**Title**
Indigenous Entrepreneurship: An Analysis of the 2007 Survey of Business Owners



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**Publication Date**
2015

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
Los Angeles

# Indigenous Entrepreneurship:
# An Analysis of the 2007 Survey of Business Owners

A thesis submitted in partial satisfaction of the
requirements for the degree Master of Arts
in American Indian Studies

by

Micah K. Kamoe

2015

ABSTRACT OF THE THESIS

Indigenous Entrepreneurship:
An Analysis of the 2007 Survey of Business Owners

by

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Master of Arts in American Indian Studies

University of California, Los Angeles, 2015

Professor Randall K. Akee, Chair

Using data from the 2007 Survey of Business Owners collected by the U.S. Census, I analyze businesses owned by Native American/Alaska Native and Native Hawaiian or Other Pacific Islanders. I find that businesses owned by Native people have a negative effect on the dependent variables and success measures of annual business Receipts and annual Payroll. Attempts to uncover possible explanations are challenged by small sample sizes caused by non-response to additional survey questions by Native survey participants. I also demonstrate varying positive and negative effects on annual business Receipts and annual Payroll for Native-owned businesses, influenced by the different industry categories as defined by the NAICS classification of the business.

The thesis of Micah K. Kamoe is approved.

Duane W. Champagne

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Randall K. Akee, Committee Chair

University of California, Los Angeles

2015

TABLE OF CONTENTS

## I. Introduction

More than one in ten workers, or 13 million people, in the United States are self-employed business owners. These 13 million business owners hold an amazing 37.4% of total U.S. wealth (Fairlie & Robb, 2010). Entrepreneurship is thought of as business ownership, with the simplest kind of entrepreneurship being self-employment (Blanchflower and Oswald, 1998). Some scholars will use the terms "company founder" and "entrepreneur" interchangeably (Storey, 1991), but for the most part, entrepreneurship in a scholarly context usually refers to self-employment.

Research has demonstrated that the characteristics of both entrepreneurs and their businesses influence business success (Fairlie & Robb, 2010). The 2007 Survey of Business Owners (SBO) dataset, conducted by the U.S. Census, contains information on both business owners and the characteristics of the business itself. It is an incredible resource for classifying business owners and their outcomes by race. These business owner characteristics include: gender, ethnicity, race and veteran status of business owners. Characteristics of the business itself include: year established, total amount of startup capital, and number of owners.

Are there differences in business success outcomes as influenced by race? Consistent with both the SBO data and previous research, there are considerable disparities between businesses that are majority owned by non-minorities versus businesses majority owned by minorities. Minority-owned businesses (except for Asian-owned businesses) tend to be much less successful. Two of the attributes from the 2007 SBO that correspond specifically to the business itself are used as proxy measures for business success. The first of these is the Receipts variable, which corresponds to the amount of sales receipts the business acquires during the course of a year. The second is Payroll, which corresponds to the amount of money paid out to

employees during the course of a year. Both of these variables are "…noise-infused for disclosure avoidance." (Fairlie, 2005; U.S. Census Bureau, 2007 Survey of Business Owners).

Studying the effect of race on business success outcomes is limited by the race classification data available. However, the SBO contains information on nearly all races classified by the U.S. Census, with indigenous people – American Indian, Alaska Native, and Native Hawaiian – also included in the dataset. Unfortunately, the groupings of Native people make it difficult to draw specific conclusions on each Native population, as American Indian and Alaska Natives are classified as a single group in the U.S. Census (hereafter abbreviated as the U.S. Census abbreviates it, AIAN for American Indian/Alaska Native) with Native Hawaiians grouped into a larger classification that includes other Pacific Islanders (hereafter abbreviated as the U.S. Census abbreviates it, NHOPI for Native Hawaiian or Other Pacific Islander).

There are limitations and challenges in studying race-based entrepreneurship. First, without the ability to conduct true experiments, there will often be methodological concerns (Blanchflower and Oswald, 1998). Second, outside of data collected by the U.S. Census, both entrepreneurs and their data can be challenging to find (Kim, Aldrich, & Keister, 2003). Third, only a segment of the population at large are entrepreneurs, fewer still are both entrepreneurs and a member of a racial/ethnic minority, and even fewer still are both entrepreneurs and Indigenous. In sum, the challenge of doing research on Indigenous entrepreneurs is the result of extremely small sample sizes. Although the SBO is the best dataset available with information on Native owners and Native-owned businesses, it too may be limited by small sample sizes.

Both the AIAN and NHOPI populations are of specific focus in this thesis. With the different individual/owner specific data along with the business specific data, there is much available for analysis that can possibly demonstrate why Native-owned businesses underperform

their counterparts. This thesis will proceed as follows: the literature review section provides the scholarly basis for hypothesis formation. Next, I will cover the research questions that guide this thesis, and present five hypotheses that seek to accomplish the objective of better understanding AIAN and NHOPI-owned businesses. Method and results sections follow, with details outlining exact results along with how those results were obtained. I will then discuss and conclude.

## II. Literature Review

In evaluating scholarly research on entrepreneurship with an interest in Indigenous (Native American, Alaska Native, Native Hawaiian) owned businesses, there seems to be three major, mostly segmented, but occasionally overlapping areas of existing relevant scholarship. The first research area deals with what can be considered general findings, or entrepreneurship research that focuses on the entrepreneurial population at large. Most of the research on entrepreneurship is of this kind. The second research area deliberately takes race or ethnicity into consideration, but often focuses on minority groups other than the Indigenous. This focus is usually due to a lack of data on the Indigenous or simply because the Indigenous are not the population of interest to the researcher. The minority amount of entrepreneurship research focuses on racial and ethnic minorities. The third research area deliberately focuses on the entrepreneurial activities of the Indigenous — on Native American, Alaska Native, or Native Hawaiian populations. Research of this kind is usually written from a philosophical, sociological, political, ethnographic, or anthropologic perspective, and lacks the statistical and quantitative analyses necessary to have broad, representative application to the Indigenous population as a whole. This assertion is not meant to minimize the contributions to scholarship that researchers of Indigenous entrepreneurship have made in the past. Rather, it is both a recognition and an aspiration – of what has been accomplished, and of what remains to be

accomplished – in order to develop a more complete understanding of the Indigenous entrepreneurial experience.

