Islands of Labor: Reservation Labor Markets and American Indian Well-Being

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Abstract

It has been a generation since the last systematic examination of Native socio-economic well-being. Since then, several important developments have proliferated across Indian country, including Indian gaming, energy projects, expanded social and health services, new forms of tribal governance, and the advent of tribal colleges.

Traditionally, labor market research regarded American Indian populations as subject to the same market forces as other traditionally disadvantaged populations. The resulting assumption is that the theory and conclusions that apply to other minority populations must also apply to Indians. This may be true in some areas, but in others, distinct institutional and policy features of Native labor markets create unique challenges that impact Indian well-being. This project explores the interplay between reservation labor markets, tribal policy, and Native economic health.

Results suggest that Indian poverty is largely driven by employment and wages. Given this reliance on labor market factors, the second part of the report examines whether tribal job innovations, particularly Indian gaming and energy development, are creating jobs and alleviating poverty. Results suggest that, while both initiatives effectively create reservation jobs, both fail to create lasting jobs that pull workers out of poverty.

INTRODUCTION

Surprisingly, researchers know very little about economic conditions facing American Indians today, perhaps because a generation has passed since the last large-scale empirical examination of Native American well-being.[b]

At that time, the Indian Self-Determination Act was in its infancy. Prior to its enactment, tribes had little say as to how federal funding and welfare programs were administered. Following enactment, however, the expansion of tribal sovereignty manifested as changes in tribal institutions and policies. Indian nations rewrote their constitutions, generated their own tax and business regulatory structures, determined their welfare system, remade school curricula, and gained control over the use of tribal land.[1]

Since then, several important developments have proliferated across Indian country, including Indian gaming, energy projects, expanded social and health services, new forms of tribal governance, and the advent of tribal colleges.

Three of these, in particular, might be expected to bring about fundamental change in the social and economic position of American Indians.

Tribal Job Initiatives: Tribes greatly expanded the use of treaty-protected land to include projects designed to bring jobs to reservations, such as casinos and other forms of Indian gaming, energy projects, and tribal-corporate partnerships. Because tribes control their land, they are able to utilize labor market policy to determine which businesses and industries will operate on homelands. As the majority of reservation land is rural, the ability to attract jobs could have a significant impact on economic development.[2] Rural areas still lag behind more urbanized areas in terms of educational attainment, employment opportunities, and wages.[3]

Welfare Programs and Services: During the past several decades, the Bureau of Indian Affairs restructured the manner in which government services are provided to tribes. The service relationship is now seen as much more of a partnership, rather than a hierarchical dissemination of

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[b]Snipp (1989) used 1980 census data to examine a broad range of American Indian economic and demographic characteristics.

funds. Additionally, increased sovereignty allows tribes to utilize tribal revenues as they deem necessary. As a result, tribal governments now offer a large assortment of programs, such as education grants, job training, child care, and tribal high schools.

Ruralization and Segregation: Despite a decrease in residential segregation among African-Americans over the past few decades, [4c] there is little evidence that American Indians experienced a similar trend. To the contrary, more Indians live on reservations now than thirty years ago. Data from the American Community Survey show the proportion of all Indians living in rural areas increased from about 55 percent in 1980 to 70 percent in 2014.

This project examines the ways in which changing tribal structures and processes are impacting American Indian well-being and inequality. The question is deceptively simple – what is the current state of inequality among Natives, and what is driving the trend? The question is complicated, however, by the unique position of tribal economies in the broader economic and political environment. Traditionally, labor market research regarded American Indian populations as subject to the same market forces as other traditionally disadvantaged populations.[5] The resulting assumption is that the theory and conclusions that apply to other minority populations must also apply to Indians. This may be true in some areas, but in others, distinct institutional and policy features of Native labor markets create unique challenges that impact Indian well-being. This project explores the interplay between reservation labor markets, tribal policy, and Native economic health.

As a result of the larger changes and trends affecting Native communities, one of three possible results is likely:

Upward mobility model. This model posits a shrinking gap between American Indians and whites, as the overall well-being of American Indians improves. The Bureau of Indian Affairs relegated some control to the tribes, allowing them to take a more active hand in their own tribal social and health services. Additionally, through the tribal recognition process, the Department of

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[c] Although some authors argue that Black-white residential segregation remains high (e.g. Charles2003).

the Interior promotes formalized tribal structures. The advent of tribal colleges increases access to higher education.[6]

Stasis model. This model suggests that tribal services and development initiatives may prove to be too narrow to overcome the entrenched institutional problems facing Native Americans. Many key indicators of economic well-being suggest that Natives still show signs of an economic disadvantage similar to that of African-Americans.[7] Indian labor market participation is lower than it was in 1980, and wages have declined relative to whites (74% of white wages then, compared to 61% now). Even in an era when black residential segregation continues to decline[8], there is no evidence of decreasing Indian segregation. More than half of all Indians continue to live in rural areas and reservations continue to be geographically separate from other populated areas. This not only reduces contact between whites and Indians, but also increases the distance between Indians and the goods, services, and jobs that compose the larger economy. Finally, assimilation may actually have been hindered by the long history of government termination policies designed to acculturate Indians into larger society by force. Such policies may have left Indians with a specific cultural stigma against assimilation[9]. The development of Pan-Indian ethnic identity has also played a part, helping to shape urban Indian social life, by allowing Indians from different tribes who are dispersed throughout urban areas to still feel a cultural connection to one another and engage in culturally reinforcing behaviors.[10]

Rising inequality model. Gains experienced by American Indians may be concentrated principally among a small number of beneficiaries, as a result of new forms of closure and new opportunities for collecting rent. The advancement of sovereignty and self-determination allowed tribal governments greater control over resources, resulting in the advent of development initiatives, such as Indian gaming, energy, and control over the use of tribal land.[11] Some tribes may be better situated to take advantage of these trends, while others remain mired in situations reminiscent of the Indian experience from half a century ago. If the model holds, results will show an increase of within-Indian inequality, particularly by tribal affiliation. The analyses decompose between- and within-tribe inequality.

This report begins by outlining the primary forces driving Native economic well-being, particularly Native poverty. Poverty is examined for three reasons. First, poverty captures many

aspects of disadvantage and has numerous implications for health, happiness, and well-being. Poverty has also long been a key feature in the discourse surrounding Indians well-being. Lakota holy man Black Elk spoke of the Indian people specifically as a nation of despair and poverty.[12] Finally, one of the specific goals of self-determination was the reduce poverty on reservations, and sufficient time has passed to test its effectiveness.[13] Results show that employment plays a surprising large role in alleviating Native poverty, particularly reservation poverty.

Given this reliance on jobs and employment, the second part of the report examines whether tribal job innovations, particularly Indian gaming and energy development, are creating jobs and alleviating poverty. Results suggest that, while both initiatives effectively create reservation jobs, both fail to create lasting jobs that pull workers out of poverty.

PART I: WHAT DRIVES INDIAN POVERTY?

Over the last three decades, growth in Indian educational attainment has exceeded white growth.[d] Despite this achievement, in 2014, an estimated 710,293 American Indian families, approximately 28.3 percent of the Indian population lived below the official federal poverty line.[e] While Indian poverty began the 1950's nearly ten percentage points higher than African-American poverty, Native poverty dropped markedly and has mirrored Black poverty fairly consistently since the 1970's (see figure 1). In general, Indian poverty declined during the last two decades of the last century, and was fairly stable for the first five years of the 21st century. However, Indian poverty has increased since the start of the Great Recession and Indian poverty now exceeds 33 percent. Over the course of the recession, Indians lost all gains made in 30 years.

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[d] Source: American Community Survey and U.S. Census, 1970-2014.
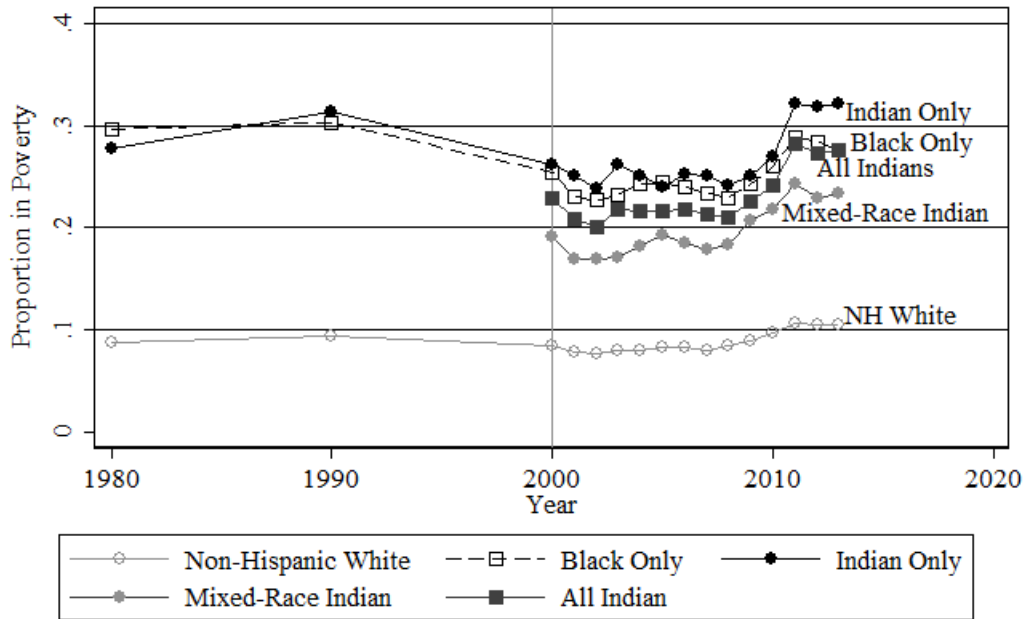[e] Source: American Community Survey, 2014.

Figure 1. - Poverty Rates based on the Official Poverty Measure, by Race, 1980-2013.

Notes. Rates for 1980-2000 come from Census 5 percent micro-sample. Rates for 2001-2013 come from 1-year estimates of the American Community Survey. American Indian identification varies prior to 2000.

Native well-being has deteriorated more than that of whites. The growth in Indian poverty exceeded the growth in poverty among non-Hispanic whites. Since 2000, white poverty grew by 2 percent while Indian poverty growth more than doubled that, increasing by 4.9 percentage points.

The proportion of individuals in poverty differ across Indian populations. In 2013, 27.7 percent of all Indians were in poverty and an additional 13.1 percent were 150% above poverty, which is strikingly similar to African-American rates in that same year. However, among this group, those identifying as Indian only were 27% more likely to be in poverty than mixed-raced Indians.
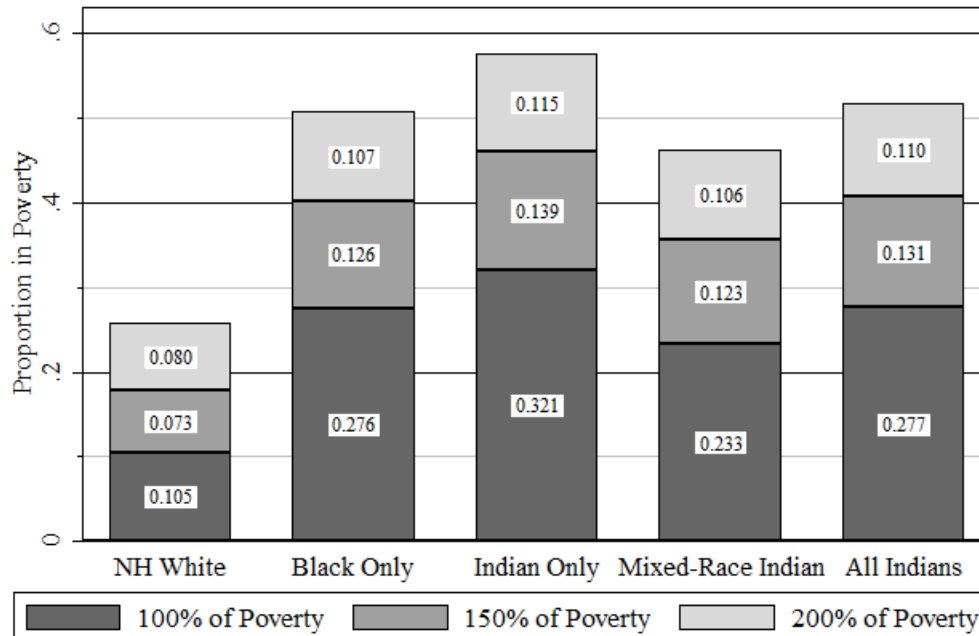
Figure 2. - Family Income as Percent of Official Poverty Threshold, by Race, 2013.

Notes. Rates come from 1-year estimates of the American Community Survey.

Part of this trend may be the result of location. Approximately 65 percent of Indians identifying as 'Indian only' live on or in close proximity to reservations.[f] In contrast, less than 30 percent of mixed-race Indians live in these areas. By and large, reservations tend to be centered in non-metropolitan areas. Only 28 percent of reservation residents live in close proximity to metropolitan areas. This is in stark contrast to whites, 67 percent of whom live in metropolitan areas, and Blacks, 82 percent of whom live in cities. To the extent that reservations have high unemployment, low-paying jobs, and low access to higher education, this will increase poverty among Indians living in these areas.

Similarly, labor force participation among American Indians increased only minimally in the last two decades of the 20th century and has declined sharply since 2000. There are now fewer Indians in the full-time labor force than there have been since the late 1970's.[g]

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[f] Source: American Community Survey, 2014.
[g] Source: American Community Survey and U.S. Census, 1970-2014.

This section explores Indian poverty and determines to what extent Indian poverty rates are related to employment outcomes and which other factors play an important role in determining which Indian families are scraping to survive.

Poverty in Native America

In 2015, a family of four making $24,250 ($2,021 monthly) would sit at the official poverty threshold.[h] Working at the federal minimum wage of $7.25 an hour, an individual would have to work 64 hours per week, or a little over 9 hours per day, seven days per week, 52 weeks per year to sit at the poverty line. Nationwide two-thirds of working Indians (more than 1,461,000) are working at or under the federal minimum wage. Of these, 95 percent fall below the poverty line.[i] Roughly 24 percent of employed adult Indians in poverty work at part-time, and of these nearly one-third are in poverty.[j]

There are several reasons to believe that the official poverty threshold does not adequately capture who is poor in America. First, the thresholds used to determine poverty status were developed almost half a century ago and, aside from adjustments for inflation, have never been updated for changes in the economic circumstances or living standards of American households. While median income rose slightly over this period, the poverty threshold has lagged behind, meaning that, by definition, the poor are falling further behind the middle class.[14] In 1960, the poverty line for a family of four was half of median family income, now it is less than a third.[15]

Nevertheless, there is strong evidence of a relationship between prevailing wages and the poverty rate.[16] This is in part because labor market earnings are the main source of income for poor households. In 2008, nearly two-thirds of the money income received by families in poverty came from wages, salaries, and self-employment income. In contrast, 15 percent came from Social Security and only 11 percent came from cash assistance.[17]

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[h] See the U.S. Federal Register for full threshold guidelines (https://aspe.hhs.gov/2015-poverty-guidelines).
[i] Source: American Community Survey, 2014.
[j] Source: American Community Survey, 2014.

