

EDUCATIONAL ATTAINMENT AND INCOME
AMONG WISCONSIN NATIVE AMERICANS

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Abstract

This study examined the returns to education among Native Americans residing in Wisconsin. Educational attainment and income of the US population have been widely studied before. However, research on Native Americans' returns to education has been generally limited. According to the 2013 US Census, Native American and Alaska Natives make up about 2% of the US population, 78.8% of whom have a high school degree or equivalent, and 13.5% have a bachelor's degree or higher. In comparison, 86.4% of US population have a high school degree or equivalent, and 29.1% have a bachelor's degree or higher. Further, median income of a single race American Indian or Alaskan household was about \$35,310 per year, whereas an average US household's median annual income was \$51,371. Using a classical Mincer (1974) returns to education model and American Community Survey data, this study examined the differences in education and labor income between Wisconsin's Native Americans and non-Native Americans and estimated the rate of return to schooling and educational degrees among Native Americans residing in Wisconsin. The study found that, after controlling for labor market experience and other factors, Native Americans in Wisconsin tend to make less than non-natives based on both returns to years of schooling and educational degrees.

Introduction

Education is recognized as a way to build one's human capital, which in turn is expected to increase that person's productivity and earning potential. The relationship between labor income and education has been explored in numerous studies, which typically also control for additional income-determining factors, such as location or labor market experience. Some of these studies also focus on earning differences between races, typically contrasting African Americans and Whites (see Cohn and Addison, 1998). However, these existing studies have overlooked the relationship between education and labor income in Native Americans. Interestingly, in the U.S., there are two bureaus that study the education of Native Americans. The Bureau of Education, which serves all Americans, and the Bureau of Indian Education. The mission of the Bureau of Indian Education (BIE) is specific, to "provide quality education opportunities from early childhood through life in accordance with a tribe's needs for cultural and economic well-being" (Bureau of Indian Education, 2014). Hence, by studying the returns to education, this study may help the BIE assess the outcomes of their education opportunity programs.

Economic conditions of Native Americans can be gauged by using the United States Census Bureau data. According to the latest Census (2013), during the month of November, median annual income of a single race American Indian or Alaskan household was about \$35,310, whereas an average US household's median income was \$51,371. According to the same Census data, educational attainment levels of Native Americans were also significantly lower. In 2012, among single-race American Indians and Alaska Natives 25 years and older, 78.8% had at least a high school diploma, GED certificate or alternative credential, and 13.5% obtained a bachelor's degree or higher. In comparison, in the same year, 86.4% of the overall US population had a high school diploma or equivalent, and 29.1% had a bachelor's degree or higher. Overall, these facts

suggest that on a national level, Native Americans have lower educational attainment and lower income levels compared to US population. American Indians and Alaskan households seem to make only 69% of the US median household income. Aside from these macro statistics, there are no studies that focus at the causes of these differences and relatively low income and low educational attainment levels among Native Americans. This research fills this gap by examining educational attainment and income among the Native Americans and estimating their returns to education.

Using a classical Mincer (1974) returns to education model, American Community Survey data for Wisconsin, and a linear regression analysis approach, this study found that on average, in Wisconsin, Native Americans tend to earn about 3% less than non-Native Americans, after accounting for education, experience, and other factors. However, as Native Americans attain higher levels of education earning differences narrow. Hence, higher educational levels can narrow the income gap between Native Americans and non-natives.

The remainder of the paper is organized as follows: the next section provides a literature review on the topic of education and its relationship to labor earnings, the subsequent section describes the paper's methodology and data. The last two sections focus on empirical part of this study, including the regression results and a discussion of findings in the context of prior literature.

Literature Review

Educational attainment and income are often studied together because higher educational attainment levels are known to result in higher human capital, productivity, and subsequently earnings or labor income. One of the early scholars to explore this relationship between human capital, education and labor income was Ben-Porath (1967). In essence, he developed a theory modeling the optimal path of human capital investments, which illustrated that optimal demand

for human capital investments tends to be higher when people are younger because subsequently individuals would have more years to accrue returns on their educational investments. Further, he incorporated the costs of attaining human capital into the model, which helped demonstrate the impact of education supply or cost conditions on lifetime earnings and, hence, their effects on education investment decisions.

Another prominent scholar in this field was Mincer (1974), who developed an empirical model for estimating the rate of return to education or schooling, which is universally used by researchers to date. Mincer also showed that individuals with more labor market experience would enjoy higher wages than a similar worker with no experience. Mincer's biggest contribution was in proposing a human capital earnings framework, which modeled individual earnings as a linear function of education and other control variables, such as labor market experience.