*General Entrepreneurship Findings*

Most scholarship on entrepreneurship is general in nature, and suggests broad application to all kinds of entrepreneurs. Besides simply deepening an academic understanding of entrepreneurs, some scholars hope that a better understanding of how entrepreneurs develop and what circumstances encourage their entrepreneurship will be helpful in supporting existing entrepreneurs and encouraging new aspirants (Wadhwa, Aggarwal, Holly, & Salkever, 2009).

Entrepreneurs are believed to be forces of innovation, employment and economic dynamism (Dunn & Holtz-Eakin, 1996). There is a general sense that entrepreneurship has positive economic benefits for any society, in that: "At the very least, entrepreneurship creates one job for the entrepreneur as well as income. At best, it generates additional jobs and (financial or nonfinancial) incomes for other people" (Desai 2009). Entrepreneurs are celebrated in our modern culture, usually for the way that their ideas can create extreme wealth. Additionally, small businesses (usually used as a stand in for entrepreneurial activity) generally have created 60 to 80 percent of the net new employment in the United States. Even after recession years, net job creation tends to come from small firms with less than 500 employees (Wadhwa, Aggarwal, Holly, & Salkever, 2009).

Entrepreneurs face capital constraints that can affect the decision for individuals to choose entrepreneurship, the ability for entrepreneurs to remain successful upon firm creation, as well as affect closure rates or unsuccessful exits from entrepreneurship. Human capital plays a significant role in entrepreneurship (Kim, Aldrich, and Keister, 2003). Education level of the owner is a particularly influential variable in regards to successful entrepreneurship.

Krashninsky (2004) found that estimates from the CPS (Current Population Survey) indicate that only 6.5 percent of individuals who do not have a high school diploma are self-employed. In contrast, 11.0 percent of college-educated individuals own a business. Bates (1990) found that highly educated entrepreneurs are most likely to create firms that survive, with owner educational background being a major determinant of the financial capital structure of small business startups. Servon and Bates (1998) also found that viable small firms are usually headed by well-educated owners.

Financial capital is also influential in successful entrepreneurial outcomes. Firms with larger financial investments at startup are consistently overrepresented in the survivor column (Bates 1990). When directly questioned in interview surveys, potential entrepreneurs say that raising capital is their principal problem (Blanchflower and Oswald, 1998). In a separate survey of entrepreneurs, Wadhwa, Aggarwal, Holly, & Salkever (2009) also found that self-identified entrepreneurs mention access to capital as their greatest barrier. Furthermore, Evans and Leighton (1989) and Evans and Jovanovic (1989) have also found that entrepreneurs face liquidity constraints.

Social capital plays a role in entrepreneurial outcomes. Social capital is an important component of successful entrepreneurship, that of taking advantage of social affiliations and network strategies in pursuit of entrepreneurial goals (Hoang and Antoncic, 2003). Entrepreneurs consistently use networks to get ideas and gather information to recognize entrepreneurial opportunities (Hoang and Young, 2000). Davidsson and Honig (2003) found that one particular aspect of social capital, being a member of a business network, had a statistically significant positive effect on outcomes like first sale or showing a profit.

Also within an individual's social network is one's family. Using data from the National Longitudinal Surveys (NLS), Dunn and Holtz-Eakin (1996) found that young men's own financial assets exert a statistically significant, but quantitatively modest effect on the transition to self-employment. In contrast, the capital of parents exerts a large influence. Parents' strongest effect runs not through financial means, but rather through human capital, i.e., the intergenerational correlation in self-employment. This link is even stronger along gender lines. Thus, these data suggest strong roles for human capital *per se* and the transmission of these skills within families in enhancing the probability of making a transition to entrepreneurship. Furthermore, parents with work experience in a specific industry can pass on that knowledge to their children (Sorensen, 2006). Related findings by Aldrich & Kim (2007) further support the transmission of human capital across generations, with the duration of exposure to parental self-employment being no more significant than the exposure itself, evidenced by few children inheriting their parents' businesses or receiving any startup capital from them (Aldrich & Kim, 2007).

*Minority Entrepreneurship Findings*

Supporting much of the general findings in regards to entrepreneurship are findings based on research focused specifically on minority populations. Prominent minority entrepreneurship researchers Robert Fairlie and Alicia Robb noted that in researching for their book (2010) they were surprised to learn that there "…were no studies or reports in the literature that provided thorough information on recent trends in minority business ownership rates and outcomes." In both conducting and compiling research, Fairlie and Robb (2010) have made incredible contributions by way of a number of significant findings. Minorities are substantially less likely to own a business, with human, financial, and social capital appearing to be the main driving

forces behind racial differences in rates of business ownership (Fairlie & Robb, 2010). Trends in minority business outcomes do not indicate improvement relative to white business outcomes in the past two decades, with racial wealth inequality also showing no trends towards disappearing (Fairlie & Robb, 2010).

Consistent with other entrepreneurial research findings, education level of the business owner indicates positive associations with firm survival, profits, employment and sales. (Fairlie & Robb, 2010). Additional factors that might explain low rates of entry and high rates of exit from self-employment among disadvantaged minority groups include, but are not limited to, racial differences in parental self-employment, prior work experience, prior work experience in a family business, other sector-specific human capital and lending and consumer discrimination (Fairlie, 2005; Farilie & Robb 2010). Noteworthy also, is the finding that firms with higher levels of startup capital are less likely to close and are more likely to have higher profits and sales and to hire employees. The estimated positive relationship is consistent with the inability of some entrepreneurs to obtain the optimal level of startup capital because of liquidity restraints (Farilie and Meyer 1996; Fairlie & Robb, 2010). On the whole, the broader economic health of an ethnic/racial group also affects self-employment rates. Fairlie and Meyer (1996) found that differences in self-employment rates between racial groups in the United States are almost as great after regression controls, including age, education, and other variables. They also find that an ethnic/racial group's self-employment rate is positively associated with the difference between average self-employment and wage/salary earnings for that group. Finally, they find that the more advantaged ethnic/racial groups, measured by wage/salary earnings, self-employment earnings, and unearned income, have the highest self-employment rates.