Nationally, the poverty rate strongly correlates with median earnings of full-time working adult men.[k][18] The unemployment rate also has a modest effect on the poverty rate.[19]

Between 1960 and 2014, more than 60 of the variation in the poverty rate can consistently be explained by men's earnings and unemployment.[20] This is in part because unemployment and median wages are measures of the general health of the economy. In fact, it is highly unlikely that the median earnings of full-time/year-round workers directly affect the poverty rate. Rather, it suggests that when wages are high, low-skill workers are more likely to earn enough to lift their families out of poverty.[21]

Fluctuations in wages at the bottom end of the wage distribution are more likely to directly impact poverty. Indeed, the 10th percentile of men's earnings, or the 10-50 percentile gap (which may more accurately capture the shape of wages in the bottom half of the distribution), have an even greater explanatory power, suggesting that wage increases, particularly at the lower end of the wage distribution, have a direct effect on poverty beyond simply a strong economy raising all boats.

The Weakening Relationship Between Poverty and Jobs

In principle, a strong labor market could reduce the poverty rate by raising the wages of poor workers, allowing those who are already working to increase their hours, and increasing access to employment among those willing to work but unable to find employment.[22] If this relationship worked perfectly, then enduring solutions to poverty could be created solely by economic growth. Recent labor market expansions, though similar in both magnitude and duration to the 1960s expansions, do not cut poverty as much as would be expected. From 1962 to 1969, employment grew 4.7 percentage points, and poverty fell 9.8 points, more than twice the employment growth. In contrast, during the mid-1980s, despite significant labor market expansion, poverty fell far less.[23]

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[k] The use of men's earning is not because women's earnings are unimportant for lifting families out of poverty, but because men's earnings are a better indicator of the state of the labor market. The earnings of women have changed a great deal in part because of changes in who is in the labor market and their labor force attachment. Of course, this is true of men as well, but to a lesser degree.

Thus, there is mounting evidence that suggests that work is becoming decreasingly detached from earning a living wage. Economic returns to employment in general,, and experience specifically, have declined over the past several decades.

Those who did not complete high school experienced a 30% decline in real wages,[24] and the wage gap between college graduates and non–college graduates increased from 20% in the 1950s to 83% by 1990.[25] Rising wage inequality has been attributed, in part, to economic restructuring in which jobs for semiskilled workers in manufacturing have declined, relative to both highly paid professional occupations at the top of the pay scale and dead-end service sector jobs at the bottom.[26]

The Great Recession has exacerbated this trend, as employment losses have been most severe in middle-skill jobs, both in the white-collar and blue-collar sectors.[27] The higher prevalence of jobs at the bottom should help the poor, but what is unclear is whether the associated hollowing out in the middle increases competition for lower-wage jobs, increasing unemployment, and thus may be driving down wages for low-skill employment.

Even if a low-skill job is acquired, it will not be poverty-reducing, unless it delivers enough in the way of wages (or employment-dependent public assistance transfers) to push the recipient over the poverty threshold. Over the last 40 years, the wages of low-skill jobs have been stagnant for a number of reasons, including the declining real value of the minimum wage, resulting in fewer jobs that provided an above-poverty wage. Recent studies have shown that a $100 reduction in the real weekly wage among workers in the bottom 20 percent of the income distribution reduces the annual probability of escaping poverty by about 15 percent.[28] The declining payoff to work could also reduce the incentive to work at all, which may in turn lead to a deterioration of skills, further reducing the likelihood of escaping poverty.[29]

Poverty is ultimately a family level condition, and therefore who lives in the household can be an important determinant of the likelihood of living in poverty. Parental marital status is closely tied to poverty because single-parent families have just one potential earner.[30] [31] This is particularly true of female headed households because of the tendency for women to earn less than comparable men, and because single mothers are less likely than married parents to be working full time. Maternal employment, even in dual-earner households, has become increasingly

important for lifting families out of poverty. While wages have stagnated, levels of real family income increased over the past few decades because more women entered the labor force.[32] Children also strain the pocket book, and while recent declines in fertility occurred across all income groups, about one quarter of the increase in poverty during the 1980s was due to the growing differential in family size between poor and non-poor families.[33] Differences in family structure account, in part, for differences in poverty rates across racial and ethnic groups.[34]

Poverty in Native America

Half of all Indians in poverty are female, 37 percent have less than a high school education, and 50 percent live on or near a reservation. Figure 3 shows the probability that a person with a certain characteristic lives below the poverty threshold. Many of these measures shown are well established correlates to poverty including household composition, educational and employment outcomes, occupation, wages, and job experience.

Nearly 30 percent of Indian women live in poverty. Of those with less than a high school education, 40 percent are at or below the poverty line.[1] Among those with no job experience, about 40 percent are in poverty. Indians working in service occupations have the highest rate of poverty. More than 30 percent of Indians living on or near a reservation live in poverty.

Many of these numbers are strikingly similar to rates of poverty among Blacks. To the extent that these characteristics increase the chances of a family living in poverty, the fact that Blacks and Indians have similar likelihoods of living in poverty suggests that, despite their different circumstances, the underlying causes of poverty may be highly similar. The causes of black poverty have been more thoroughly explored by researchers. Speculated causes of Black poverty include racial segregation and lack of well-paying jobs in poor urban areas.

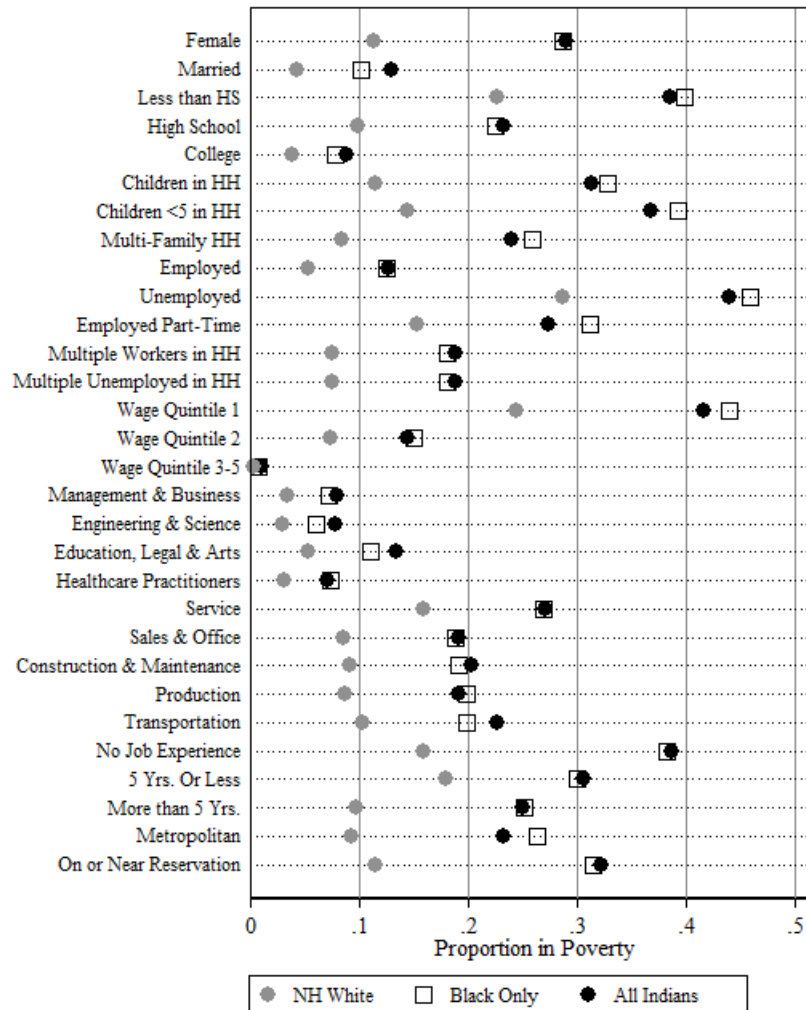[1] Source: American Community Survey, 2014.

Figure 3. - Probability of Being in Poverty, by Race, 2013.

Note. Rates come from 1-year estimates of the American Community Survey.

Does Composition and Achievement Drive Native Poverty?

To determine what is driving Indian poverty, this analysis begins by assessing the impact of the composition of the Indian population. The analysis examines two related questions about the size of compositional effects on poverty rates. First, Figure 4 assesses the effects of changing composition on Indian poverty. This is done by taking a trait, for example geographic area of residence, and determining what the 2013 poverty rate would have been had the proportion of Indians with that trait remained unchanged since the 1980s (see methodologic appendix for details). In the case of geographic area of residence, there has been an increase in Indians living on the reservation and leaving metropolitan areas since the 1980s. Because poverty is higher in

rural and reservation areas, had this shift not occurred, Indian poverty would be about five percent lower than it is today. This analysis makes the assumption that the subpopulation risk of poverty, for any given characteristic, may have changed over time. In other words, the ability of off-reservation living to pull a resident out of poverty is held constant at its 2013 level, while only the proportion of Indians living on the reservation is adjusted to its 1980 level. Table 1 lists the characteristics analyzed in each of the seven counterfactual scenarios examined in Figure 4.[m]

Gender composition has remained relatively constant, but the Indian population has aged slightly. The average Indian is about 10 years older than they were in 1980.

During this time, Native educational attainment has increased. The number of Indians with less than a high school diploma has declined substantially from nearly half in 1980 to slightly over 20 percent in 2013. College graduation has increased from about 10 percent to 15 percent, but this increase does not appear to translate into increased Indian well-being, having almost no effect on poverty. It is possible that this is caused by the lack of employers available to skilled graduates in places where Indians tend to reside.

Labor force participation has declined and part-time employment has risen. With a rising population age, the likelihood of not being in the labor force due to disability has also increased. Had these changes not occurred, Indian poverty would be nearly 20 points lower today.

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[m] Appendix table A1 displays the impact each characteristic has on poverty, independent of other characteristics analyzed in Figure 4.
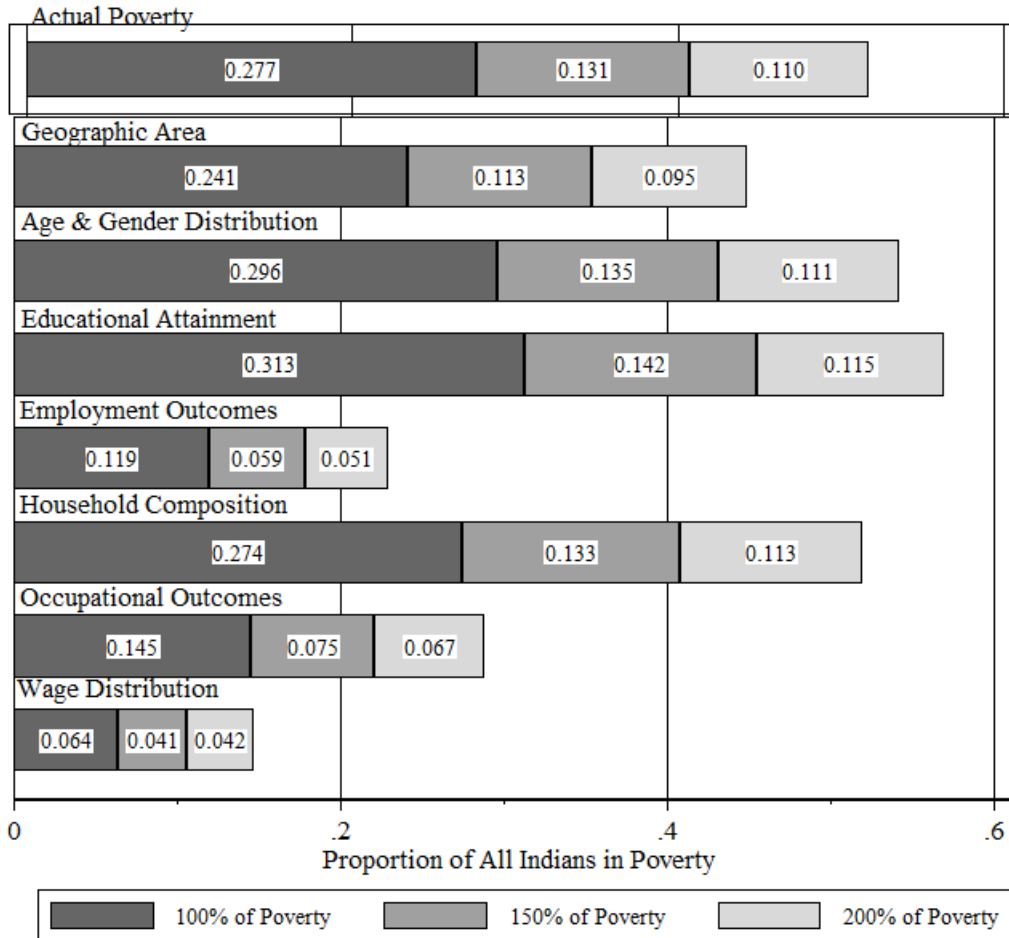
Figure 4. - Proportion of all Indians in poverty in 2013 assuming 1980 Indian composition.

Notes. Rates for 1980 come from Census 5 percent micro-sample. Rates for 2013 come from 1-year estimates of the American Community Survey.

Since the 1980's, there has been an increase in the number of adults in household and the number of multi-family households. In addition, the proportion of households with multiple employed adults has declined. Households with children, particularly children five and under have also declined. These changes have increased Indian poverty slightly.

The proportion of Indians working in professional occupations, such as management, business, science and engineering, has remained low but constant. However, the proportion working in more middle class jobs, such as education, healthcare, service, office and sales, has declined, while the proportion working in blue collar construction, production, and transportation jobs has increased. This is consistent with other 'hollowing out' of the middle class observed by others.[35] The loss of

middle class jobs has nearly doubled Indian poverty. If the occupational structure were the same today as it was in 1970, the Native poverty rate would be 14.5 percent compared to the actual 27 percent.