Along with the previous two studies, there are numerous empirical studies assessing variations in labor income attributed to various factors. For example, Psacharopoulos (1973, 1981, 1985, 1994, 1996, and 2004) has conducted several studies of returns to education over time and across multiple countries. A general theme arises from Psacharopoulos's research, in which he concludes that the premium from higher education is much higher in countries that are developing, in comparison to countries within the Organization for Economic Co-operation and Development (OECD). His research suggests that people with higher education are scarcer in developing countries in comparison to developed countries, because people in developing countries tend to get paid more for higher education.

Studies focusing on race tend to study the returns to education for African Americans. For example, there are multiple studies on the income gap between Whites and African Americans when the income gap became narrower during 1960s and 1970s (Card and Krueger, 1992). A

debate raged amongst economists, after this data was found, about what was the causal factor that narrowed the income gap. Some economists, such as Smith and Welch (1986, 1989) claimed it was because African Americans started to receive a better quality education. Table 1 (see Appendix), summarizes the results that Card and Krueger (1992) find on educational returns between African Americans and whites. These results will be useful later on to help compare the results of the educational return rates of African Americans and Native Americans. From Table 1, we can tell that African Americans receive less income for every additional year of education they attain, in comparison to Whites. Back to the income gap between African Americans and Whites, other researchers, such as Freeman (1974), Vroman (1974), Donohue and Heckman (1991), argued that the policies that the federal government pursued had more substantial impact on the income gap. The commonly cited government policy is the Civil Rights Act of 1964, which helped increase the opportunities for African Americans across the nation. There are several other studies that explore the relationship between income and education of African Americans (see Cooper and Cohn, 1997; Kroch and Sjoblon, 1994; and Neumark and Korenman, 1994). These are just some examples showing the variety and breadth of research on educational attainment and income, with respect to African Americans, of which, none mention Native Americans.

As we can observe from these, studies, there is an abundance of research on the determination of wages in the labor market for African Americans. However, there has been little focus on Native Americans and how their educational attainment levels are correlated with labor income. Furthermore, even in those rare studies that focus on Native Americans in the labor market, educational attainment is not included as a factor. For example, Snipp and Sandefour (1988) focused on wages of Native Americans, but the factors they choose to focus on were migratory patterns and closeness to metropolitan areas. While this is useful for accounting for

geography and wages, their study did not place emphasis on educational attainment levels and wage.

There are also several studies that research the difference between Aboriginal populations and non-Aboriginal populations in Canada, and some that even focus on the differences in wages. For example, Walters et al. (2004) studied the effects higher education has on wage and employment of Aboriginal peoples. Their findings are that visible minorities (all other minorities, not including Aboriginal peoples and Whites) have more of an earnings premium for university education than Aboriginal peoples and Whites. What this means is that the rate of return to education is higher for visible minorities in comparison to all other people in Canada, which includes Aboriginal people. While Aboriginal populations in Canada and Native Americans in the United States may be somewhat similar, it is difficult to compare these groups because of different economic and political systems in place.

Further survey of literature regarding Native Americans also revealed a group of studies focusing on income factors other than education. For example, some researchers view institutional policies in place as a determinant of income. Specifically, these studies look into Native American earnings in connection to casinos and the economic development of Native American tribes. Casinos provide job opportunities for Native Americans and have been correlated to increases in wages on reservations. Taylor and Kalt (2005) researched US Census figures from 1990 and 2000, focusing on income, employment levels, and several other socioeconomic measures. During the 1980s, tribes had their power to open and operate casinos affirmed by the US Supreme Court. This means tribes could open up casinos with little state intervention, because that power was affirmed by the US Supreme Court. After this ruling, tribes started to develop casinos during the 1980s and the 1990s. This provides an opportunity for tribes to pursue economic development and also

provides Taylor and Kalt an ideal time frame to study the effect of casinos on income levels. Their findings are that tribes with casinos had lower levels of poverty, their people became less reliant on welfare, and there were positive increases in income. Another study by Conner and Taggart (2009) on gaming in New Mexico has also affirmed the positive effects of casino development on income levels.

Another labor market study on Native Americans considered cultural assimilation as a variable for wage determination. Kuhn and Sweetman (2002) studied the economic assimilation of Aboriginal peoples in Canada to the larger non-Aboriginal group. Their research focused on the resiliency of Native Americans to the “majority” culture, which implies the unwillingness of Native Americans to succumb to the assimilatory policies of the United States or Canada. While, this research studied the Aboriginal peoples residing in Canada, the results and implications could possibly be applied to Native Americans within the United States. Kuhn and Sweetman found that the distance away from reserves (similar to reservations), residence outside of the Yukon and Northwest Territories, and ancestors who have intermarried with non-Aboriginal were strong predictors of Aboriginal Peoples’ “success” in the labor market. Basically, as Aboriginal Peoples became more involved in the dominant culture, they acquired more skills and traits of the majority culture and earned more in the labor market. Kuhn and Sweetman concluded that these three assimilation predictors were more important for Aboriginals’ earnings than traditional variables, such as education and labor market experience.