Naturally, one might imagine that different races will have different entrepreneurial outcomes. Fairlie & Robb confirm this in assessing and comparing White-owned, Asian-owned, and Black-owned businesses. Their findings confirm other findings in entrepreneurial research (that human, financial, and social capital appear to be the driving forces in both rates of ownership and related success), with more specificity in regards to racial differences with comparisons between each.

In analyzing the Characteristics of Business Owners survey from the US Census, Fairlie and Robb (2010) find that black-owned businesses are significantly disadvantaged for a number of reasons. Relatively low levels of education, assets, and parental self-employment are partly responsible for their low rates of business ownership (Fairlie & Robb, 2010). Black-owned businesses have lower sales and profits, hire fewer employees, have smaller payrolls, and have higher closure rates than white-owned businesses. For most outcomes, the disparities are extremely large. For example, estimates from the 2002 SBO indicate that white-owned firms have average sales of $439,579 compared with only $74,018 for those owned by blacks (Fairlie & Robb, 2010).

Other factors can be traced to poor outcomes for black-owned businesses. Only 17.6% of blacks have a college education compared with 28.2% of whites. Black business owners are also found to have lower levels of education than white business owners, on average. Estimates from a decomposition technique indicate that these racial differences in education contribute significantly to the observed racial disparities in business outcomes (Fairlie & Robb, 2010). In addition, the median level of wealth for blacks is $6,166, compared with $67,000 for whites. Black owned businesses start with substantially lower levels of financial capital than white owned firms. Using a nonlinear decomposition technique, Fairlie and Robb (2010) find that the

black/white disparity in startup capital is the largest single factor contributing to racial disparities in closure rates, profits, employment, and sales.

Previously, Fairlie (1999) found (using a two-state model) that the low rate of self-employment among blacks is due to a black transition rate into self-employment that is approximately one-half the white rate, and a black transition rate out of self-employment that is twice the white rate. In sum, the consequences of racial inequality are severe. Low asset levels affect the ability of black families to smooth their consumption over fluctuations in income due to job loss and other negative labor market outcomes. Wealth inequality also translates into political, social, residential, and educational inequality. Current asset levels, and not only current and future income, are important for home purchases and financing education. Through inheritances and intergenerational transfers, black/white wealth inequality is also transmitted to future generations (Fairlie & Robb, 2010).

Furthermore, Fairlie and Robb (2010) find that Asian-owned businesses are more successful due to more positive outcomes in regards to human, financial, and social capital. The success of Asians in business ownership in the United States is well documented and has been used as an example of how disadvantaged groups utilize business ownership as a route for economic advancement. It has been argued, for example, that the economic success of Chinese and Japanese immigrants is in part due to their ownership of small businesses. More recently, Koreans have also purportedly used business ownership for economic mobility (Fairlie & Robb, 2010).

Regional differences also play a role in explaining the higher profits and sales of Asian owned businesses. Urbanicity explains more than 15% of the Asian/white gap in profits. It also explains 8.4% of the gap in closure rates and 13.1% of the employer gap. Nearly 95% of Asian-

owned firms are located in urban areas, compared with about three quarters of white-owned firms. Locating in an urban area might also indicate a broader market with greater growth potential. (Fairlie & Robb, 2010)

Racial differences in education continue to be important in explaining the Asian/white gaps in business outcomes. The inclusion of controls for startup capital and industry does not change the conclusion that Asian businesses are more successful partly because of higher education levels. Nearly half of all Asian American business owners are college educated, which follows the pattern of high levels of education in the Asian American population more generally. Higher levels of education among Asian business owners, who are 80% foreign born, explain a large fraction of the better outcomes in Asian- compared with white-owned businesses (Fairlie & Robb, 2010). However, the most important factor in the higher survival rates, profits, employment, and sales of Asian-owned firms is that Asian Americans invest more startup capital in their firms than whites. This factor alone explains 57 to 100 percent of the difference in outcomes between Asian and white firms (Fairlie & Robb, 2010).

White-owned businesses appear to possess a number of advantages that lead to their being more successful than their minority-owned business counterparts (with the exception of Asian-owned businesses). White-owned businesses start with more money, have higher rates of education among owners, have more work experience, possess leveragable assets, and are more likely to have worked in a family owned businesses – all of which lead to better outcomes for firm survival, profits, employment and sales (Fairlie & Robb, 2010).

*Indigenous Entrepreneurship Findings*

Indigenous groups (Native American, Alaska Native, Native Hawaiian), have been around for a long time. The indigenous have existed as distinct groups prior to the formation of

present-day nation states (Champagne, 2013). Published research findings that exist in regards to Native-owned businesses are scant. For example, the Current Population Survey does not allow identification of Native Americans prior to 1989 (Fairlie, 2002). As Native populations have been included in greater numbers since that time, sample sizes have been small and subsequently, caution is often warranted in interpreting the results (Fairlie, 2002; Farilie 2005).

The Native entrepreneurial experience should be considered distinct from ethnic entrepreneurship. Studies focused on ethnic entrepreneurship tend to reference immigrant populations, economic interactions in new places, and enterprise development at the individual level. On the other hand, indigenous entrepreneurship usually references people with close attachment to ancestral territories and natural resources, economic interactions involving those connections, and enterprise development at the community level (Anderson, Peredo, Galbraith, Honig, & Dana, 2004). Furthermore, there are many reasons why Native populations are distinct from other minority groups. In regards to Native American and Alaskan Native populations, removal and assimilation policies, broken treaties, termination policy (Keown 2010), a lack of constitutionally engrained rights for American Indians in nation state governing structures, policies to destroy tribal culture through religious assimilation (Pommersheim 2009), widespread political and social marginalization, and tribal governments that have been historically discouraged (Champagne 2013), all combine to influence modern day indigenous attempts for economic self-sufficiency. While their history is distinct, Native Hawaiians have also been marginalized in similarly traumatic ways. Disease, the illegal overthrow of their government, assimilation policies that degraded culture, and political and social marginalization have also undermined Native Hawaiian attempts toward economic self-sufficiency.