During this time, Indian wages have largely stagnated. Indians are slightly more likely to occupy lower wage quintiles today than they were in 1980. This slight change has had a large effect on poverty. Overall, negative shifts in employment outcomes, occupation, and wages have had the largest impact in keeping Indian poverty high, while positive shifts in educational attainment have had almost no impact on poverty rates. This suggests that Indian poverty is highly related to work and wages, and increased education is not effective in pulling Indians out of poverty.

Table 1. Characteristics included in counterfactual scenarios.
Geographic Area
Metropolitan
Reservation
Age and Gender Distribution
Female
Age (Less than 6; 6-12; 13-17; 18-25; 26-35; 36-45; 46-55; 56-65; 66-75; Over 75.)
Educational Attainment (No Diploma; H.S. Diploma; Some College; AA Degree; BA Degree; More than BA Degree)
Employment Outcomes
Current Employment (Employed Full-Time; Employed Part-Time; Unemployed; Disabled; NILF)
Experience (Less than 5 yrs; 5-10 yrs; 11-15 yrs; 16-20 yrs; More than 20 yrs.)
Household Composition
Children 5 and Under
Children Under 18
Multi-Family Household
Adults in Household
Employed Adults in Household
Unemployed Adults in Household
Wage Quintile
Occupational Group (Management, Business, and Financial; Computer, Engineering, and Science; Education, Legal, Community Service; Healthcare Practitioners; Service; Sales and Office; Construction and Maintenance; Production; Transportation; Military.)

The Effects of Equalized Achievement

The second analysis assesses the effects of white-Indian differences. Applying the same decomposition technique, this analysis assigns the 2013 composition of the non-Hispanic white population to the 2013 Native American population. The result is what Indian poverty would be if composition and achievement gaps between whites and Indians were closed.
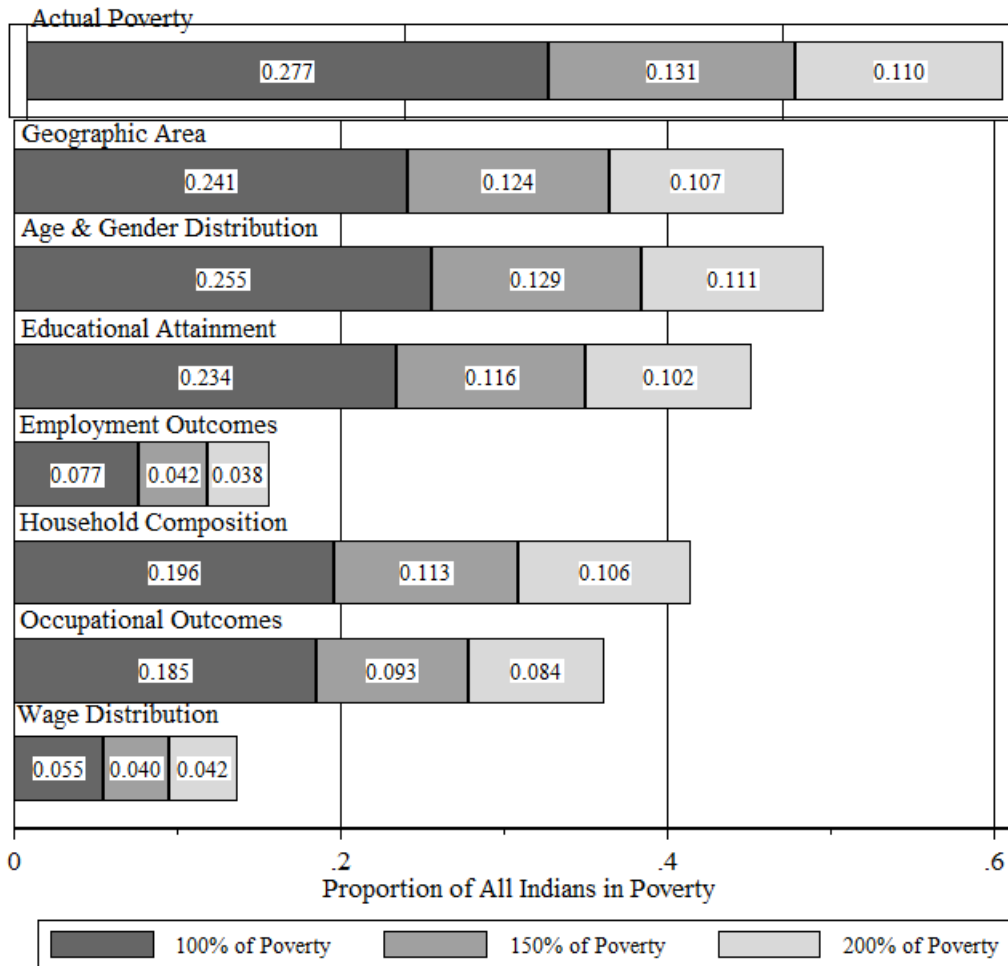

Figure 5. - Proportion of all Indians in poverty in 2013 assuming 2013 white composition.

Notes. Rates for 2013 come from 1-year estimates of the American Community Survey.

The results are strikingly similar to the composition results presented in the last section. Relocating Indians away from reservations, and into more metropolitan areas, has a modest reduction effect on poverty. In contrast, the substantial increase in Native educational attainment

would have only a minor effect on poverty, again suggesting that Indians are less able to effectively translate skill into income. Again, closing gaps in employment, occupation, and wages have the greatest impact on Native poverty rates.

Native Children Have High Risk of Poverty

Poverty levels among all children in the United States were, on average, one-third higher in the 1980s and early 1990s than in the 1970s. Child poverty is often long-lasting. Researchers estimate that a spell of poverty that begins with the birth of a child lasts, on average, for nearly eight years.[36] Using more recent data, Duncan and Rodgers (1991) confirm the long-term nature of child poverty and find that over the past twenty years the persistence of child poverty has not fallen.[37]

Child poverty has been linked to a number of developmental and schooling problems[38] and poor socioeconomic outcomes in adulthood.[39] Disadvantages compound the longer the child is in poverty.[40] Developmental disadvantages associated with long-term poverty are not explained by differences in maternal education, family structure, maternal behaviors during pregnancy, or age of mother at first birth. However, elements of the home environment, such as safety, time interacting with adults, and available activities can reduce the effect of child poverty.[41]

In 2013, nearly 40 percent of Indian only children and nearly one-third of mixed-race Indian children were living at or below the poverty line (figure 6). This number is comparable to the 38 percent of Black children living in poverty. The rate is higher for children who are age five and under. More than two-thirds of all Indian children five and under are living within 200 percent of the official poverty threshold.
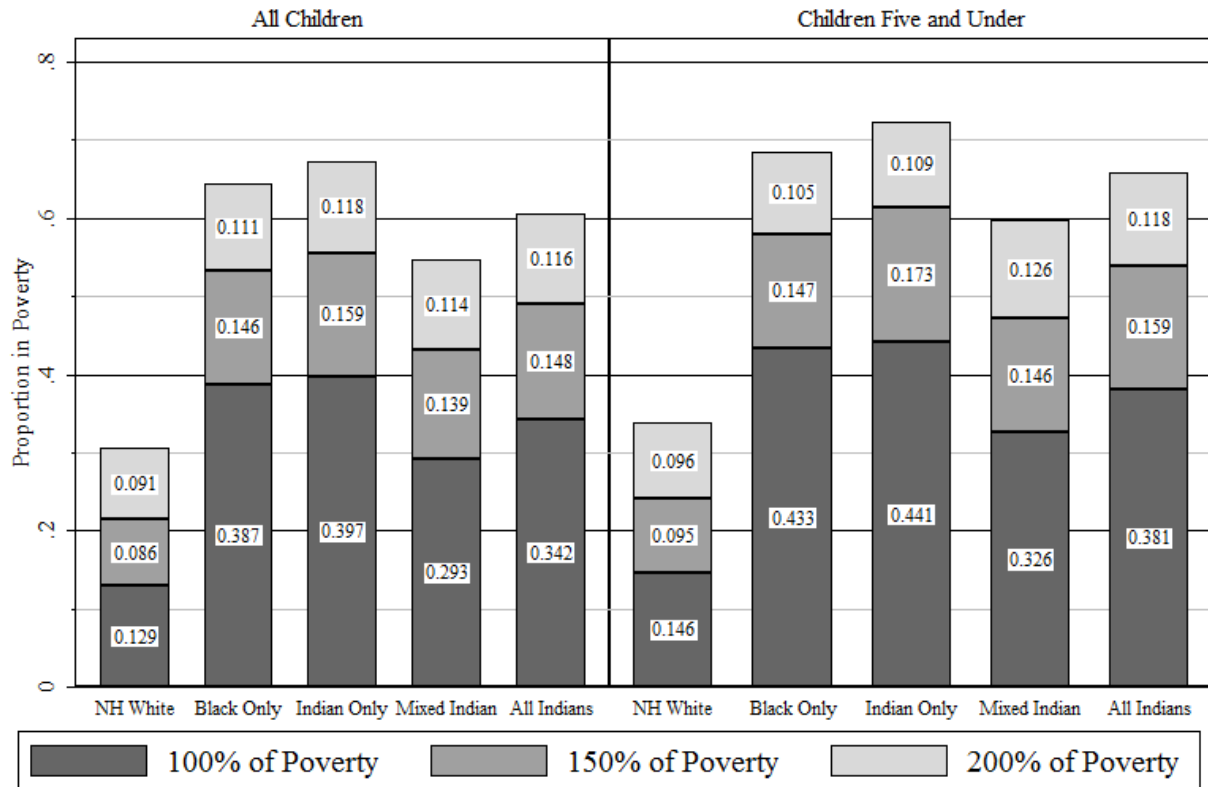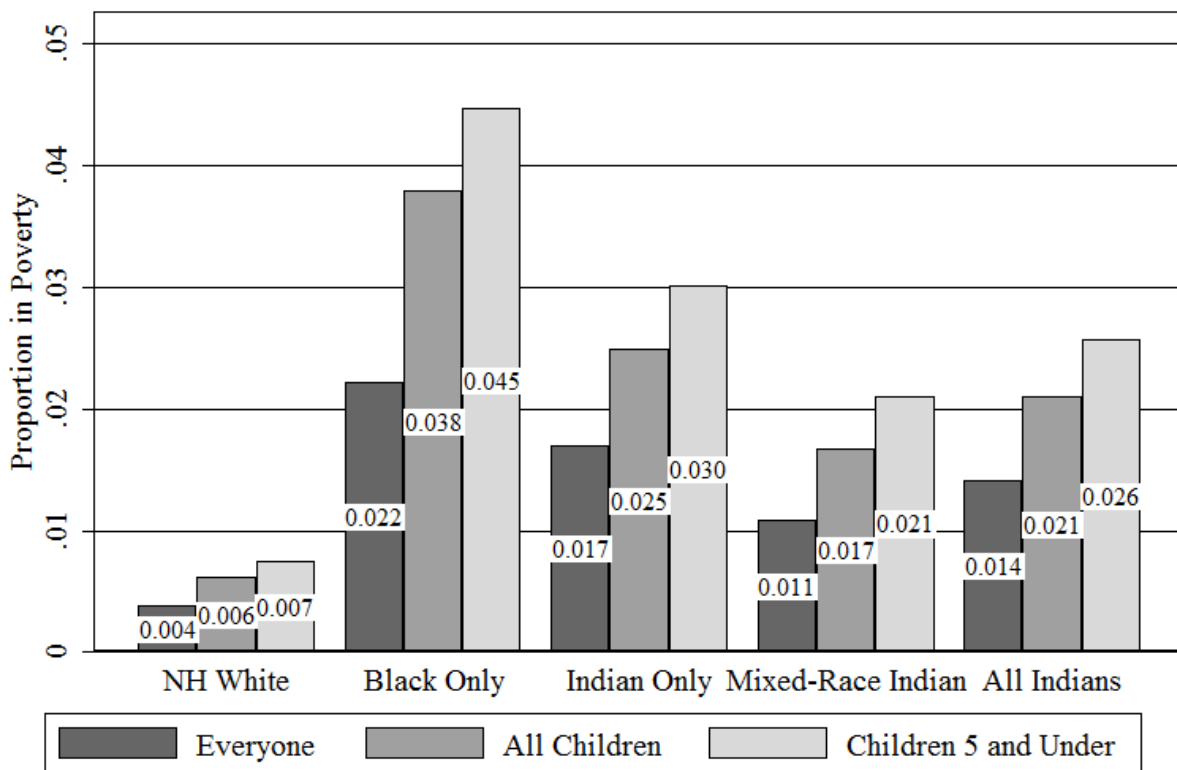
Figure 6. - Children Living at or Near Poverty, by Race, 2013.

Note. Rates come from 1-year estimates of the American Community Survey.

Living in Extreme Poverty

The number of adults receiving public assistance has dropped dramatically since its reform in 1996. As of 2011, a little over 1 million adults remained on the welfare rolls in a typical month, down from about 4.6 million at the program's peak in the early 1990s.[42] As these numbers plummeted, the number of single mothers joining the workforce or returning to it grew at rates that were largely unexpected. For these reasons, welfare reform has been touted as a success.[43]

At the same time, in the years since 1996, a new group of American poor has emerged: families with children who are living on virtually no income - the extreme poor.[44] The U.S. official poverty line for a family of three would equate to roughly $17 per person per day. Households are considered to be in extreme poverty if total household income adds up to $2 or less per person, per day, or about $60 per person, per month, in 2014 dollars.[45]

Tellingly, the World Bank does not release official estimates for the United States for this metric because it is meant to capture poverty based on "the standards of the poorest countries".[46] This new group of American poor, the extreme poor, are likely experiencing a level of destitution not captured in prior poverty measures, one that few of us knew even existed in such a rich country.[47]

Roughly 2.5 percent of Indian only children are living in extreme poverty in 2013. This number is slightly higher for Indian children who are age five and under.

Figure 7. - Proportion of People Living in Extreme Poverty, by Race, 2013.

Note. Rates come from 1-year estimates of the American Community Survey.

Is child poverty mitigated by the communal aspect of Indian living?