Methodology and Data

The following equation presents an empirical model similar to the one proposed by Mincer (1974):

$$\log wage_i = a + rEduc_i + \beta_1 Exp_i + \beta_2 Exp_i^2 + Xf_i + e_i$$

This is a basic model that explains variations in individual earnings. On the left-hand side of the equation is a log-transformed wage, or the model's dependent variable. Log-transformation of wage allows interpreting the right-hand side variable coefficients as returns to education, experience, and so on. It also allows the model to capture non-linear relationships between explanatory variables and labor earnings. On the right-hand side of the equation, a is a constant term. $Educ$ is an educational variable, typically measured as years of completed schooling, and r is a marginal rate of return to schooling. For example, if $r = 0.08$, then an additional year of schooling tends to increase wages by 8%, *ceteris paribus*. Exp is work experience, typically measured as years of labor market experience. This term is included because, Mincer (1974) concludes, people who have more work experience tend to be more productive and which makes them earn more. Positive β_1 coefficient measures the marginal rate of return to experience. $Educ^2$ is included as an explanatory variable to reflect a non-linear, concave relationship between earnings and experience, specifically the notion that after a certain point additional years of experience tend to be associated with lower earnings, as older workers become less productive with age. Negative β_2 coefficient reflects this concave relationship between earnings and work experience. For example, if $\beta_1=0.02$ and $\beta_2=-0.0002$ then, *ceteris paribus*, an additional year of work experience tends to increase earnings by 2%, but once a worker accumulates 50 years of work experience, an additional year of experience would result in lower earnings.¹ Xf is a vector of other explanatory variables and their respective coefficients. Variables that are usually included as additional control variables include gender, race, industry, and so on. Finally, e represents an

¹ The turning point of a concave parabola-like relationship between earnings and experience is estimated as

follows: turning point = $\left| \frac{\beta_1}{2\beta_2} \right|$

error term. This is essentially everything the model can't measure or that isn't included as a measure. It is assumed to be uncorrelated to log wage.

The data used in this study draws upon the American Community Survey (PUMS 2010, 2011, and 2012), which is a random annual nationwide survey that collects individual and household data that can be agglomerated by communities, counties, states, and other characteristics. For the purposes of this study, data was limited to the state of Wisconsin.² The American Community Survey (ACS) collects data on a variety of topics, including: respondent's labor market status (e.g., employed, unemployed, not in the labor force), labor earnings, schooling and educational attainment, housing characteristics, socio-demographic data (e.g., gender, age, race, etc), and so on. The main advantages of using the ACS PUMS is that it contains microeconomic or individual-level data and is a random representative sample of US population.

One of the shortcomings of this dataset is that the question of race in the ACS questionnaire is formulated in a way that may not include words that Native Americans use to self-identify or describe themselves. Specifically, according to Nagel (1994), Native American self-reporting of race depends on their social situation. Cornell (1988) and McBeth (1989) have determined various ways Native Americans describe themselves: there are several terms that can be used interchangeably to describe Native Americans, such as American Indians, First Nations, and indigenous peoples. Sometimes Native Americans even prefer to respond with their tribal name, such as Ojibwe or Lakota. This depends solely on the social situation facing a Native American. Native Americans may even respond that they are a "half-blood" to other Native Americans. For the purposes of this study, Native Americans are defined as people who were present in the Americas before the Europeans arrived. This definition is important because the American

² Wisconsin was chosen as a reference state because of the author's familiarity with the Wisconsin's Native American tribes, as well as to limit the PUMS dataset size to enable faster processing.

Community Survey pools all of the above responses that Native Americans can use to self-identify themselves into one category of American Indian, which this study will refer to as Native Americans.

There is an important caveat that arises from the Native Americans self-identity - racial identification is a dynamic process. Between the 1960s and 1990s, the Native American population growth exceeded that of others, as people were more likely to self-identify themselves as Native American (Eschbach, 1993; Eschbach et al., 1998; Passei, 1997). This may have been due to a more positive sentiment towards Native Americans within society. As a result of this dynamic self-identification behavior, the rates of education among the Native Americans seemed to jump, suggesting that the proportion of educated Native Americans increased significantly in a relatively short period of time. Alternatively, this could be due to the fact that more educated Native Americans were selected and responded to the survey. Thornton (1997) researched this topic further by conducting an analysis between the growth of tribal enrollments and the growth in the Native American population. It was expected that tribal enrollments should increase with more people self-identifying themselves as Native American. However, he concluded that was not the case, as a large proportion of people self-identifying themselves as Native American in the US Census survey were not included in the tribal enrollment statistics maintained by the Native American tribal governments. This means that people self-identifying themselves as Native American were not enrolled in federally recognized bands or tribes of Native American peoples.