Indigenous entrepreneurs face distinct challenges that other ethnic/racial groups do not. Since federally recognized tribes maintain their own governing institutions, those institutions themselves can challenge the way Native people approach entrepreneurship. These differences in institutional environments can sometimes make starting a business too difficult. There may be inconsistent business policies and regulations – or none at all. There may not be adequate, legitimate and clear governing institutions that would outline the rules and regulation of business formation. It may be the case that the tribal government operates businesses in competition with its people (Cornell, Jorgensen, Record, & Timeche, 2007). Cornell et.al (2007) further argue that: "…significant changes in tribal personnel can lead to sudden changes in tribal policy. Uncertain what to expect from one administration to the next, would-be entrepreneurs will think twice before starting a business, and current business owners will be less likely to expand their operations because they have little confidence that their investments will pay off." Another hurdle lies in the way that federal trust land (in other words, American Indian reservation land) cannot be leveraged for startup capital, causing unique capital constraints that don't exist elsewhere (Raybould, 2006; Rodriguez, Stiles, & Galbraith, 2006; Champagne, 2013).

It is assumed that extreme poverty has a constraining effect on Native entrepreneurial participation. Reservation Indians are the poorest minority in the United States (Cornell & Kalt, 2000). Fairlie (2005) found from an analysis of U.S. Census data from 2003 that: "Latinos, blacks, and Native Americans earn only 2/3 to 3/4 the earnings of white, non-Latinos." Furthermore, Fairlie (2005) found that "…a comparison of poverty rates reveals even more alarming differences. The Latino, black and Native American poverty rates range from 2.8 to 3.1 times the white, non-Latino poverty rate." In referencing American Indian poverty, Joseph Kalt observed: "All of us are aware that American Indians are among the poorest identifiable

groups in the nation…[with] incomes about 40 percent lower than the U.S. average"(Kalt 2005). One in every four live in poverty and nearly a third do not have health care. Additionally, counties on reservations are among the poorest compared to others throughout the United States with only a third of Native American males living in Native American communities able to find full-time employment. Some reservations have unemployment rates as high as 69 percent and others go higher still (Rodgers 2013). Furthermore, per capita income for Native Americans living on reservations in 1999 was $7,846, compared with $14,267 for Indians living off reservations and compared with $21,587 for the average U.S. citizen (Anderson & Parker, 2008).

Given the historical, institutional, economic and other disadvantages faced by Native entrepreneurs, it's no surprise that they are substantially underrepresented in business ownership (Farilie, 2005). In analyzing business ownership rates among Indigenous peoples across Canada, the United States, and the United Kingdom, Farilie (2005) found a clear pattern of relatively low rates in all of the countries reported. For tribes who still maintain their political institutions, most imagine the tribal nation as the primary actor in reservation economic development (Cornell, Jorgensen, Record, & Timeche, 2007). Many modern day tribal leaders focus much of their governance strategies around economic development, job creation and tribal business engagement, with the tribal government at the center of those activities (Smith 2013).

Significant cultural differences and perceptions towards entrepreneurship may also explain low participation rates in entrepreneurial endeavors. Some Native people may see entrepreneurial activity as being at odds with their traditional culture. Others may not. There are so many distinct tribes and indigenous groups across the United States, that it's difficult to find a one-size-fits-all position. However, most research regarding Indigenous economic endeavors argue that cultural norms are integrated into economic activities. For example, some have

theorized that indigenous entrepreneurship is distinct in its process and objectives with communities in both Canada and Andean indigenous peoples "…pursuing development based on collective activity, traditional lands, traditional values…and pursuing multiple goals in order to reach the common good" (Anderson, Peredo, Galbraith, Honig, & Dana, 2004). Some have asked: "Are Indians still Indians if they are capitalists?" (Champagne 2007). While it is more generally accepted among scholars of American Indian culture, "…that the [*modern day*] self-interested pursuit and retention of wealth was not an indigenous American value," it is recognized that indigenous economic society was intricately interwoven with other aspects of indigenous culture (Harmon 2010). For many who have discussed the role of culture on economic activity, a central issue at hand "…is whether American ideals required that Indians and their fellow citizens conduct economic activities by the same rules" (Harmon 2010). Often however, many foster the idea that Indians who are economically prosperous are perceived as having accepted the "acquisitive individualism" or have developed an "un-Indian interest in acquiring wealth" (Harmon 2010). Regardless of what others think of them, the Indigenous don't view themselves as being any less aboriginal because they are part of the wage labor force (Champagne, Torjesen, & Steiner, 2005). For most Native communities, economic development is just a means to an end, and is not the end itself. Champagne (2007) argues: "Even the most strongly market-oriented tribal economic planners see economic development as a way to support the reservation community, retain tribal members on the reservation, and promote viable, self-supporting Native communities."

While there are few researchers that focus their scholarship on Native entrepreneurship, there are certainly differences of opinion regarding to what extent, pre-contact Indigenous cultures had economic systems comparable to, or even wholly compatible with modern day

capitalism. In his book *Reservation Capitalism,* Robert Miller (2013) strongly argues that misrepresentations about Indian property rights and economic conditions were just excuses used to justify taking those rights. Miller (2013) further argues that: "…native peoples understood, appreciated, and lived by principles that today we call private property rights, entrepreneurship, and free market economics in which individuals voluntarily participate in the manufacture of excess crops and goods and engage in trade mostly without governmental direction or control." He cites a number of examples that demonstrate that American Indians engaged in economic ventures comparable to modern day capitalism. A few of these include: scant "truly communal" property, extensive private free market trade situations with currency mediums, the practice of leasing/renting horses or extending credit, private property rights expressed in the capture of assets such as buffaloes, whales, horses and the spoils of raiding, wealth accumulation, the amassing of economic surpluses, cultural values that focused on status and wealth, trade networks that respected private property rights, familiarity with loan repayment principles, and money lending with interest charged on loans (Miller, 2013). Miller strongly concludes that: "…private entrepreneurship and the idea of working to create and accumulate private property and profits to support yourself and your family are not new ideas to Indian cultures. These are the very activities that Indian individuals, families, and tribal communities have used to support themselves for centuries" (Miller, 2013).

