties enter into negotiations as distinct sovereigns, in practice states assume a gatekeeping role. Before a tribe can open a casino, the state must agree to the terms. In recent years, there have been several high-profile disputes over the terms of tribal-state compacts (see, for example, the [Seneca Nation v. New York](#) or [the disputes in Oklahoma](#)), suggesting that the terms of tribal-state compacts can be contentious. Compacts may put limits on the size of tribal casinos or may include provisions to offset anticipated negative effects of gaming, such as investments in gambling addiction programs. The balance of bargaining power varies across states, so we would expect to see benefits of tribal gaming vary as well.

The Promise and Limits of Casinos

For many tribal governments, casinos represent economic opportunities capable of benefitting the local population. And, according to my research, it appears they are effective in doing so. Casinos are not, however, a universal economic panacea. Contrary to common misconception, tribally-owned casinos are not "get-rich-quick" strategies (see, for example, "[The Myth of Indian Casino Riches](#)" by Dwanna L. Robertson). In fact, we have seen some of the vulnerabilities of the leisure and hospitality sector during the covid-19 pandemic (see [my blog post from 2021](#)). In addition, not all tribal communities have gaming operations. Approximately 30% of federally recognized tribes have been unable to enter into the industry (see [Maine's federally recognized tribes](#)) or have opted for alternative economic development strategies. Sometimes, gaming does not make sense based on lack of proximity to a major population base. With all the appropriate caveats, my research provides some small insights into the huge potential of Indigenous-led economic shocks in Indigenous communities.

Tribal gaming is a tribal government innovation. Support of, and resources for, Indigenous-led economic development strategies like casinos would be considered part of economic reconciliation.

¹⁵ According to data from the US Census Bureau, in 1980, less than 40% of working-age adults living on federal reservations in the United States held full-time employment. By 2014, that percentage had risen to approximately 50%. At least some portion of that increase can be attributed to casinos.

Indigenous economic reconciliation has various definitions, but included in all definitions is the theme of well-being - through wealth creation and sustainability. According to my research, tribally-owned casinos on average do promote Indigenous well-being both in the short and long run.

Laurel Wheeler is an Assistant Professor in the Department of Economics at the University of Alberta. As a labor and development economist, her research addresses issues of poverty and inequality in low-income countries and in North America. Her current research agenda focuses largely on the economic activities of Indigenous populations in Canada and the United States.

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