For the purposes of this study, using the ACS data, the Native American variable is formulated as a dummy variable: 1 if Native American, 0 if not Native American. It is important to note that Native Americans in this study do not necessarily represent individuals residing on a reservation. This is important because location tends to explain a certain extent of variation in

wages. For example, we would expect someone from an urban or metropolitan area to earn more than someone residing in a rural area.

Table 2 (see Appendix) presents data summary statistics from the 2010, 2011, 2012 Wisconsin PUMS (public use micro-data sample from the American Community Survey). According to Table 2, Native Americans in Wisconsin have lower average annual earnings than non-Native Americans. Native Americans on average also have fewer years of schooling than non-Native Americans. These gaps in income and education are important to keep in mind because education is recognized as a significant determinant of wage variation. Another interesting takeaway from Table 2 is that the standard deviation of wages is much smaller in the Native American sub-sample than in the non-Native American sub-sample. The ratio of standard deviation to mean income, known as a coefficient of variation, is therefore lower for Native Americans than non-Native Americans, suggesting that income is more equally distributed among Native Americans than non-natives. This also tells us that Native Americans are less likely to be high-earners compared to non-Native Americans.

Before performing regression analysis, the dataset was tabulated to examine differences in unemployment rate, educational attainment and median income between Native-Americans and non-Native Americans. Graphs 1 and 2 (see Appendix) illustrate these tabulation findings, where Some HS stands for some high school completed but not a full degree, HS stands for completed high school or equivalent degree, some college stands for Some college education, assoc stands for associate degree, BA stands for bachelor's degree, MA – master's degree, prof- professional degree, and phd – doctoral degree. According to Graph 1, Native Americans tend to experience higher unemployment rates at nearly each educational level. However, both Native American and non-Native American experience lower unemployment rates at higher educational degrees. This

is expected, as in a service-based knowledge economy employers and jobs tend to require employees with higher levels of education. Graph 2 shows the median labor income of Native Americans and non-natives residing in Wisconsin. Generally, Graph 2 illustrates that as educational level increases, so do wages. The graph also illustrates that Native Americans tend to make less at every educational level. The income gap is particularly large at lower levels of education and smaller at higher levels of education. The exception is professional degrees, where Native Americans seem to make significantly less than non-Native American. After examining the sub-sample of Native Americans with professional degrees, the large income gap was attributed to the relatively small sample size and several respondents reporting zero income despite being employed. This may be due to respondents being employed by a family business or self employed.

Regression Results and Analysis

According to the basic data summary statistics presented above, Native Americans residing in Wisconsin tend to make less at every educational attainment level. Native Americans also have higher unemployment rates and fewer years of schooling. Information presented in Table 2 and Graph 2 present interesting questions: What explains the differences in income between Native Americans and non-Native Americans? Why are Native Americans in Wisconsin earning less than non-Natives?

Certainly, there are many factors behind the differences in labor income. Ordinary least squares analysis can help explain the marginal labor income returns from these multiple factors. Table 3 in the appendix describes the variables used in this study. Within the Mincer (1974) framework, our dependent variable $\ln wage$ (log of yearly wage) is determined by education and years of work experience. Cumulative work experience is estimated here as a product of the number of weeks worked in the past year and age (cum_age variable). While not ideal, this

approach for estimating work experience allows us to proxy the lifetime work experience, as opposed to the numbers of weeks worked in a past year, which is reported in the ACS data. When it comes to education, there are two recognized ways to measure it. The first method measures education in terms of years of schooling completed. Sometimes this method is criticized because years of education completed do not necessarily reflect a completed educational degree. For example, a respondent may report having gone to college for one year and eventually dropping out. This respondent would not necessarily gain the same benefits of higher wage as someone who actually completes a degree. To address this criticism, this paper will measure education in both ways by years of schooling and educational degree attained.