However, Duane Champagne (2007) argues that the economic development practiced by pre-contact Natives was not the same kind of capitalism practiced today. By working through the history of capitalism and by developing a succinct definition of capitalism using the philosophies of Max Weber, Champagne demonstrates that capitalism as imagined by Weber, did not exist in North America before Columbus. Champagne (2007) states: "Most Native

individuals and communities have not been strongly attracted to capitalist enterprise …[and]… have not been quick to accept capitalist enterprise, either at present or historically. Both cultural and institutional reasons account for the relative absence of interest in capitalist enterprise." Champagne (2007) further argues that: "No one lived by organizing factors of production, maximizing technological innovation and wage labor, to meet the demands of a market." He also sees a notable distinction in that capitalist philosophies see the earth as a natural resource to be exploited, which stands in stark contrast to the Native worldview that promotes a subsistence economic orientation, where only limited goods are taken. In this regard, pre-contact Natives were not looking to make a profit, but only to obtain necessities. The values of Native communities mitigated against capitalist activities through generosity, and wealth redistribution. Thus, wealth was a means to consolidate social and political relations through redistribution, not the means to create more wealth by investment in greater production (Champagne 2007). As a result of these and other reasons, Champagne (2007) sees pre-contact Natives as pursuing economic activities truly distinct from modern day capitalism.

I recognize that it may not be wholly important within the scope of this thesis to conclusively demonstrate whether or not pre-contact Natives engaged in what we would call, capitalist enterprises, as the range of views on the matter are evident in the differences of position between Miller and Champagne. However, referencing this material is important in understanding the foundational basis of research that exists in regards to Indigenous entrepreneurship.

Ultimately, regardless of the historical and cultural connections to present day Indigenous entrepreneurship, the fact remains that Native-owned businesses are less successful (Fairlie, 2002). When there is tribal entrepreneurship, it is usually best described as "…microenterprises

or hobby businesses, generating employment several levels below typical employment generated from business births in developed economies" (Rodriguez, Stiles, & Galbraith, 2006).

For tribal governments actively seeking economic development, neglecting citizen entrepreneurship becomes a missed development opportunity. The independent business strategy deserves consideration, referring to businesses started and owned not by Native nation governments but by their citizens. (Cornell, Jorgensen, Record, & Timeche, 2007) Cornell et.al. (2007) identify many reasons that Native nations should encourage entrepreneurship within the reservation economy. These benefits include: a reservation multiplier in that "…tribal citizens spend dollars on the reservation instead of in off-reservation communities. This means the dollar turns over at home, thickening economic activity and multiplying the effects of wages and other income sources." Native entrepreneurs with a reservation presence also generate jobs, build community wealth, build a tax base, diversify the tribal economy, retain talent locally, improve the quality of life, broaden the development effort, support the tribal community, and strengthen tribal sovereignty (Cornell, Jorgensen, Record, & Timeche, 2007).

In regards to hard numbers that speak to the Indigenous entrepreneurial experience, Champagne (2007) states: "Indian capitalist entrepreneurs appeared in significant numbers during the 1970s and 1980s, but few invested their assets on Indian reservations, preferring to start businesses in urban areas that are conducive to business entrepreneurship and economic opportunities. In the 1980s and 1990s individual Indian entrepreneurship increased at very high rates. The number of US businesses owned by American Indians, Eskimos, and Aleuts increased 93% between 1987 and 1992, from 52,980 to 102,271. By contrast, the rate of increase for all US firms was 26% from 13.7 million in 1987 to 17.3 million in 1992. Most recent Census Bureau information indicates that the number of Native business continues to expand at a fast

pace." However, this rapid growth is explained by Fairlie (2002) who found: "…that rapid growth rates for self-employed Native Americans (nearly an 81 percent increase from 1989 to 1998) relative to whites over the past decade or two, was due primarily to expansions in the labor force and not in the propensity for Native Americans to choose self-employment. Also, the Native American workforce did not age as rapidly as the white workforce during this time. The industries with the largest contributions to this expansion were retail trade, construction and professional services. This increase in the workforce accounts for 95 percent of the growth in the number of business owners in this group." In other words, Fairlie explained the increased rate of Native business ownership as connected to overall increases in labor force participation and not because of a specific Native American interest in entrepreneurship per se.

And what of the success of Native businesses? Except for industries not classified, Native businesses average less receipts than the average for all US firms in the same industry (Champagne 2007). There is also a lower entry rate into self-employment for Native Americans as compared to native-born whites, explained mostly by low levels of education and assets. Education and asset differences explain 36.1% and 54.1% of the gap, respectively. Although these factors alone explain nearly the entire gap in business creation rates, there exist a number of offsetting factors. The Native American regional composition, overrepresentation in rural areas, high levels of nonemployment, and family characteristics are favorable in terms of increasing business formation. These results imply that if Native Americans had similar geographical locations, family structures and levels of employment as whites, the gap in entry rates would be substantially larger than reported (Fairlie, 2005).

Further supporting the notion that Natives start businesses at lower rates is one study based on interviews with nine Southern California tribal bands and four Arizona tribal bands.

Rodriguez, Stiles & Galbraith (2006) found that nongaming Native American tribes had an average business startup rate of less than 0.15 per 100 adult tribal members. Comparative numbers for the United Kingdom and the United States respectively are 0.37 and over 1.00, indicating that entrepreneurial activity (not including gaming tribes) among tribal bands is significantly lower than most developed countries.

Based on the existing scholarship, Native-owned businesses are less successful (as defined by receipts and payroll variables) due to constraints in regards to human, financial and social capital. Natives also have lower entrance rates and higher exit rates. These racial disparities in business ownership are unlikely to diminish substantially over the short term as trends over the past few years do not reveal rapidly increasing rates of business ownership among Native Americans (Farilie, 2002). To address this, Farilie (2002) suggests that: "Innovative minority business development policies are needed to change these patterns, especially in light of the recent judicial and legislative challenges to affirmative action programs targeted towards minority-owned businesses" (Fairlie, 2002).