Children living in extreme poverty is one metric by which Indians fare markedly better than Blacks (see figure 7). This might be due to a higher rate of communal living among Indians. Indian households tend to have higher numbers of adults per household and have more families living in the same household. This enables Indians to have more earners per household and have

better access to free child care. Indeed, Indians are more likely to have multiple employed adults in the household.
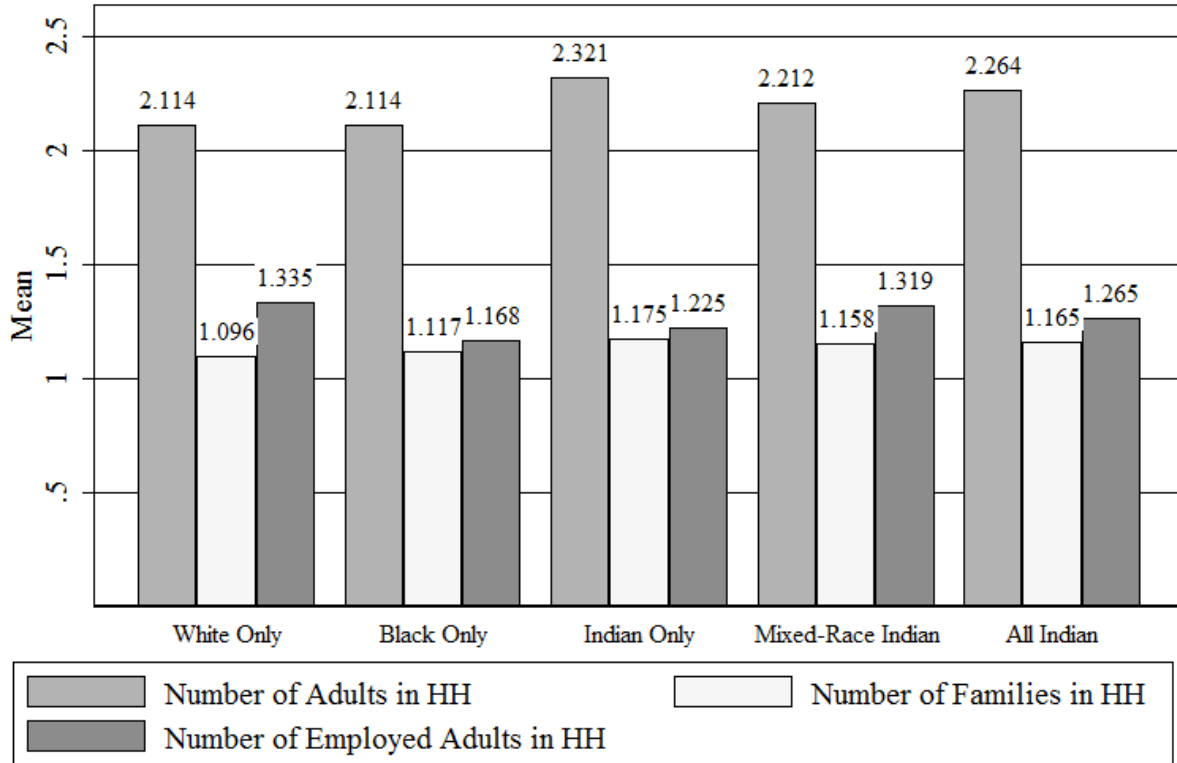

Figure 8. - Average Household Composition, by Race, 2013.

Note. Rates come from 1-year estimates of the American Community Survey.

To determine whether this trend in household composition provides protection against falling into poverty, Figure 9 displays the rate of extreme poverty for Indian only children after adjusting the number of adults in the household to that of the 2013 Black household composition. The communal aspect of Indian living does very little to protect Indian children against extreme poverty, perhaps because more adults in the household is not directly translating into more employed adults in the household.
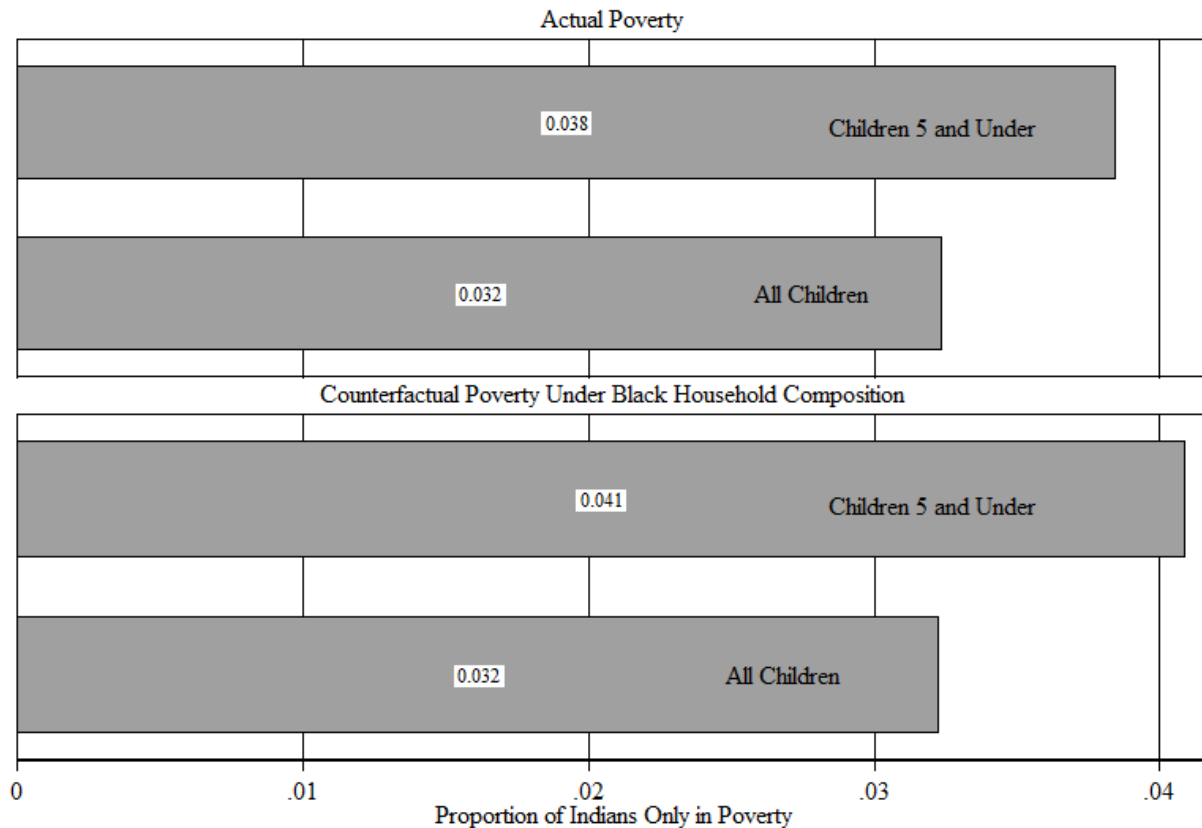
Figure 9. - Proportion of Indian Only Children in extreme poverty adjusting the number of adults in household, 2013.

Notes. Rates for 2013 come from 1-year estimates of the American Community Survey.

The Importance of Tribe

As noted previously, gains experienced by American Indians may be concentrated principally among a small number of beneficiaries. The advancement of sovereignty and self-determination allowed tribal governments greater control over resources, resulting in the advent of development initiatives, such as Indian gaming, energy, and control over the use of tribal land. Some tribes have been better able to take advantage of these trends, while others remain mired in situations reminiscent of the Indian experience from half a century ago. Thus, we might expect to see an increase in inequality within the Native community that results primarily from increasing differences between tribes.

The analysis depicted in Figure 10 decomposes the variation in the ratio of income to the poverty threshold into inequality that can be attributed to between- and within-tribe. As with other

populations, Indians have experienced a general increase in inequality since the 1980's, though this increase has been very small (less than 25 percent) and largely counteracted by the compressive effects of the Great Recession.

It is possible that the rise in inequality has been minimal, in part because much of the general take-off in inequality across the American income spectrum has occurred as high earners pulled away from the middle and working class. Very few Indians nationwide fall into the top income quintiles. Less than eight percent of Indians only fall into the top quintile for family income, compared to nearly a quarter of whites.
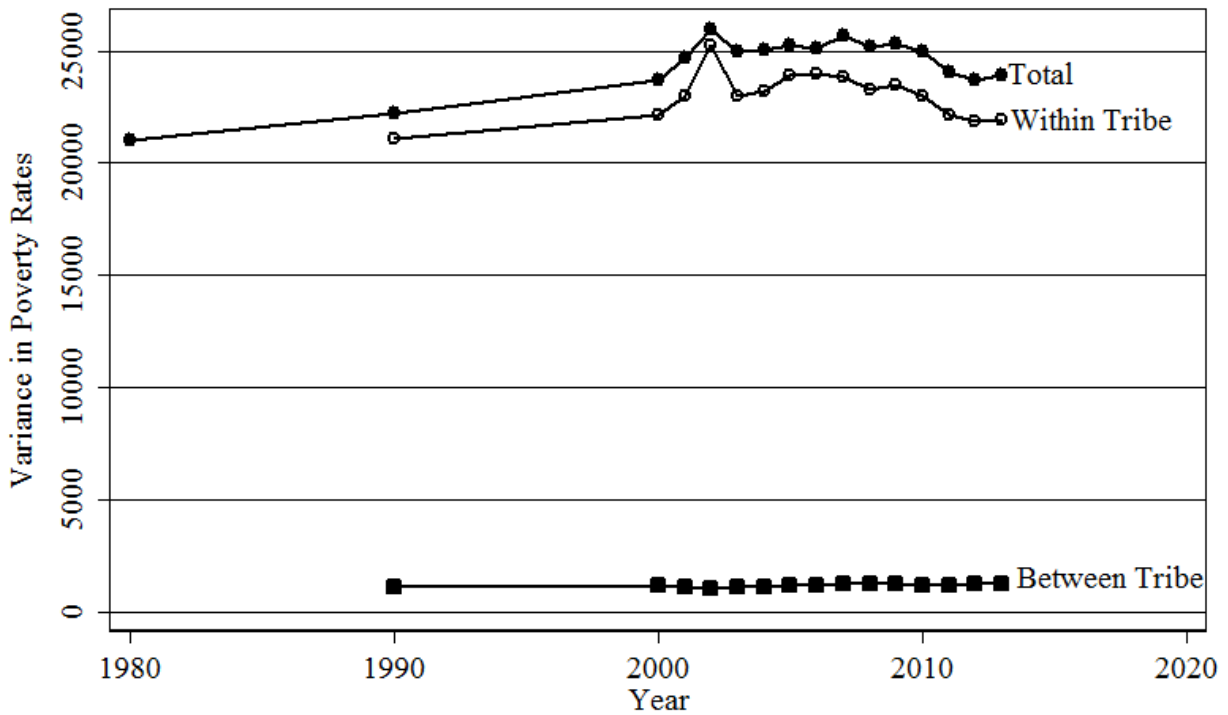

Figure 10. - Variance in Family Income as Percent of Office Poverty Threshold, Between and Within Tribe, for Indians only, 1980-2013.

Notes. Rates for 1980-2000 come from Census 5 percent micro-sample. Rates for 2001-2013 come from 1-year estimates of the American Community Survey. American Indian identification varies prior to 2000.

Figure 10 also shows that the majority of Native inequality is driven by within-tribe differences, rather than variance between tribes. This is consistent with a rising inequality model. This might imply that projects designed to increase Indian well-being have been ineffective at

accomplishing this goal. Giving the significant relationship between employment outcomes and poverty this might suggest that such projects are not effectively creating well-paying jobs.

However, another important explanation exists. Many of the Indian well-being improvement projects and increases in services occur on the reservation. Casinos and energy projects are frequently implemented on tribal land. Additionally, tribal services, whether provided by the Bureau of Indian Affairs or by the tribe, frequently are provided only on reservations. Thus, only Natives who live on or near tribal land are able to take advantage of the advancements.

Second, the data used in this analysis comes from the American Community Survey, which asks about tribal affiliation for only the 38 most populous tribes. In 2015, there were 566 federally recognized tribes. Thus, the data might simply be insufficient to conduct this type of analysis.

Finally, it is important to note that tribal affiliation is significantly different than tribal registration. Aside from the importance of geographic for Indian projects and services, tribal identification simply asks a survey respondent to provide the tribe of their biological ancestry. Not all individuals identifying with a tribe will be registered members of that tribe, and thus able to take advantage of tribal services which frequently require being an enrolled tribal member. Secondly, tribes may share an ancestry but differ significantly in well-being across geographic areas. For example, the Choctaw, one of the tribes included in the American Community Survey, originated in Mississippi, but were the first Native tribe forced to move to Oklahoma under the Indian Removal Act, passed in 1830. However, some tribal members remained behind in Mississippi. The Mississippi Band of Choctaw Indians have experienced significant economic growth, due in part to the development of two successful casinos on tribal land. The Mississippi Choctaw require decedents possess at least one half Choctaw blood or greater to be enrolled tribal members. In contrast, the Choctaw Nation of Oklahoma has not experienced such advantageous economic growth. The Oklahoma Choctaw require a quarter blood quantum in order to qualify for tribal enrollment and access to services.

Thus, the differences within-tribe that are driven by both place and enrollment requirements may be disguising between-tribe inequality that would be more readily discernable if better data were available.