Regression results were carried out by estimating the return to education measured in terms of (1) years of schooling and (2) degrees attained. Table 4 contains three sets of regression results, which explain wage using years of schooling, work experience, whether or not the respondent was Native American, as well as Native American interaction terms with other explanatory variables. Specifically, the table shows the rates of return to explanatory variables and their level of significance. According to Table 4, there is a positive relationship between years of schooling and wage. Across these three regressions, *ceteris paribus*, an additional year of schooling tends to increase earnings by 8.7%. This coefficient is statistically significant at 1%. Also, *ceteris paribus*, an additional year of experience tends to increase earnings by 2.7%, which is also statistically significant at 1%. The negative coefficient of experience-squared suggests that eventually the rate of return to experience tends to decline. The coefficient for the Native American dummy is negative and statistically significant at 1%. This suggests that Native Americans tend to make 3% less for each additional year of schooling compared to non-Natives. Further, if we add interactive terms for years of schooling and work experience, as illustrated by the third regression, we observe

that the interaction terms have negative coefficients. This suggests that Native Americans tend to make less per year of schooling and experience. For example, based on regression 3, the returns to education for Native Americans are estimated by adding the years of schooling coefficient with interaction terms of years of schooling and Native American dummy, which suggests that the rate of return to education for Native Americans is 5.7%, as opposed to 8.7% for non-Native. The takeaway from these three regressions is that Native Americans tend to make less in Wisconsin, when controlling for education and experience, than non-Native. These models explain about 58% of variation in wages, which suggest a decent goodness of fit.

The second set of regressions utilized educational degrees as explanatory variables, as opposed to years of schooling. The results of these regressions are illustrated in Table 5. Table 5 explains variation in wages by controlling for different educational degrees. As regression 5 suggests, Native Americans tend to make 10.7% less than non-Native American when controlling for different degrees attained. Further, regression 6 suggests that while the returns to high school degree are a 33.3% increase in wage, for Native Americans the return to high school degree is only 15.5% increase in wage. This was the only statistically significant result for educational degree. Other interactive terms for educational degrees were not statistically significant, so they are not included. This may be due to relatively smaller sample sizes for Native Americans at higher degrees of education.

The third and final set of regressions focuses solely on the Native Americans as a sample. This means only people who self identified themselves as Native American within the American Community Survey were included in the regression analysis. The results of this sub-sample analysis are presented in Table 6. To gain more knowledge on the Native American group, two independent variables were added to the variables mentioned earlier. These variables were gender

and industry of work. The variables for industry have been abbreviated as follows: busd means business degree jobs such as financial services, lglmangd means any professional in the legal field such as lawyer, while the mangd means job positions that are managerial in nature, and finally, STEM means science, technology, engineering and mathematics. Notice that in Table 6 the number of observations has dropped significantly in comparison to Table 4 and Table 5. From the information in Table 6, we can make interesting observations about the labor market experiences within the Native Americans sub-sample. The first observation is that male Native Americans tend to make more in the labor market than females, which is statistically significant at 1%. The second observation is a significant wage premium for Native Americans working in the legal/managerial and STEM jobs, as opposed to the Native Americans working in other industries, where Native Americans in STEM and legal/managerial jobs tend to earn 65-66% more than in other jobs.

Overall, this study's findings were consistent with other literature on US returns to education. Specifically, the 8.7% WI's rate of return to schooling is consistent with the US rate of return (Ashenfelter and Krueger, 1994; Cohn and Hughes, 1994). The original findings of this study is that Native Americans residing in Wisconsin have the rate of return of 5.4-5.7% to years of schooling. These results were fairly consistent across all regressions in this study and, hence, they can be considered robust. The nearly 3%-point gap between the rates of return between Native Americans and non-natives in Wisconsin, after controlling for work experience, gender, and other variables, suggests a potential wage discrimination against the Native Americans. Returns to different degrees vary between Native American and non-Native American as well. For example, after controlling for experience and other variables, the WI's rate of return to high school or GED was found to be 33.3%, while for Native American it was 15.5%. Again, this suggests that Native Americans may be facing a wage discrimination in the low-skill labor market. This is interesting

because this wage discrimination on the lower level of education can create negative incentives for attaining higher education. Sorkin (1969, 1970, and 1974) states that if a large difference occurs in the expected returns from education, then there is less incentive to pursue higher degrees. This may explain high dropout rates of Native Americans in high school, because Native Americans receive less of a premium for attaining a high school degree, and a lower rate of higher level of educational attainment among Native Americans

Conclusion

Taking into account the analysis of the above results, we can conclude that returns to education are significantly lower among the Native Americans residing in Wisconsin compared to non-Natives. This is true when controlling for education measured by years of schooling and educational degrees attained, as well as experience and other control variables. These results should be interpreted with caution; however, due to limitations of the ordinary least squares (OLS) approach. It is recognized that a bias exists when using OLS due to the assumption that an error term and the estimated coefficient for marginal returns to education are uncorrelated (Card, 1999; Trostel et al., 2002; Blundell et al., 2001). However, since ability and education are correlated and when ability is not measured, which is a case in this study, ability enters the equation in the error term. This tends to bias the education coefficient upward because ability is positively correlated to years of schooling and years of schooling is positively correlated with labor income (Trostel et al., 2002). However, there are also several studies that suggest a downward bias in the OLS approach. For instance, Card (1999) explains the downward bias by the fact that individuals with high discount rates for schooling tend to have lower levels of schooling. These lower levels of schooling offer higher marginal rates of return to education.