*Literature Review Conclusion*

Research demonstrates that successful entrepreneurs are supported by human, financial and social capital, with each affecting entrance rates, exit rates, and revenues. Differences among races appear to be attributable to differences in human, financial and social capital. Minority owned businesses are not as successful due to lower amounts of exactly these kinds of capital. The same seems to be the case with Native-American and Alaska-Native owned businesses. I hesitate to state equivocally that there is no scholarship on Native-Hawaiian owned businesses but I struggled to find meaningful, published, discussion or analyses regarding NHOPI-owned businesses. I assume that the same trend of success influenced by various kinds

of capital as identified among other racial groups, would also hold true in the Native-Hawaiian instance.

## III. Research Questions

Forming appropriate research questions depend on the variables available in the 2007 SBO dataset. A full list of the variables from the 2007 SBO that correspond to the characteristics of the business include the following: the year the business was established, source(s) of start-up or acquisition capital, the amount of start-up or acquisition capital, whether or not it was a home-based business, if it operated as a franchise, if it was owned by a franchise, source(s) of capital used to expand business, types of customers, percent of total sales exported, whether or not operations were established outside the United States, if any business function was outsourced outside the United States, the language(s) used in transactions, the types of workers employed, if employer-paid benefits were offered, whether the company had a website, whether the company had e-commerce sales, e-commerce as a percentage of total sales, whether the company made online purchases, the kinds of business activity (e.g., seasonal or part-time), whether the business currently operates, reasons for ceasing operations, if joint ownership is shared by husband and wife, whether it's a Family-owned business, and last, the number of owners. (U.S. Census Bureau, 2007 Survey of Business Owners).

A full list of the variables contained in the 2007 SBO data set include the following characteristics for each owner: the Percentage ownership, Gender, Ethnicity, Race, Veteran status, how the owner initially acquired the business, when the owner acquired the business, the Owner's primary function in the business, the Owner's average number of hours per week spent working in the business, whether the business provided the owner's primary source of personal income, whether the owner previously owned a business or had been self-employed, the Owner's

educational background, the Owner's age, whether the owner was born in the United States, if the owner was a veteran, and last, whether the owner was disabled as the result of injury incurred during active military service. (U.S. Census Bureau, 2007 Survey of Business Owners).

The objective of this thesis is to discover possible explanations for the underperformance of AIAN and NHOPI-owned businesses as compared to the others. I've formed five hypothesis to accomplish this objective. The first (H1) is that all non-White majority-owned businesses will be less successful than White-owned businesses, with success measures defined by the variables Receipts and Payroll. This evaluation will include comparisons between every race-based ownership grouping possible: White-owned, Asian-owned, Black-owned, AIAN-owned, NHOPI-owned. The tied groupings are also included (with 50% ownership between each racial group) and include: White/Asian-owned, White/Black-owned, White/AIAN-owned, White/NHOPI-owned, Asian/Black-owned, Asian/AIAN-owned, Asian/NHOPI-owned, Black/AIAN-owned, Black/NHOPI-owned, and AIAN/NHOPI-owned businesses.

While H1 will specifically demonstrate the underperformance of AIAN and NHOPI-owned businesses, the next few hypotheses (H2 through H4) attempt to discover underlying reasons for that underperformance. H2 states that a higher owner education level will positively influence Receipts and Payroll. Third, (H3) starting capital sources that require more vetting will positively influence Receipts and Payroll. I consider the following starting capital sources to require some kind of vetting: Government Loan, Government Guaranteed Loan, Bank Loan, Family Loan, Venture Capital, and Grant. Each of these sources require some kind of approval relative to an evaluation of the business, hence the vetting idea is at work here. The remaining starting capital sources can be accessed without some kind of vetting process. These are: Savings, Assets, Credit Card, and Home Equity (I consider Home Equity as belonging to this

group because the vetting process at issue here is in regards to other factors not related to the business being formed, such as assessed home value, amount of equity in the home, etc.) Fourth, (H4) higher levels of startup capital will positively influence Receipts and Payroll. These hypotheses are consistent with the research from the literature review section mentioned earlier, in that human capital levels (H2) and financial capital attributes (H3 & H4) are said to affect business success.

Finally, H5 states that industries as defined by their NAICS codes will have varying effects on Receipts and Payroll. I recognize that this is a very broad hypothesis, however, having exactly twenty different industry categories available in the dataset complicates the formation of a more specific hypothesis. This analysis will demonstrate which industries have positive or negative affects on business success for both AIAN and NHOPI-owned businesses.

## IV. Method

After downloading the 2007 SBO data set, I reclassified the variables for ease of analysis (mostly this included renaming variables or assigning numeric responses instead of text responses).

Next, I had to determine race-based ownership of the business. Since the SBO lists data on up to four owners, race ownership is determined by majority ownership. For example, if there are three owners and two of them are White, the business is classified as a White-owned business. This method of determining ownership is consistent with SBO's own methodology with other researchers following the same trend (Fairlie, 2005; U.S. Census Bureau, 2007 Survey of Business Owners).

To determine race ownership of the business in the SBO dataset, I first generated a variable that calculated the total amount of owners. Next, I created individual variables that

added the total amount of each individual race within the business. For example: sumwhite = the total amount of White owners in the business, adding up: white1, white2, white3, and white 4 (each of the race identification variables for each of the four owners) which produced a total. I then generated a variable that calculated the percentage of race ownership, by using the total amount of owners as classified by race, divided by the total amount of owners. This produced a percentage of race ownership for each business (labeled as percentwhite, percentasian, percentblack, percentAIAN, percentNHOPI, etc.) Overall business ownership was then assigned to a race if the percentage was greater than 50%. If the percentage of race ownership was exactly 50% it counted as a tie. If it was below 50%, then it was minority owned and had already been classified as owned by another race. Every possible tied ownership business combination was also generated as variables, making the total race ownership business possibilities as being one of the following: White-owned, Asian-owned, Black-owned, AIAN-owned, and NHOPI-owned, White/Asian-owned, White/Black-owned, White/AIAN-owned, White/NHOPI-owned, Asian/Black-owned, Asian/AIAN-owned, Asian/NHOPI-owned, Black/AIAN-owned, Black/NHOPI-owned, and AIAN/NHOPI-owned. I would clarify that a White/Asian-owned business is 50% owned by Whites and 50% owned by Asians, as a tied-ownership variable. It is not a business belonging to an individual who is both White and Asian. The same is true for all other race combination possibilities listed above.