The Importance of Place

As noted previously, black residential segregation has declined over the last 30 years. Given that the racial and economic composition of neighborhoods are strongly correlated, it is natural to assume that if racial segregation is declining, income segregation must be declining as well. But, surprisingly and unfortunately, that is not the case – since 1970 the poor are increasingly likely to live in neighborhoods populated by lots of other poor families.[48] Nearly 9 million Americans live in neighborhoods in "extreme-poverty neighborhoods", in which over 40 percent of all residents are poor.[49]

Additionally, there is increasing racial segregation among American Indians, primarily due to movement of Indians away from metropolitan areas and towards reservations. Nearly 65% of Indians only and 30 percent of mixed-race Indians (nearly half in total) continue to live in rural areas and reservations continue to be geographically separate from other populated areas, compared to 30 percent of non-Hispanic whites and only 18 percent of Blacks. This geographic isolation increases the distance between Indians and the goods, services, and jobs that compose the larger economy. The result has been a long history of high rates of poverty on reservations.
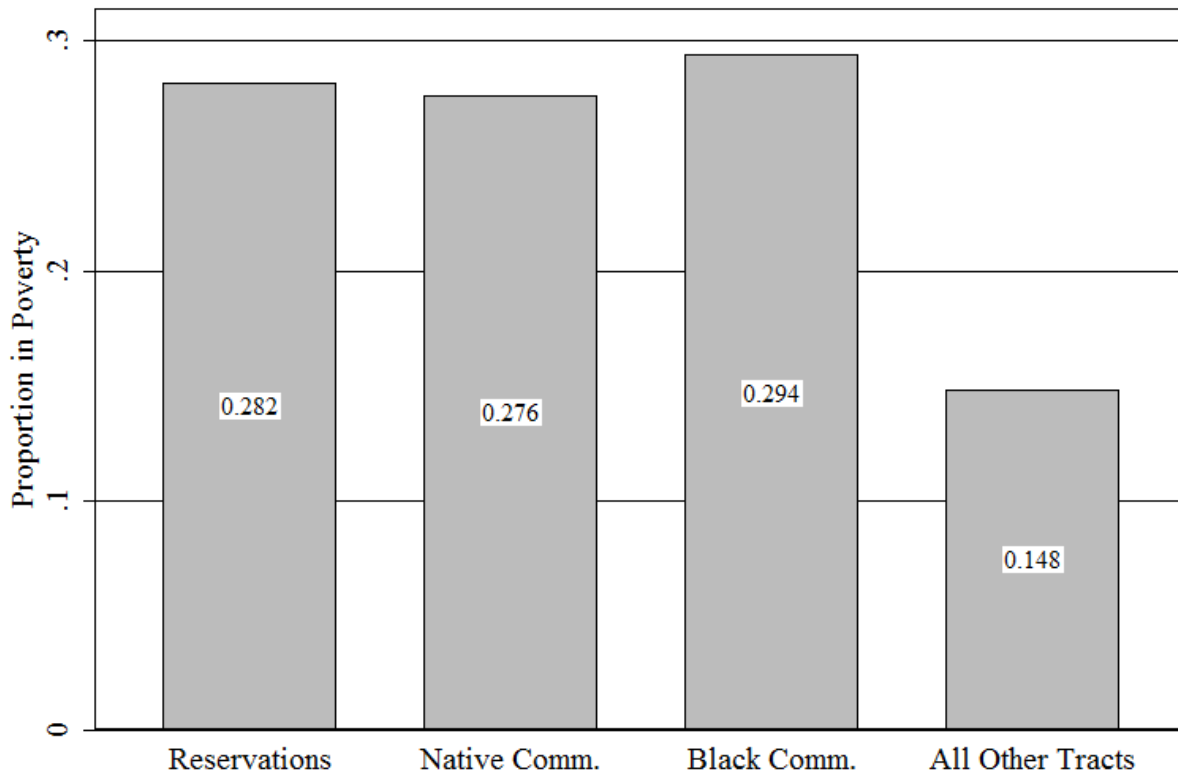
Figure 11. - Proportion in Poverty, by Census Tract, 2013.

Notes. Rates come from 1-year estimates of the Community Survey.

On average, nearly one third of reservation residents are living in poverty. This is similar to the poverty rate in Black and Native communities[n]. Overall, white poverty is generally lower than Indian poverty across all communities, but this is particularly true in native communities where Native poverty is 15 percentage points higher than white poverty. This differential is twice that of reservations where Indian poverty is only 7 percent higher than white rates.[o]

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[n] Black communities are defined as areas where the Black population exceeds 45 percent. Native communities are defined as non-reservation areas where the Native community exceeds 25%. These numbers are based on the 75th percentile for racial composition of all census tracts.

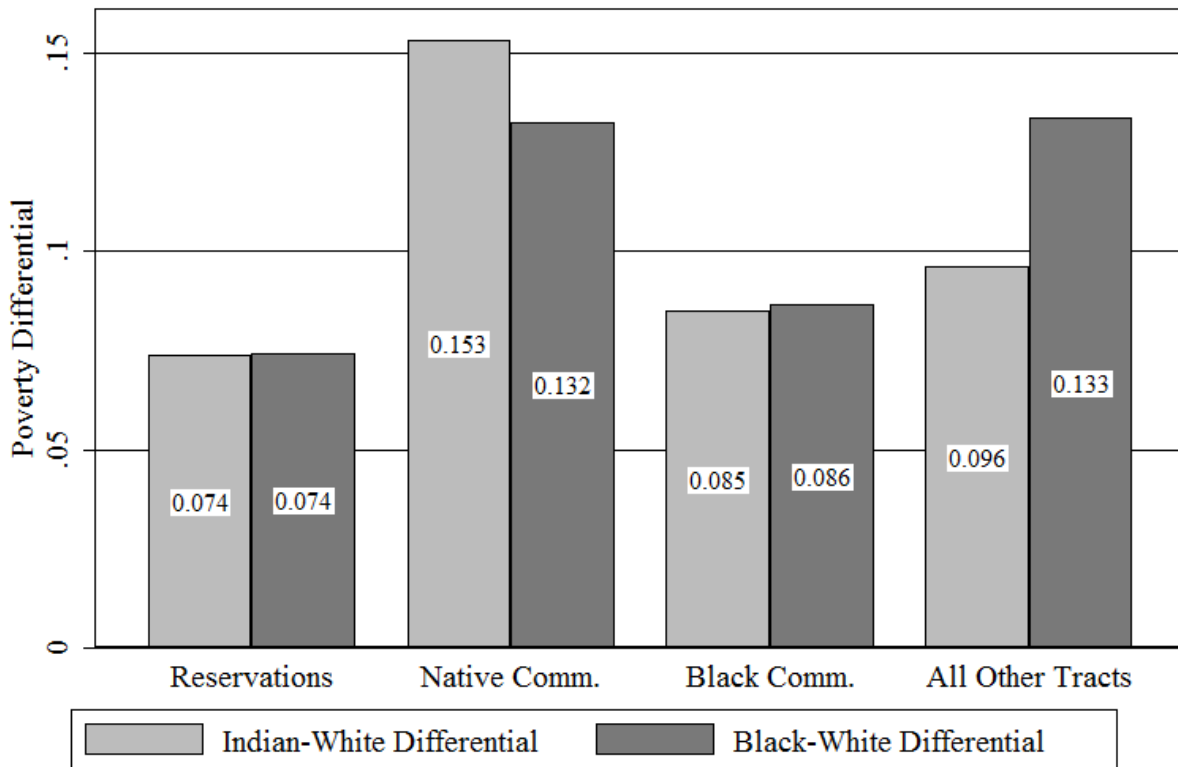[o] Source: American Community Survey, 2014.

Figure 12. - Difference in Poverty Rate Between Racial Group and White, 2013.

Notes. Rates come from 1-year estimates of the Community Survey.

Neighborhood poverty can have long-lasting consequences for well-being because neighborhoods are an important source of socialization and development as well as a place where we find some of the structural and institutional mechanisms that create opportunity and thus inequality.[50]

Being poor in a poor neighborhood has negative consequences beyond those experienced simply by living in poverty. Concentration of poverty in an area limits educational opportunities because children in high-poverty communities tend to go to neighborhood schools where nearly all the students are poor. Also, since schools tend to be funded, at least in part, based on local property values, concentration of poverty decreases test scores and increases dropout rates.[51] Teachers in these schools tend to be less experienced, the student body more mobile, and additional systems must often be put in place to deal with the social welfare needs of the student body, creating further demands on limited resources.[52]

Living in a poor neighborhood also limits wealth building as the primary source for wealth among Americans is homeownership. Neighborhood conditions in high poverty areas devalue homes.[53] Moreover, the presence of high-poverty neighborhoods can affect residents of the surrounding regions by depressing values for owner-occupied properties nearby.[54]

High concentrations of low-income and low-skilled households in a neighborhood can make the community less attractive to employers and limits local job opportunities.[55] This lack of business competition can then drive up prices for basic goods and services, increasing the cost of living in poor neighborhoods.[56]

The concentration of poverty increases welfare caseloads, creates high rates of indigent patients at hospitals and clinics, and creates the need for increased policing. The result is an increased fiscal burden on local governments, while at the same time, a small tax base on which to fund such services.[57]

Nearly 27 percent of reservations have more than 20 percent of their residents in poverty, and of these, more than 7 percent have more than 40 percent of poor residents. However, this number pales in comparison to native communities where two-thirds of communities have more than 20 percent of households living in poverty.
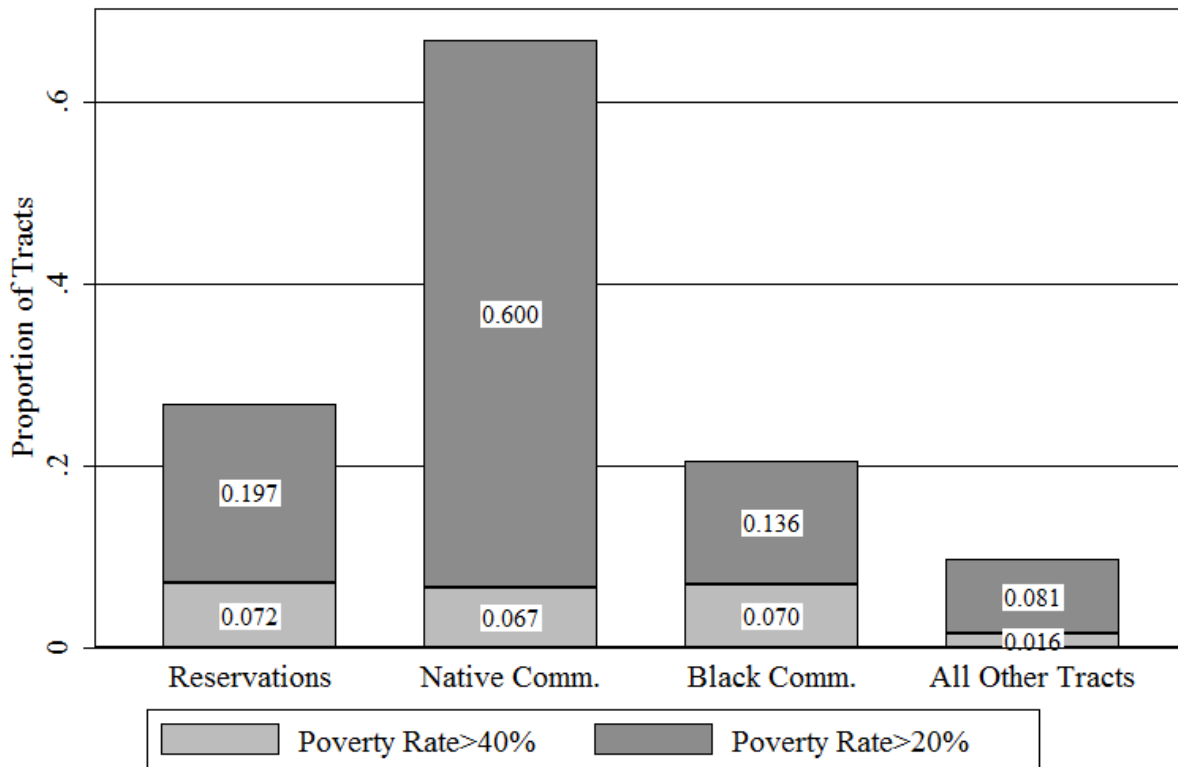
Figure 13. - Proportion of Tracts with Concentrated or Extreme Poverty, 2013.

Notes. Rates come from 1-year estimates of the Community Survey.

The social consequences of living in an economically deprived areas are unique. When poverty is concentrated, it creates uniquely disadvantaged environments where joblessness, welfare use, educational failure, and physical deterioration are the norm.[58] These deprivations can have lasting impacts on the lives of residents.[59]

Reservations and Native communities are comparable to Black communities in terms of high rates of welfare use, child poverty, housing vacancy, and households with no earnings.
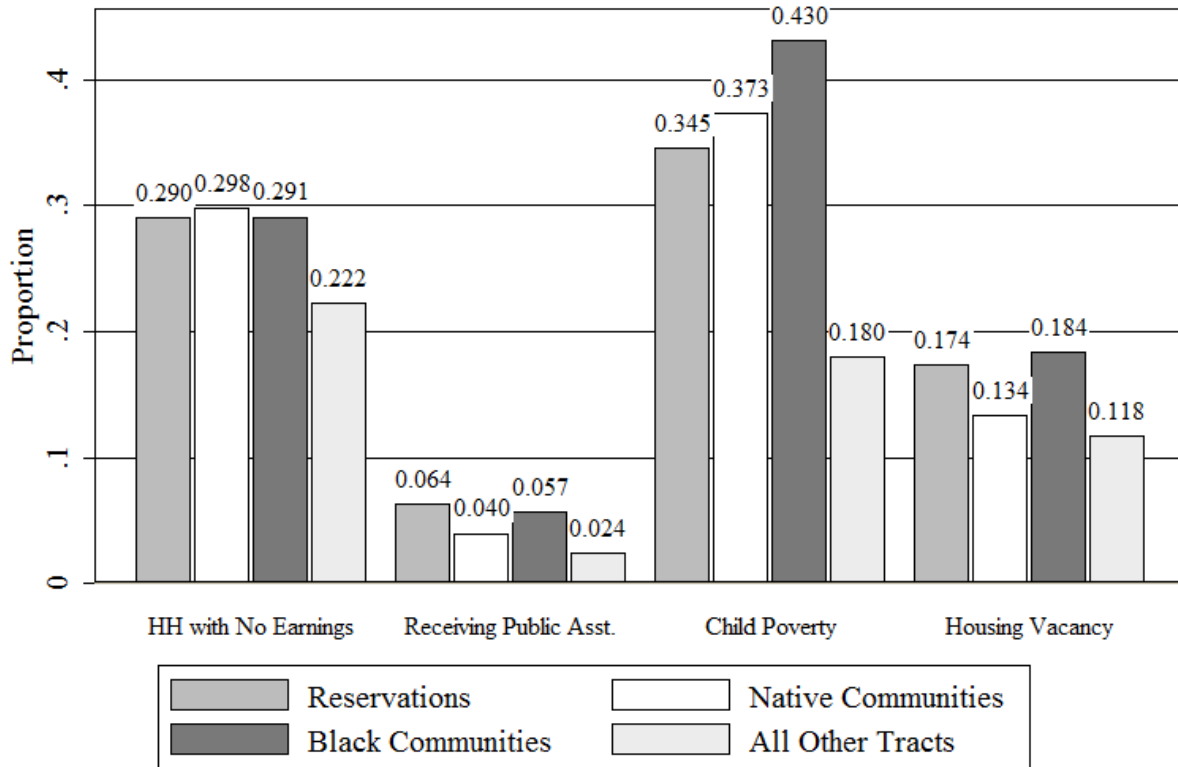
Figure 14. - Community Poverty Outcomes, by Census Tract, 2013.

Notes. Rates come from 1-year estimates of the Community Survey.

As discussed above, advances in tribal projects, such a casinos and energy projects, as well as the leasing of Indian land, are more likely to produce gains for reservations than for tribes in general. Thus, to the extent that these projects are working, we would expect to see increasing inequality across reservations. It is important to note that there are drastic differences in poverty rates across cultural regions.[p] Poverty is lower in the western regions and Oklahoma, possibly because of a high concentration of Natives in these areas. There is also a high concentration of Indians living in the southwest and the plains areas, yet these reservations tend to be a significant distance from urban areas and experience a high degree of geographic separation.