Given the OLS limitations, researchers developed and apply an instrumental variable (IV)

approach to assess returns to education. By adding in instruments that are not correlated to earnings but that are instead correlated to education can help eliminate the bias of the OLS approach (Card, 1999). The IV approach has generally shown higher estimates for the marginal rate of return to education.

Despite the limitations of OLS approach used in this study, its findings raise some interesting questions: Why do Native-Americans make less than non-Native Americans, even after we control for education, experience, and other explanatory variables? Are Native-Americans being discriminated against? The answers to these questions may lay in historic institutional relationship of Native Americans to the federal government, specifically, the effects of colonialism on the Native Americans today. Studies usually highlight the effects that federal policies have on reservations. Bee and Gingerich (1977) highlight the impacts of federal policies on reservations. Some policies that sought to create economic development for Native Americans, instead shifted money to people who were non-Native American. For example, in the 1950s, policies were aimed at bringing industrial production to reservations, where businesses would receive tax breaks (reservation land is owned by the federal government). This eventually would lead to the exploitation of Native Americans, because Native Americas were unlikely to unionize, which meant cheaper wages for the industries that moved into reservations. Further investigation of the location and industry of respondents in the American Community Survey can help contextualize this knowledge.

Another institutional viewpoint, as the US Constitution states, Congress has the power “to regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes” (U.S. Const. art. I, § 8). Native American governments had their power to open and operate casinos affirmed by the US Supreme Court, which was a legal development stemming from the US

Constitution. Prior to this ruling, tribes did not pursue casinos as an economic development tool. Following this idea of tribal empowerment by affirming the rights of Native Americans, perhaps more powers could be defined as to what Native American tribes can do to help spur economic development. While the focus does not have to be on casino development, perhaps it could be on other types of development. For example, one focus could be on redefining the legal status of land that is reserved for Native Americans. Reservation land is technically owned by the federal government, which makes it difficult for entrepreneurship to take place on reservations. This is a problem, because entrepreneurs generally take out mortgages on their home and land to attain money to develop their business. This means entrepreneurs have difficulty gaining access to credit to start a business (LaFontaine, 1974). Furthermore, by redefining the legal status of land in reserve for Native Americans, it would allow entrepreneurs to gain equity and receive loan money to fund their business. This would help create jobs for Native Americans residing on reservations. The legal status of land on reservations may help explain why a gap exists between Native Americans and non-natives.

To further develop literature on casinos and Native Americans, a study accounting for tribal gaming developments would be helpful. This means there would have to be some way to measure the effectiveness of casino ventures and their relationship to labor income of Native Americans. This means trying to link the success (or lack of success) that casinos in Wisconsin have on Native Americans and their labor income. This could follow studies that were provided in the literature review (Taylor and Kalt, 2005; Conner & Taggart, 2009). This is similar to the first discussion on the relationship between Native Americans and the federal government, where the difference in wages might be explained by economic conditions of reservations.

Finally, another area of research that may provide a plausible explanation of the difference to educational returns is to consider discrimination in the workplace as being a factor. The regression results of this study suggest that Native Americans earn less than non-natives, even when Native Americans have similar qualifications, such as educational levels and labor market experience. Within the literature review section and the shown in Table 1 in the appendix, we learned that African Americans make less for educational returns as well. As we can observe by comparing the results of the regression in this study to Table 1 on African Americans, both groups similarly make less than their counterparts. It just so happens that both groups are minorities within the United States. This may suggest that there is discrimination in the workplace occurring in Wisconsin and in regards to Native Americans due to their minority status.

The study by Kuhn and Sweetman (2002) helps affirm the idea of discrimination against Native Americans in the workplace. As the Aboriginal peoples in Canada become more like the dominant Canadian culture, the more likely they are to earn higher income. This tells us that one of two things is occurring in the labor market in Canada: the dominant Canadian culture provides an income premium to Aboriginal peoples who are more similar to the dominant Canadian culture, or that employers discriminate and pay less to Aboriginal peoples who vibrantly maintain their cultural heritage. The latter would be blatant discrimination against the Aboriginal peoples. Further investigation of this idea of assimilation would reveal whether or not discrimination is taking place in the United States or Wisconsin specifically.

Overall, this study found that Native Americans' returns to education are significantly lower than that of non-Native Americans, regardless whether education is measured in terms of years of schooling or educational degree. Whether the gap in returns to education is attributed to discrimination against Native-Americans, differences in institutions, culture, or other factors is

unclear at this at this point and presents opportunities for future research.