Next, variable responses classified as "Not Reported" were dropped from the dataset. For example, the SBO asks each owner if they are the founder of the business. If they answer Yes, it is coded as a 1. If they answer No, it is coded as a 2. If they do not respond, it is coded as a 0. To ensure sound analysis of H1 through H5, all 0 type answers were dropped from the dataset. I then created dummy variables in preparation for the evaluation of H4 which focuses

exclusively on starting capital amounts. These included dummy variables for both startup capital and NAICS sector/industry. I then evaluated each hypothesis by conducting a series of multiple regressions for each. What follows is the methodology specific to the evaluation of each hypothesis.

*Methodology: Hypothesis 1*

Two multiple regressions make up the evaluation of H1. The first has Receipts as the dependent variable, with independent variables being the different race ownership variables. In order to avoid colinearity the race ownership variable not included was White-owned, or pertained specifically to White-owned businesses. Tied race businesses are included. The same multiple regression is repeated but with Payroll as the dependent variable.

*Methodology: Hypothesis 2*

Thirty-two multiple regressions make up the evaluation of H2. The first sixteen multiple regressions have Receipts as the dependent variable with the independent variables being the following education level variables: completed High School, completed Tech School, have some college, have an Associates degree, have a Bachelors degree, have a Masters degree or higher. To avoid colinearity, the variable response less than High School is not included. One regression is calculated without race restrictions, or in other words, includes all businesses within the dataset. The next fifteen regressions are restricted to include each race ownership combination, one by one. In other words, the analysis explained above is repeated but includes just White-owned businesses. It is repeated for every other race ownership combination.

The exact same multiple regressions mentioned above are calculated again, but the dependent variable is changed to Payroll instead of Receipts. This adds another sixteen

regressions to the already mentioned sixteen, in the evaluation of H2. All other things mentioned remain the same.

*Methodology: Hypothesis 3*

Thirty-two multiple regressions make up the evaluation of H3. The first sixteen multiple regressions have Receipts as the dependent variable with the independent variables being the following starting capital source variables: starting a business using personal assets (scassets), using home equity (scequity), using a credit card (sccredit), using a government loan (scgovtloan), using a guaranteed government loan (scgovtguar), using a bank loan (scbankloan), using a loan from a family member or friend (scfamloan), using venture capital (scventure), using a grant (scgrant), using startup capital from some other source (scother), starting capital source unknown (scdontknow), starting capital is not needed (scnoneneeded) or starting capital is not reported (scnotreported). To avoid colinearity, the variable response that corresponds with starting a business from personal savings (scsavings) is not included. This variable was chosen as the one to leave out because H3 attempts to evaluate the process of vetting on the dependent variable. I consider vetting to include a rigorous process by which capital is obtained only after the process of focus is satisfactorily met. Variables that fit this category include startup capital from: a government loan (scgovtloan), a guaranteed government loan (scgovtguar), a bank loan (scbankloan), a loan from a family member or friend (scfamloan), a venture capital loan (scventure), or from a grant (scgrant). What these starting capital sources have in common, is that a certain set of criteria is met before capital is released for investment. Other capital sources have no such vetting, which include the variables of staring a business using capital from: existing assets (scassets), a home equity loan or line (scequity), a credit card (sccredit), or from the variable response not included – personal savings (scsavings).

Next, one regression is calculated without race restrictions, or in other words, includes all businesses within the dataset. The next fifteen regressions are restricted to include each race ownership combination, one by one. In other words, the analysis explained above is repeated but includes just White-owned businesses. It is repeated for every other race ownership combination.

The exact same multiple regressions mentioned above are calculated again, but the dependent variable is changed to Payroll instead of Receipts. This adds another sixteen regressions to the already mentioned sixteen, in the evaluation of H3. All other things mentioned remain the same.

*Methodology: Hypothesis 4*

Thirty-two multiple regressions make up the evaluation of H4. The first sixteen multiple regressions have Receipts as the dependent variable with the independent variables being the following starting capital quantity range variables: $5,000 to $9,999, $10,000 to $24,999, $25,000 to $49,999, $50,000 to $99,999, $100,000 to $249,999, $250,000 to $999,999, or any amount equal to $1,000,000 or above. To avoid colinearity, the starting capital quantity range variable of $5,000 or less, is not included. Dummy variables that correspond to starting capital sources and the industries of the business are included.

One regression is calculated without race restrictions, or in other words, includes all businesses within the dataset. The next fifteen regressions are restricted to include each race ownership combination, one by one. In other words, the analysis explained above is repeated but includes just White-owned businesses. It is then repeated for every other race ownership combination.

The exact same multiple regressions mentioned above are calculated again, but the dependent variable is changed to Payroll instead of Receipts. This adds another sixteen regressions to the already mentioned sixteen, in the evaluation of H4. All other things mentioned remain the same.

*Methodology: Hypothesis 5*

Thirty-two multiple regressions make up the evaluation of H5. The first sixteen multiple regressions have Receipts as the dependent variable with the independent variables being the following industry specific variables that correspond to NAICS Sector codes found in Census data: Sector 11 (Agriculture, Forestry, Fishing and Hunting), Sector 21 (Mining, Quarrying, and Oil and Gas Extraction), Sector 22 (Utilities), Sector 23 (Construction), Sector 31 (Manufacturing), Sector 42 (Wholesale Trade), Sector 44 (Retail Trade), Sector 48 (Transportation and Warehousing), Sector 51 (Information), Sector 52 (Finance and Insurance), Sector 53 (Real Estate and Rental and Leasing), Sector 54 (Professional, Scientific, and Technical Services), Sector 55 (Management of Companies and Enterprises), Sector 56 (Administrative and Support and Waste Management and Remediation Services), Sector 61 (Educational Services), Sector 62 (Health Care and Social Assistance), Sector 71 (Arts, Entertainment, and Recreation), Sector 72 (Accommodation and Food Services), Sector 81 (Other Services except Public Administration), and Sector 99 (Public Administration). Every classified NAICS Industry Sector is included in the analysis with the exception of Sector 44 (Retail Trade), in order to avoid colinearity. This particular sector was specifically chosen because the majority of businesses in the dataset correspond to this sector.