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[p] These regions are used commonly in research on Native Americans, as they are subject to important cultural, historical, and legal distinctions.
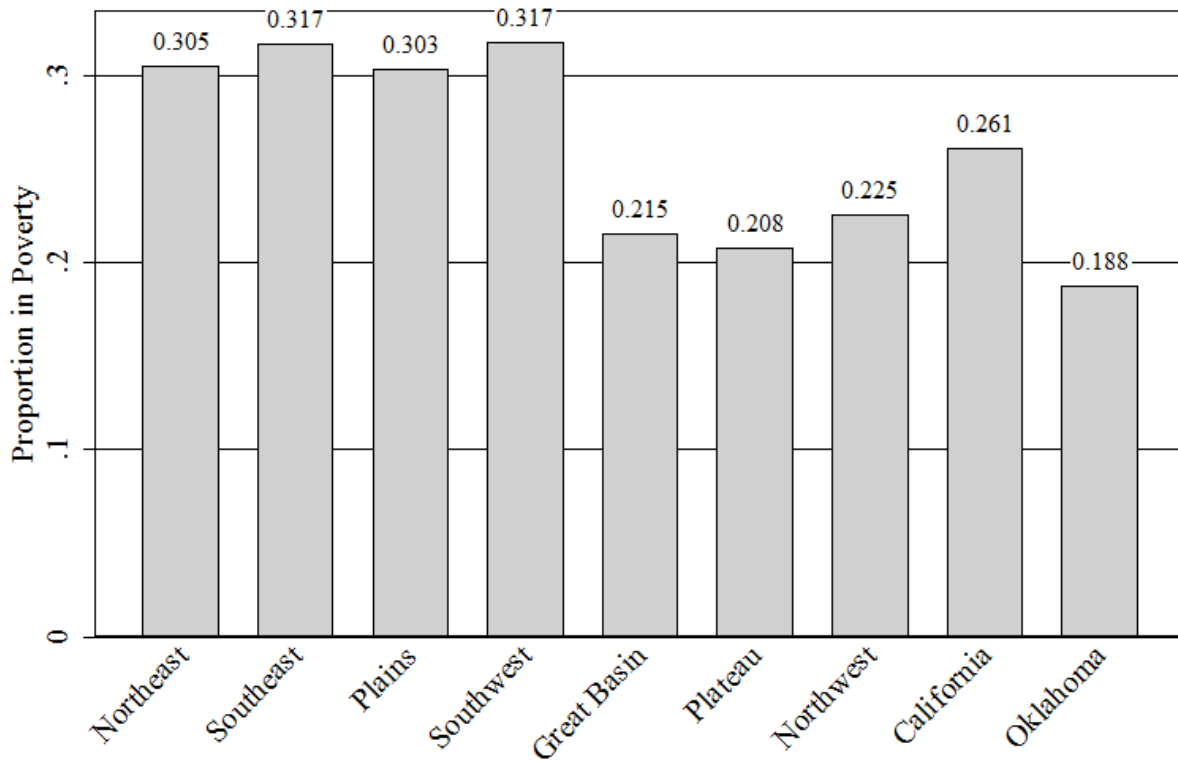
Figure 15. - Reservation Poverty Rates, by Region, 2013.

Notes. Rates come from 1-year estimates of the Community Survey.

THE EFFECT OF JOB CREATION INITIATIVES

Since the advent of Self-Determination, tribes have gained control over the programs and services available on reservations. The Tribal Leaders Survey, a mail- and phone-based survey of all 566 federally recognized tribes, found that casinos and gaming are the most common job initiative. More than 50 percent of tribes have at least one gaming establishment. Similarly, nearly that number also have an energy project. Other business developments, housing corporations, and other initiatives are substantially less common.
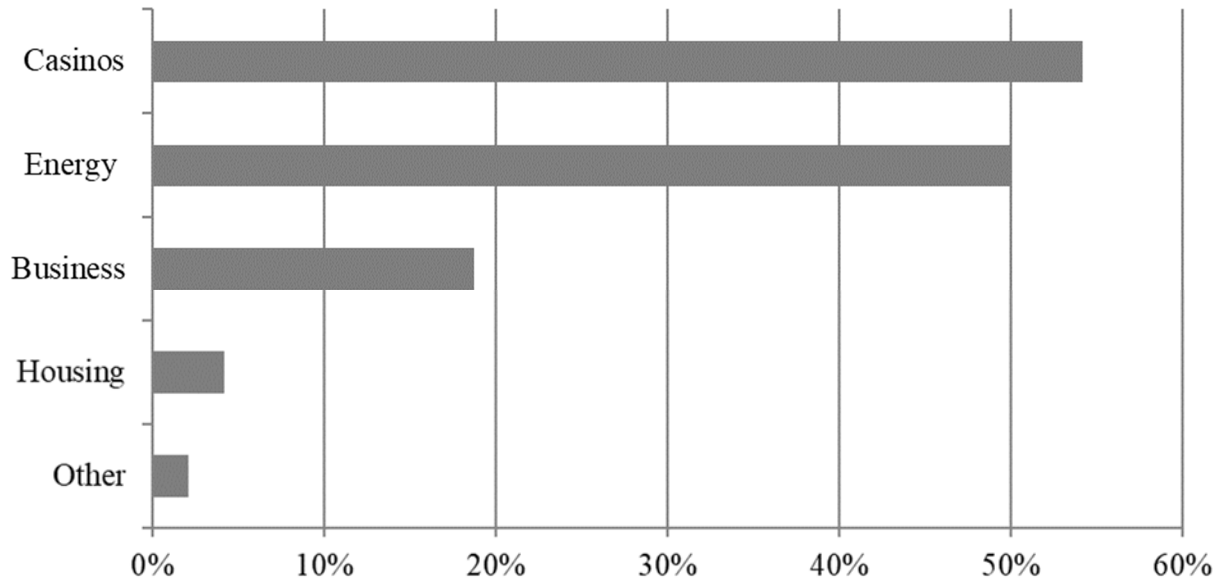
Figure 16. – Percentage of Tribes Engaged in Development Initiatives

Notes. Data comes from the 2017 Tribal Leaders Survey.

These projects have the potential to garner significant income for a tribe. In 2014, according to the National Indian Gaming Commission, Indian gaming generated nearly 30 billion dollars in revenue. In 2015, there were 465 Indian gaming establishments in the U.S. and 292 energy development projects

Indian Gaming Establishments in 2015

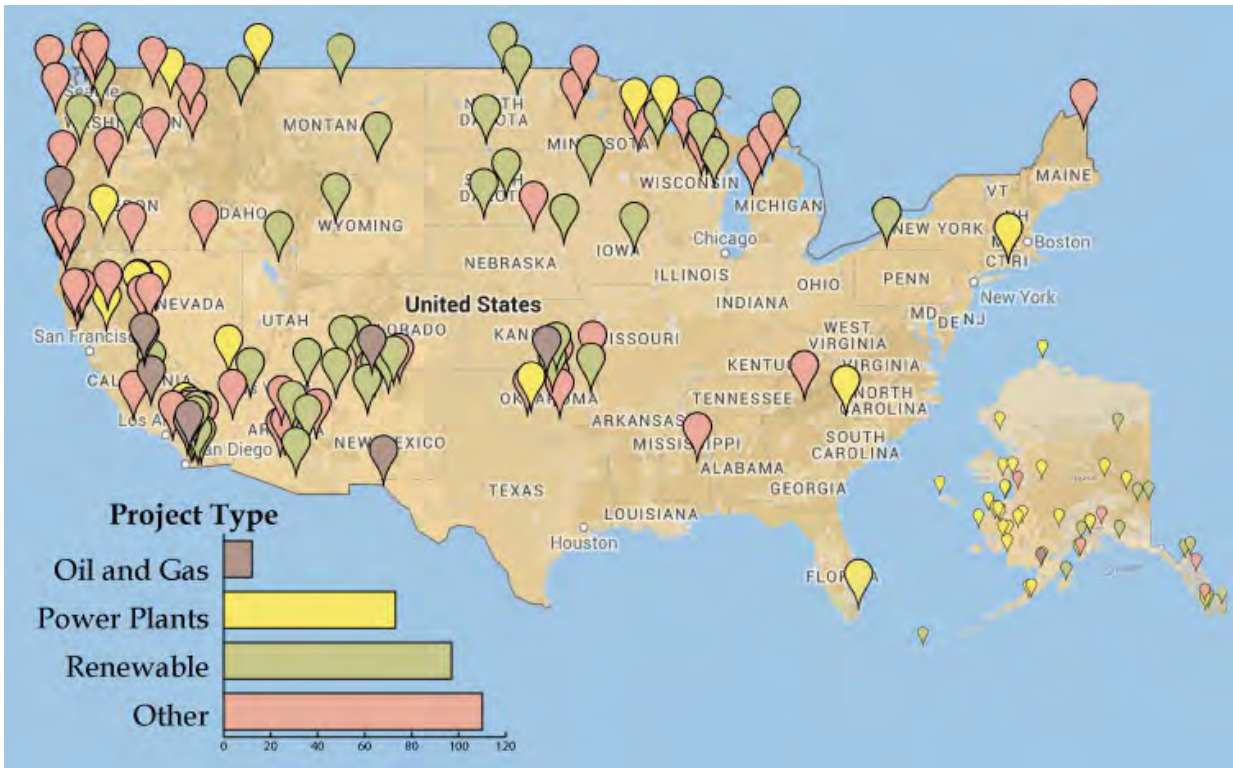# Energy Development Projects in 2015

Figure 17. – Indian gaming and energy development initiatives.

Notes. Data comes from the 2017 Tribal Leaders Survey.

Looking at a simple cross-tab, it appears as though reservations with energy projects have an employment rate about four percent lower than reservations with no projects. A similar counterintuitive finding can be seen with reservations with casinos. Such numbers either suggest that job initiatives are actually job destroying, or that there is something unique about reservations that engage in such initiatives. If reservations with exceptionally high levels of unemployment are more likely to start projects, than projects may be creating a wealth of jobs, and these reservations may still appear to be doing worse.

Table 2. Reservation employment rate, by reservation characteristic.	
No Energy Projects	69.10%
Energy Projects	65.00%
No Casinos	69.00%
Casinos	66.30%
Year Prior to Energy Project	66.30%
Year Following Energy Project	66.90%
Year Prior to Casino	66.80%
Year Following Casino	66.30%

However, if we examine the employment rate on reservations before and after job initiative, the employment rate appears more as expected. Indeed, it appears as though such projects have almost no effect on employment. This may be for two reasons. First, one year may be insufficient to see any change actually created by such programs. Second, if there is a larger trend occurring across all reservations during the time of development, such as the great recession, then this would bias results.

Therefore, the optimal method would examine changes in employment that occur on a reservation, compared to the time prior to project development, while controlling for larger trends that are occurring on reservations that did not have such project.

If we examine employment on reservations following the development of an energy initiative using this difference-in-difference approach, it appears as though energy initiatives do create jobs in the start-up years. As figure 18 shows, the employment rate increases by about one percent after development, but quickly returns to pre-project levels within about 3 years.
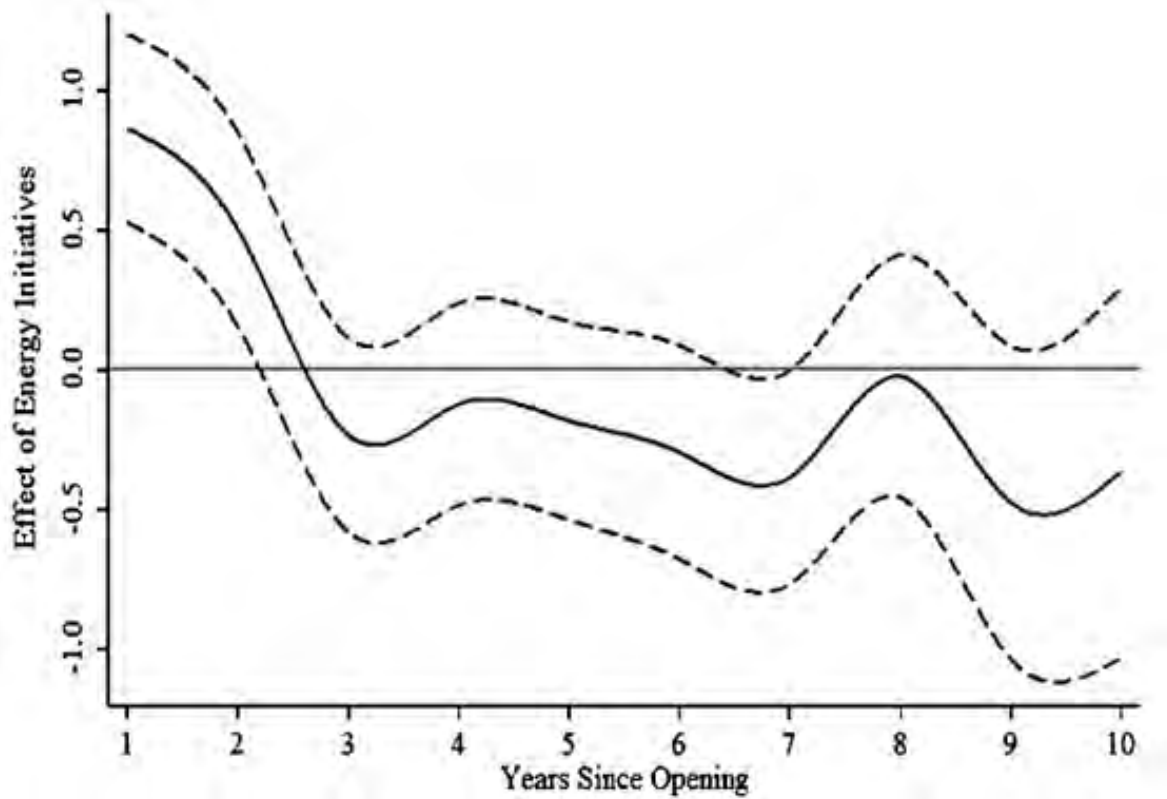

Figure 18. – Effect of energy initiatives on probability of employment on reservations, 2000-2014.

Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.