Appendix**Table 1: Educational Returns of African Americans and Whites**

Rates of Educational Returns per year		
Year/race	African American (%)	White (%)
1960	3.04	6.04
1970	3.91	6.58
1980	4.33	5.80

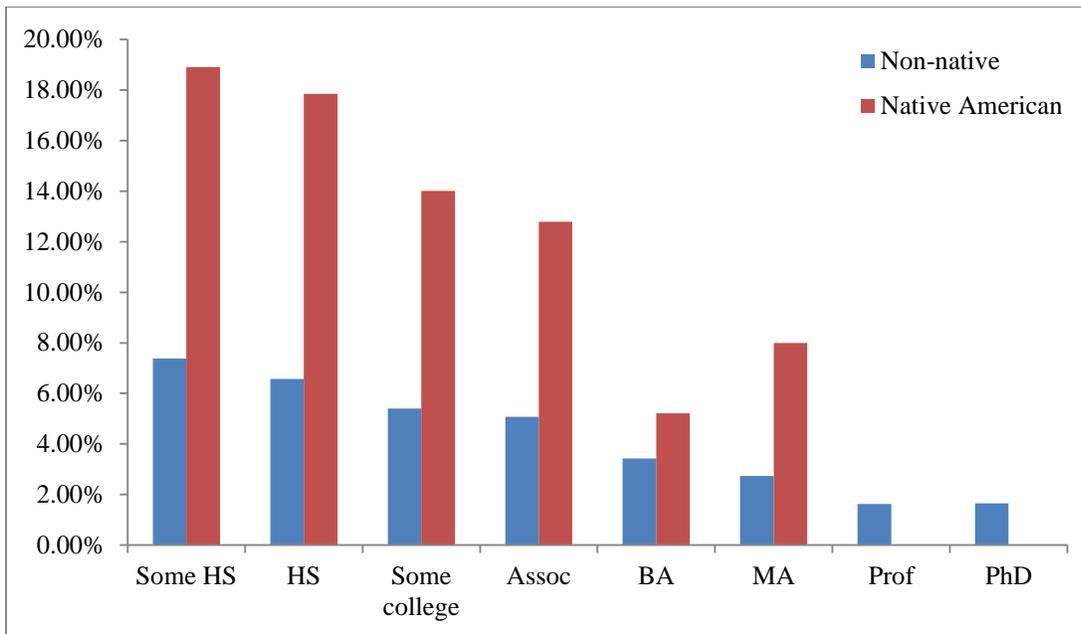
Source: Card and Krueger (1992)

Table 2: Data Summary Statistics by sub-sample

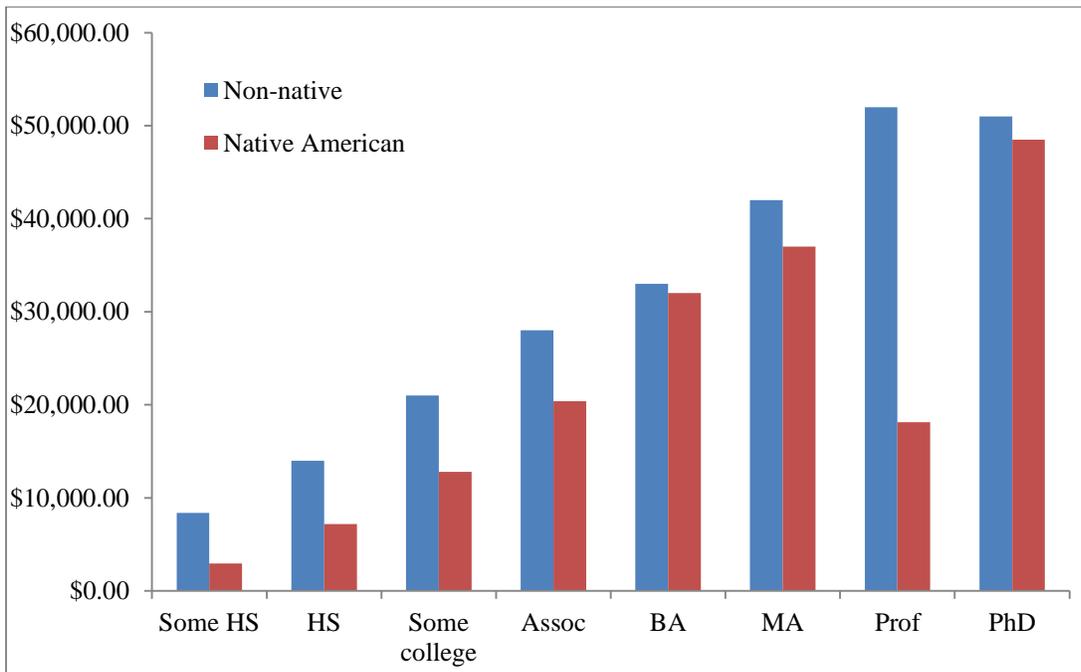
Non-Native American							
Variable	mean	median	sd	skewness	kurtosis	min	max
wagp	22,558.0 8	8,400	35,805.1 6	4.165662	31.27182	0	333,000
yrsch	12.63189	14	6.288822	-0.5768701	2.208166	0	24
Native American							
Variable	mean	median	sd	skewness	Kurtosis	min	max
wagp	14,222.5 7	2,950	22,279.9 3	3.70109	35.9314	0	331,000
yrsch	10.47241	12	5.946137	-0.29799	2.124885	0	24

Source: Author's calculations based on the American Community Survey, Wisconsin PUMS, 2010-2012.

Graph 1: Unemployment Rate by Sub-Sample



Graph 2: Median Labor Income by Sub-Sample



Source: Author’s calculations based on the American Community Survey, Wisconsin PUMS, 2010-2012.

Table 3: Variables Description

Main variables	Description
lnwage	Natural log of annual labor earnings
yrsch	Years of schooling
cum_exp	Cumulative weeks of experience \approx Weeks worked last year * Age (proxy for labor market experience)
natindian	Dummy: 1 if Native American, 0 otherwise
hsged	Dummy: 1 if High school or GED, 0 otherwise
somecol	Dummy: 1 if some college, 0 otherwise
assoc	Dummy: 1 if Associate degree, 0 otherwise
bachelor	Dummy: 1 if Bachelor degree, 0 otherwise
master	Dummy: 1 if Master degree, 0 otherwise
profdegree	Dummy: 1 if professional degree, 0 otherwise
phd	Dummy: 1 if PhD, 0 otherwise

Table 4: Regressions by Years of Schooling, Full Sample

lnwage	1	2	3
yrsch	0.0866159 (0.000)	0.0865 (0.000)	0.0867865 (0.000)
cum_exp	0.0271887 (0.000)	0.0271869 (0.000)	0.0272128 (0.000)
cum_exp2	-0.0000469 (0.000)	-0.0000469 (0.000)	-0.0000469 (0.000)
natindian		-0.112056 (0.000)	.6096463 (0.012)
yrsch_natindian			-0.0296303 (0.035)
cum_exp_natindian			-0.0029224 (0.086)
cum_exp_natindian2			-.00000617 (0.118)
constant	5.434837	5.437762	5.430368
N observations	40,044	40,044	40,044
Adj R-sq	0.5893	0.5893	0.5894

Note: p-values in parentheses

Table 5: Regressions by Educational Degrees, Full Sample

lnwage	4	5	6
cum_exp	0.0248899 (0.000)	0.0248861 (0.000)	0.0247903 (0.000)
cum_exp2	-0.0000431 (0.000)	-0.0000431 (0.000)	-0.0000428 (0.000)
hsged	0.2990745 (0.000)	0.2986106 (0.000)	0.3329804 (0.000)
somecol	0.0708804 (0.000)	0.0710315 (0.000)	
assoc	0.1832551 (0.000)	0.182965 (0.000)	0.2240462 (0.000)
bachelor	0.376312 (0.000)	0.3756479 (0.000)	0.4670972 (0.000)
master	0.1420658 (0.000)	0.1420665 (0.000)	0.1313138 (0.000)
profdegree	0.6883824 (0.000)	0.6884163 (0.000)	
phd	0.3064055 (0.000)	0.3065201 (0.000)	
natindian		-0.107169 (0.0000)	0.0601745 (0.462)
hsgedind			-0.1774941 (0.049)
N observations	90,389	90,389	90,389
Adj R-sq	0.5612	0.5612	0.5568

Note: p-values in parentheses

Table 6: Regression Results Based on Native American Sub-Sample

lnwage	7	8
yrsch	0.0537469 (0.000)	
cum_exp	0.0250811 (0.000)	0.0222579 (0.000)
cum_exp2	-0.0000427 (0.000)	-0.0000374 (0.000)
hsged		0.1942804 (0.033)
assoc		0.2527458 (0.017)
bachelor		0.3918278 (0.000)
male	0.317258 (0.001)	0.2063029 (0.001)
business	0.5350069 (0.050)	0.4336518 (0.043)
managerial and legal	0.465747 (0.091)	0.6478355 (0.016)
STEM	1.043857 (0.001)	0.6581184 (0.013)
N observations	290	803
Adj R-sq	0.6546	0.5829

Note: p-values in parenthesis

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