A similar effect occurs after the opening of a casino. Figure 19 shows that employment climbs by about 1 percent, and then gradually begins to decline. While it does not quite reach pre-opening employment in the decade examined, most of the jobs created have disappeared within five years.
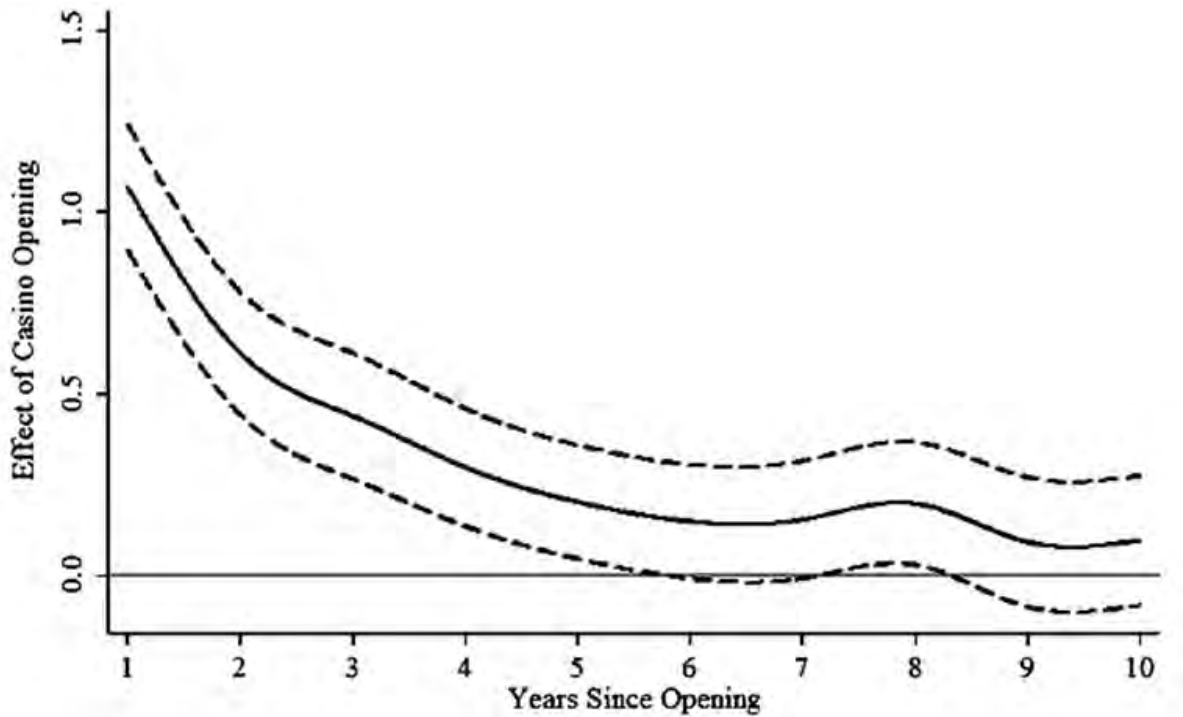

Figure 19. – Effect of casino opening on probability of employment on reservations, 2000-2014.

Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.

This report has argued that native poverty is largely driven by jobs and employment. Given that energy initiatives do not create a large number of sustainable jobs, it is perhaps not surprising that energy initiatives have little effect on poverty. Examining figure 20, it becomes clear that energy initiatives have no impact on poverty, even during the early years of the project. This may be because the jobs created do not offer high enough wages to alleviate poverty.

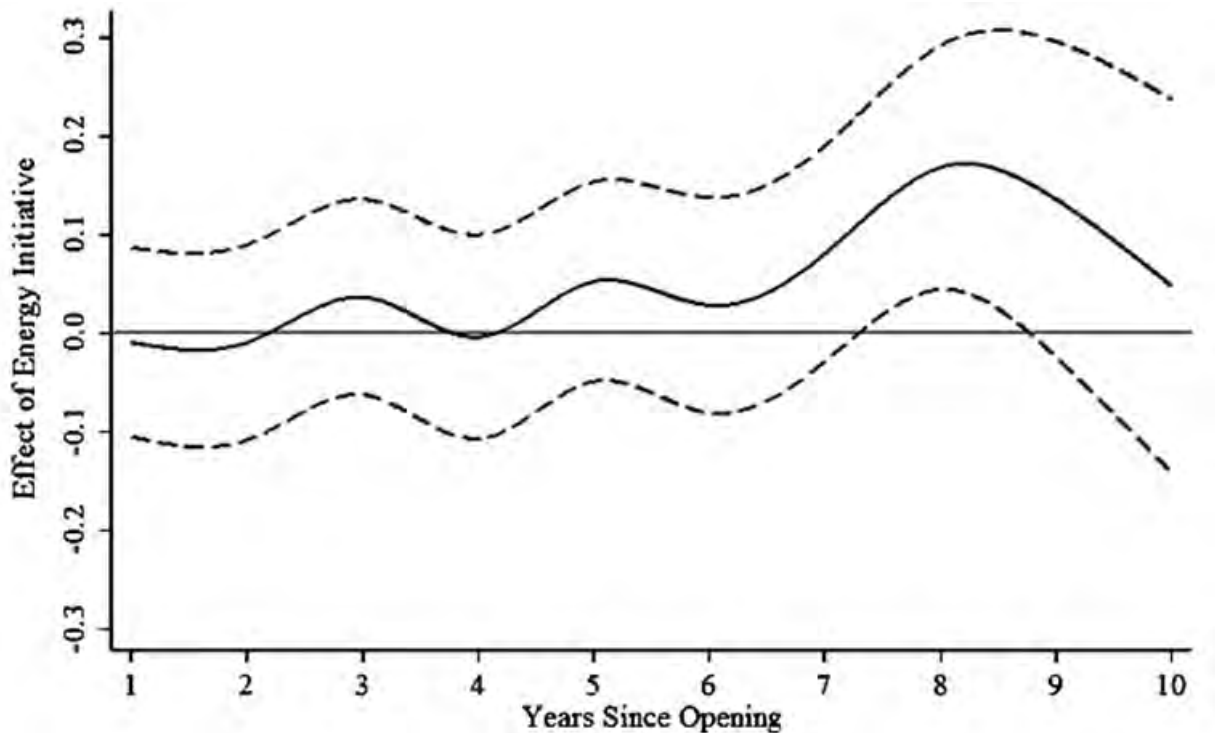Figure 20. – Effect of energy initiatives on probability of living in poverty on reservations, 2000-2014.

Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.

Looking at figure 21, it is indeed the case. While the building and development of an energy initiative increases wages slightly, the effect is not significant and quickly dissipates.

Figure 21. – Effect of energy initiatives on wages on reservations, 2000-2014.

Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.

It is perhaps slightly more surprising that casinos also have no effect on poverty, even during early opening (figure 22). Like energy projects, casinos may make jobs, but these jobs have insufficient earnings to alter wages on the reservation (figure 23).

Figure 22. – Effect of casino opening on probability of living in poverty on Reservations, 2000-2014.

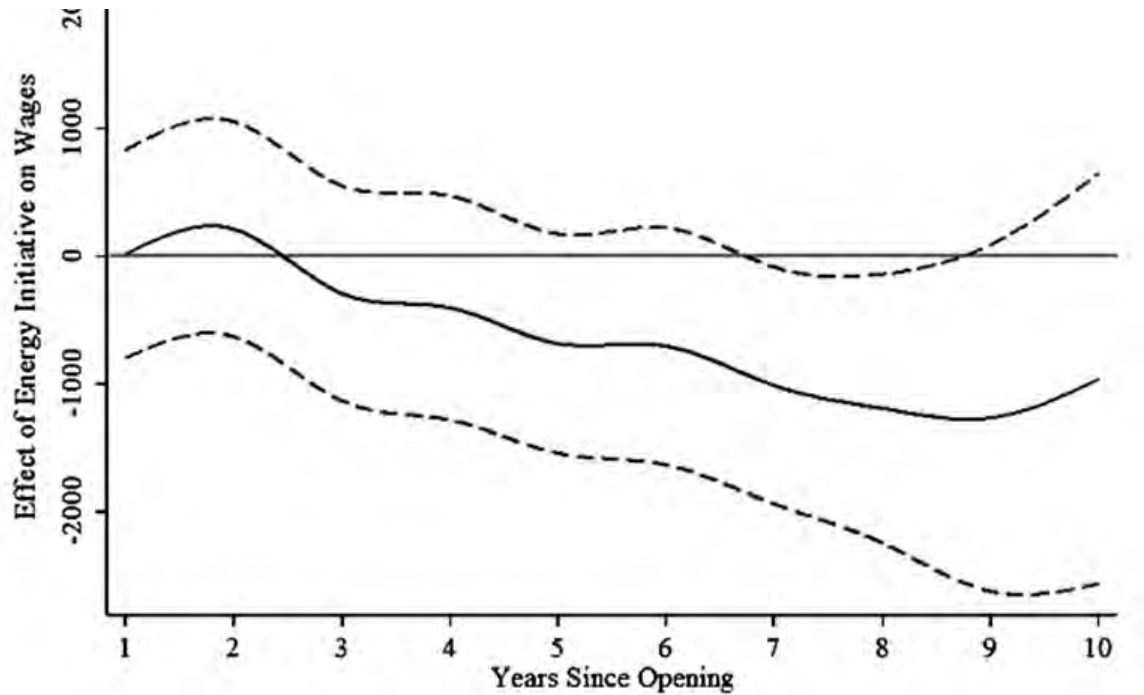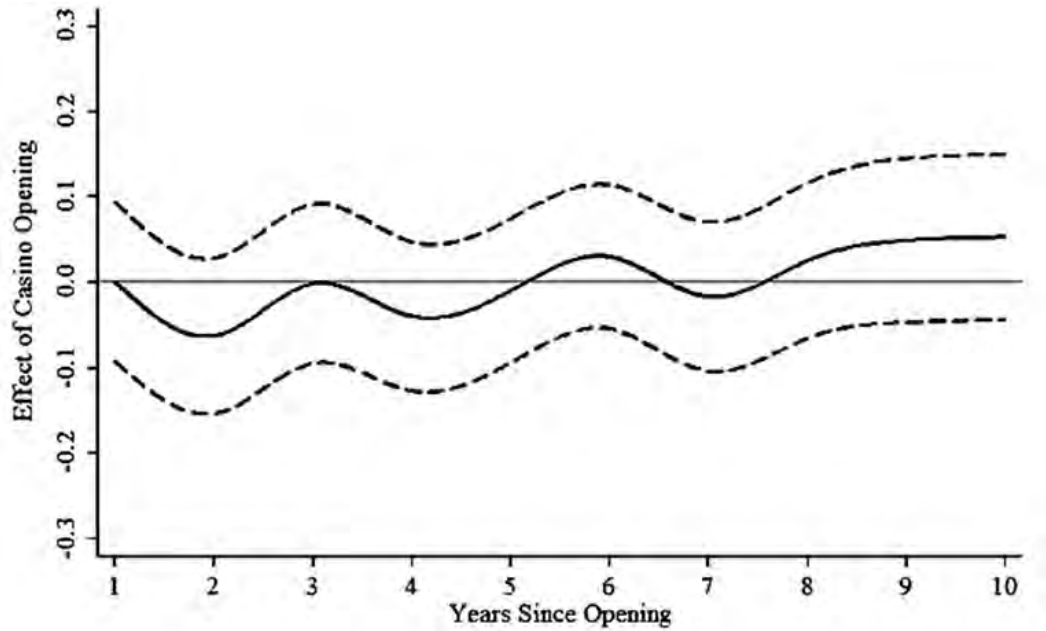Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.
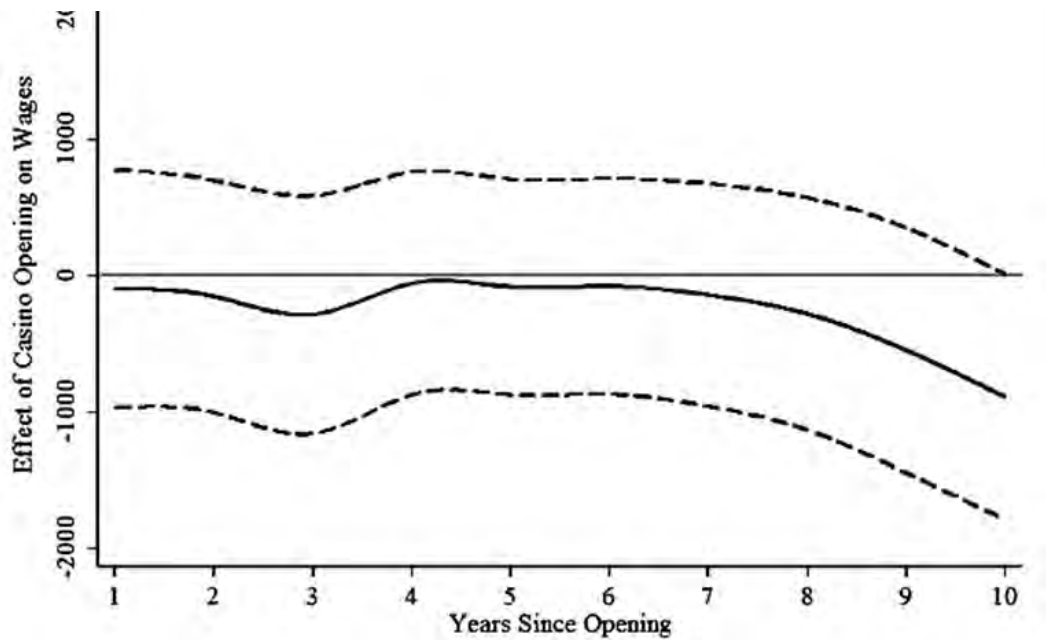

Figure 23. – Effect of casino opening on wages on reservations, 2000-2014.

Notes. Analysis is confined to reservation areas and job initiatives started in 2000 and later. Line is smoothed.

CONCLUSION

American Indian inequality has unique features, largely because tribal governments are unique entities. Tribes have the right to determine the laws governing reservations, as well as the businesses that operate on those reservations. The net result is distance between tribal labor markets and the larger economy, which creates problems for tribal economic development.

While Native education has grown at a remarkable rate in the last three decades, Native poverty has not declined. This is largely due to the unique structure of Native labor markets. What good is having an education if there are no high paying jobs?

To this end, many tribes have created initiatives designed to bring jobs to reservations. The most common of these are energy projects and gaming establishments. Indian gaming was a 30 billion dollar industry in 2014. Yet, according to the data collected here, the average casino created 25 jobs in that year and the average energy project created half that number. The average reservation population was 2,004 adults and the average reservation unemployment rate exceeded 20 percent.

Data suggests that the jobs that are created do not offer wages sufficient to pull tribal members out of poverty. Since these industries are high revenue generating, yet produce no wage benefit, it appears as though most of the revenue either enters the hands of a few elite members, or leaves the tribe all together. Further research is needed to disentangle these possibilities.

Traditionally, labor market research regarded American Indian populations as subject to the same market forces as other traditionally-disadvantaged populations. The resulting assumption is that the theory and conclusions that apply to other minority populations must also apply to Indians. This may be true in some areas, but in others, distinct institutional and policy features of Native labor markets create unique challenges that impact Indian well-being. This project has outlined the importance of examining Native economic well-being by focusing on the unique legal and economic characteristics of tribal structures. It suggests a serious need to understand the ways in which these structures hinder economic well-being and can be used to alleviate Indian poverty and inequality.

Methodological Appendix

DATA AND MEASURES

Sample

Data for this chapter come from the 1% samples of the 1980, 1990, and 2000 public-use microdata from the U.S. Census and the 1-year estimates from the American Community Survey for 2001-2013. All analyses were weighted.

Measures

Poverty. The absolute measure of poverty in this analysis uses the methodology of the current official U.S. measure.[q] The data on poverty status of households are derived from answers to the income questions. Since poverty is defined at the family level and not the household level, the poverty status of the household is determined by the poverty status of the householder. Households are classified as poor when the total income of the householder's family is below the appropriate poverty threshold. For nonfamily householders, their own income is compared with the appropriate threshold. The income of people living in the household who are unrelated to the householder is not considered when determining the poverty status of a household, nor does their presence affect the family size in determining the appropriate threshold. The poverty thresholds vary depending on three criteria: size of family, number of related children, and, for 1-and 2-person families, age of householder.

When used as a dichotomous variable, if the family's income falls below the threshold, that family, and everyone in it, is considered poor. However, several analyses utilize the ratio of family income to the relevant poverty threshold. For example, a family with income twice their poverty threshold is stated to sit at 200 percent of poverty.

Geographic Area. Respondents are characterized as living in a Metropolitan area if they live in or on the periphery of a principle city. Additionally, some respondents reside within census

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[q] See the Census Bureau for more details (https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html).

areas that contain a Native American homeland. Reservation homeland data was not available in 1980.

Household Composition. These measures are based on count of people residing in occupied housing units and include: number of children age 5 and under, number of children under age 18, number of families in household, number of adults in household, number of employed adults in household, and number of unemployed adults in household.

Educational Attainment. Educational attainment data is calculated for respondents age 18 and older. Respondents are classified according to their highest degree. Categories include: less than a high school diploma; high school diploma or equivalent, some college but no degree; two-year associate's degree; four-year bachelor's degree; and more than a four-year degree.

In 1980, educational attainment was measured using years of schooling; in 1990, education was measured using a highest credential attained. Years of education were converted into conventional degree-attained equivalents using typical time to degree attainment: fewer than 12 years of schooling (no diploma) 12 years completed (high school graduate or GED); l to 3 years of college (some college, no degree or associate's degree); 4 years of college (bachelor's, degree); more than four years of college (advanced degree). The change in the census question content introduces a discontinuity in the data series because the amount of time to complete a degree often departs from these conventional equivalencies. This must be considered when explaining changes in educational attainment between 1980 and 1990.

Employment, Wage, and Occupation. These measures are only available for individuals who are 16 years of age and older. They include current employment status, defined as: currently employed 35 or more hours per week; employed less than 35 hours per week; unemployed; disabled; and not in the labor force. Employed is defined as individuals who either: (1) did any work at all during the reference week as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business; or (2) were "with a job but not at work," that is, those who did not work during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons. Excluded from the labor force are respondents whose only activity consisted of work around the house or

unpaid volunteer work for religious, charitable, and similar organizations; also excluded are all institutionalized people and people on active duty in the United States Armed Forces. Respondents are unemployed if they: (1) were neither "at work" nor "with a job but not at work" during the reference week; (2) were actively looking for work during the last 4 weeks; and (3) were available to start a job. Also included as unemployed are civilians who did not work at all during the reference week, were waiting to be called back to a job from which they had been laid off, and were available for work except for temporary illness.

Racial Identification

Between the 1990 and 2000 census the U.S. government acknowledged the recent growth in Americans with multiracial backgrounds and adjusted data collection to allow respondents to choose more than one racial identity. These changes make comparing data between 1990 and 2000 difficult, as there is no straight forward method for constructing within-race estimates over time with inconsistent racial categories.

This shift is particularly problematic for enumeration of American Indians. Between 1970 and 1990, the Indian population increased in excess of natural increase because many multiracial persons who were reported as members of some other racial category in 1970 were identified as American Indians in 1980 and in 1990. The Indian population grew from 827,000 in 1970 to 1.42 million in 1980, with more than 62% of the increase {350,000 persons) added by changes in identification. The Indian population in the 1990 census was 1.96 million, with about 35% of the increase over 1980 (190,000 persons) added by identity changes.[60] This may be due in part to shift in perceptions of Natives. The 1960s saw movement away from negative and stigmatized views of Indians to more romanticized views of Indians in popular culture. Additionally, in the 1960s and 1970s, American Indian organizations, including the American Indian Movement (AIM) and Indian centers, sprang up in cities across the country and sought to foster pride in American Indian identity.[61] The stigma of Indian identity diminished in this period, particularly for fair-skinned, urbane, and educated metropolitan Indians.[62]

There are two basic options for linking racial data between 1990 and 2000. The first is to ignore multiracial respondents and use single race only as an undercount.[63] This poses two problems. First, multi-racial and newly identified Indians have different socioeconomic characteristics from

those Indians who were enumerated in 1980. Demographers distrust the census data because of these changes. For example, Tienda and Jensen (1988:28) note a "dramatic convergence" in the socioeconomic standing of census-enumerated American Indians and whites in recent decades, but "caution against interpreting the change for this group as real improvement in economic status, because of the non-comparability of this population across censuses, especially between 1970 and 1980."[64] This suggests that individuals identifying as "Indian only" prior to 2000 may have included some mixed race individuals.

The second option is to add multiracial individuals to the single race count. This is consistent with the Office of Budget Management's policy regarding the use of mixed race data.[r] This is the method used here. However, this method does little to correct the bias introduced in estimates of economic well-being caused by inconsistent racial categories.

DECOMPOSITION OF POVERTY RATES

To quantify the effect of compositional changes on changes in poverty, the likelihood of being in poverty is estimated using regression models by year. To determine the impact of changes in composition, this analysis uses a model estimate decomposition technique[65], which decomposes population-level changes in the dependent variable into changes in population composition and changes in subpopulation risks.

When the dependent variable is continuous, such as ratio of family income to poverty threshold, ordinary least-squares regression the decomposition (shown in Equation A1), separates change in the average value of *Y* from time *t* – 1 to *t* is decomposed into population composition changes (the first term) and subpopulation risks changes (the second term):

$$\bar{Y}_t - \bar{Y}_{(t-1)} = \sum_{k=1}^{k=K} b_{k,(t-1)}(\bar{X}_{k,t} - \bar{X}_{k,(t-1)}) + \sum_{k=1}^{k=K}(b_{k,t} - b_{k,(t-1)})\bar{X}_{k,t} \qquad (A1)$$

where k designates the number of coefficients in the model including the intercept term. The method relies on the linearity of the OLS function, which, when evaluated at the mean of all independent variables, equals the average value of the dependent variable. When poverty is

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[r] See the Office of Budget Management's Project Race for more information (https://www.projectrace.com/tag/office-of-management-and-budget/).

measured as a dichotomous variable, this method is not feasible because the logit function is nonlinear, the proportion of ones on the dependent variable, Y, does not equal the predicted probability that $Y = 1$ when the logit function is evaluated at the means of the Xs. However, as Fairlie (1999)[66] observed, the predicted probabilities averaged across all cases are, in fact, equal to the average of Y:

$$\bar{Y}_t = \sum_{i=1}^{i=N} \frac{\hat{Y}_i}{N} = \sum_{i=1}^{i=N} \frac{F(X_i'\beta)}{N}, \text{where } F(X_i'\beta) = \frac{(X_i'\beta)}{1+(X_i'\beta)} \tag{A2}$$

Thus, the change in Y from time $t-1$ to t can be decomposed using logistic regression into a composition component, which holds the coefficients constant while allowing the Xs to change (the first two terms), and a rates component (the last two terms), which holds the Xs constant while allowing the coefficients to change: Equation A3 fixes the coefficients at time $t-1$ for the composition component and the Xs at time t for the rates component.

$$\bar{Y}_t - \bar{Y}_{(t-1)} = \left[\sum_{i=1}^{N_{(t-1)}+N_{t(t-1)}} \frac{F(X_{it}\beta_{(t-1)})}{N_{(t-1)}+N_t} - \sum_{i=1}^{N_{(t-1)}+N_t} \frac{F(X_{i(t-1)}\beta_{(t)})}{N_{(t-1)}+N_{t(t-1)}} \right] +$$

$$\left[\sum_{i=1}^{N_{(t-1)}+N_t} \frac{F(X_{it}\beta_{(t-1)})}{N_{(t-1)}+N_{t(t-1)}} - \sum_{i=1}^{N_{(t-1)}+N_t} \frac{F(X_{i(t)}\beta_{(t)})}{N_{(t-1)}+N_t} \right] \tag{A3}$$

This composition can be expressed for particular variables or sets of variables (for example, geographic area or household composition). In the case of a simplified model containing two sets of dummy variables $X1$ and $X2$, coefficients are held fixed at time $t-1$, the effects of compositional shifts in $X1$ can be expressed as:

$$\frac{1}{N_{(t-1)}+N_t} \sum_{i=1}^{N_{(t-1)}N_t} F(X_{1it}\beta_{1(t-1)} + X_{2it}\beta_{2t}) - F(X_{1i(t-1)}\beta_{1(t-1)} + X_{2it}\beta_{2t}) \tag{A4}$$

This logic can be extended to any number of independent variables. Note that in the Equation 4, the $X2$ values from time $t-1$ are retained. In this way compositional shifts in $X1$ are examined without corresponding shifts in $X2$. This assumes an independence between $X1$ and $X2$ that is not always reasonable. However, because the effects of shifts in the composition in the independent variables are also sensitive to the order in which they are placed in the model, the effects of compositional changes are examined separately for each independent variable.

Table A1. Change in proportion of all Indians in poverty under counterfactual scenarios.

Compositional Characteristic	Indian Only, 1980	NH White, 2013
Geographic Area	-0.036	-0.036
Metropolitan	-0.036	-0.013
Reservation	–	-0.036
Age and Gender Distribution	0.019	-0.021
Female	0.000	0.000
Age	0.019	-0.021
Educational Attainment	0.036	-0.042
Employment Outcomes	-0.157	-0.200
Current Employment	-0.147	-0.085
Experience	-0.132	-0.179
Household Composition	-0.002	-0.081
Children 5 and Under	0.014	-0.016
Children Under 18	0.014	-0.017
Multi-Family Household	-0.018	-0.017
Adults in Household	-0.002	0.002
Employed Adults in Household	-0.010	-0.006
Unemployed Adults in Household	-0.003	-0.016
Wage Quintile	-0.212	-0.222
Occupational Group	-0.131	-0.092

Notes. Categories for age are: Less than 6; 6-12; 13-17; 18-25; 26-35; 36-45; 46-55; 56-65; 66-75; Over 75. Categories for Educational Attainment are: No Diploma; H.S. Diploma; Some College; AA Degree; BA Degree; More than BA Degree. Categories for Current Employment are: Employed Full-Time; Employed Part-Time; Unemployed; Disabled; NILF. Categories for Experience are: Less than 5 yrs; 5-10 yrs; 11-15 yrs; 16-20 yrs; More than 20 yrs. Categories for Occupational Group are: Management, Business, and Financial; Computer, Engineering, and Science; Education, Legal, Community Service; Healthcare Practitioners; Service; Sales and Office; Construction and Maintenance; Production; Transportation; Military.

This analysis includes seven categorical independent variables: geographic area; age and gender distribution; educational attainment; employment outcomes; household composition; wage quintile; and occupational group. Each independent variable is a compilation of a set of other categorical variables. For example, geographical region is a four category variable which includes a dummy variable for metropolitan area and a dummy variable for reservation. Table A1 shows

the effect of the independent variables and their sub-variables on 2013 Indian poverty rates when Indian composition is held at 1980 levels and when Indian composition is altered to the 2013 non-Hispanic white composition.

DECOMPOSITION OF POVERTY VARIANCE

Between-group variation is typically used as a measure of inequality. In this case, between-group inequality determines how tribes differ in their overall well-being. In contrast, within-group inequality can be measured by the residual variance of a regression and is often treated as unexplained. From a substantive viewpoint, residual variance is a measure of heterogeneity within groups. Total inequality can be decomposed into between- and within-group variance. The regression for observation i:

$$y_i = b_0 + b_1 x_i + \varepsilon_i \qquad \text{(A5)}$$

has an expected value $\hat{y}_i = b_0 + b_1 x_i$. With errors, ε_i, uncorrelated with the predictors, x_i, inequality in y_i, measured by the variance, can be expressed as the sum of the variance between groups and the variance within groups

$$V(y_i) = V(\hat{y}_i) + V(\varepsilon_i) \qquad \text{(A6)}$$

In a least squares regression, the empirical residuals are uncorrelated with x_i by construction, so the variance of y_i mechanically equals the sum of the residual variance and the variance of predicted values for the y_i.

CALCULATING THE EFFECT OF JOB INITIATIVES

The goal of the analysis is to examine changes in reservation characteristics that occur after a job initiative begins. This is done using a difference-in-difference analysis, the form of the model is:

$$(Employed) = \boldsymbol{\beta X}_i' + \beta_{2,t} YEAR_t + \beta_2 INITIATIVE_r + \beta_{3,t} YEAR_t * INITIATIVE_r \quad \text{(A7)}$$

where $\boldsymbol{X}_i'$ is a vector of reservation-level variables including racial composition, median age, distance to metropolitan area; YEAR is a vector of dummy variables for year 2000 to 2014, and; INITIATIVE is a dummy variable representing the presence of an job creation initiative. Of interest is the coefficient $\beta_{3,t}$ which tracks the changes in the outcome of interest on this reservation, compared to all other reservations. This coefficient is then modeled as:

$$\beta_{3,t} = \gamma_{zr}\ YEARS\ SINCE\ START_r \tag{A8}$$

where γ_{zr} is a vector of the effect of a initiative on employment modeled as the years since the initiative began. The estimated γ_{zr} are depicted in figures 18-23.

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