One regression is calculated without race restrictions, or in other words, includes all businesses within the dataset. The next fifteen regressions are restricted to include each race

ownership combination, one by one. In other words, the analysis explained above is repeated but includes just White-owned businesses. It is repeated for every other race ownership combination.

The exact same multiple regressions mentioned above are calculated again, but the dependent variable is changed to Payroll instead of Receipts. This adds another sixteen regressions to the already mentioned sixteen, in the evaluation of H5. All other things mentioned remain the same.

*General Regression Methodology.*

In each multiple regression the basic formula used was, given *n* observations, is

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots \beta_p x_{ip} + \varepsilon_i \text{ for } i = 1,2, \ldots n.$$

*Additional Methodology of the 2007 Survey of Business Owners*

The data set for the 2007 Survey of Business Owners is available for public download at: http://www.census.gov/econ/sbo/pums.html. Details regarding additional methodology for the 2007 SBO can be found at: https://www.census.gov/econ/sbo/methodology.html?2007

## V. Results

*Results: Hypothesis 1*

Hypothesis 1 states that simply being a non-White majority owned businesses will have a negative effect on Receipts and Payroll, relative to White-owned businesses. Table 1 contains the regression results for Hypothesis 1. Results show that all non-White majority owned businesses have a negative effect on Receipts, with statistically significant categories with negative effects that include White/Asian-owned (-933.0 where $p<0.05$), Asian-owned (-1,131 where $p<0.01$), White/Black-owned (-1,188 where $p<0.05$), AIAN-owned (-1,691 where

p<0.01), White/AIAN-owned (-1,780 where p<0.01), and Black owned (-1,936 where p<0.01), businesses, in that exact order from least negative effect to strongest.

Interestingly, and with statistical significance, a White/Asian owned businesses has a less negative effect on Receipts than an Asian owned business. A White/Black owned businesses has a less negative effect on Receipts than Black owned business. This may suggest that the presence of tied white ownership has a positive influence on Receipts as opposed to the business being majority minority owned. However, the converse is true with White/AIAN and AIAN owned businesses, with White/AIAN owned businesses having a slightly more negative effect on Receipts than just an AIAN owned business.

Furthermore, results show that all non-White majority owned businesses have a negative effect on Payroll, with statistically significant categories with negative effects that include White/Asian-owned (-142.3 where p<0.1), White/Black-owned (-216.8 where p<0.05), Asian-owned (-250.5 where p<0.01), NHOPI-owned (-291.1 where p<0.1), AIAN-owned (-339.3 where p<0.01), White/AIAN-owned (-348.9 where p<0.01), and Black owned (-360.5 where p<0.01) businesses, in that exact order from less negative effect to strongest.

Interestingly and once again, a White/Asian owned businesses has a less negative effect on Payroll than an Asian owned business. A White/Black owned businesses has a less negative effect on Payroll than Black owned business. This may suggest that the presence of tied white ownership has a positive influence on Payroll as opposed to the business being majority minority owned. Again however, the converse is true with White/AIAN and AIAN owned businesses, with White/AIAN owned businesses having a slightly more negative effect on Payroll than just an AIAN owned business. The same is also true of the coefficients of the NHOPI-owned and

White/NHOPI-owned businesses, with White/NHOPI-owned businesses having a slightly more negative effect on Payroll than just a NHOPI-owned business.

Tables 16 and 17 demonstrate why Tied-owned businesses were included in this analysis. Table 16 shows all the different kinds of race distributions among businesses. For example, there were exactly 573 Native NHOPI or other Pacific Islanders in White-owned businesses. These were minority owners. The same is demonstrated for each race with their distributions among the different majority-ownership scenarios. Using the numbers from Table 16 to calculate percentages, I created Table 17, which found that of all the Native NHOPIs or other Pacific Islanders in every business in which they're an owner (majority or minority), only 54.6% are within a business for which they are a majority owner. For Native American or Alaska Natives the figure is 59.3%. Both of these figures for Natives stand in stark contrast to the majority ownership of Asian-owned (85.9%), Black-owned (92.29%) and White-owned (97.6%) businesses, wherein these races are much more likely to belong to businesses that they own. Native people are also more likely to be in businesses they do not own, or within tied-ownership businesses. Figures for Native Americans and Alaska Natives in tied businesses are 14.9%; for Native NHOPIs or other Pacific Islanders, it is 15.7%. Thus including tied-ownership businesses includes more Native people in the analyses, without which about 15% of the total population for the Natives in the dataset would not have been included in the analysis.

*Results: Hypothesis 2*

Hypothesis 2 states that the higher the education level of the owner, the more positive the effect on Receipts and Payroll. Tables 2 and 3 contain the regression results for Hypothesis 2. In regards to Receipts, obtaining a Bachelors degree had a statistically significant positive effect for the All Races regression in Table 2 (3,079 with $p<0.01$), for White-owned businesses (2,952

with p<0.01), and Asian-owned businesses (3,244 with p<0.1). Obtaining a Bachelors degree had a statistically significant positive effect on Payroll for the All Races regression (775.4 with p<0.01) and for White-owned businesses (783.1 with p<0.01). There are no other statistically significant results.

Unfortunately, small sample sizes barely generated coefficients for AIAN-owned businesses – none of which are statistically significant, and non-responses to the education category question for NHOPI-owned businesses resulted in a regression without a single coefficient.

*Results: Hypothesis 3*

Tables 4 and 5 contain the regression results for Hypothesis 3. In regards to the dependent variable Receipts, starting capital sources Bank Loan (2,735 with p<0.05), and Other (7,221 with p<0.05), had significant positive effects for All Races, and the same categories – Bank Loan (2,560 with p<0.1), and Other (7,527 with p<0.05) – also had significant positive effects within White-owned businesses. Starting capital category Don't Know (27,024 with p<0.01) had a significant positive effect on Receipts within Asian-owned businesses.

In regards to dependent variable Payroll, starting capital source Bank Loan (888.1 with p<0.01) had a significant positive effect for All Races. Bank Loan (856.4 with p<0.01) also had a significant positive effect on Payroll in White-owned businesses. Starting capital sources Assets (1,127 with p<0.05) and Don't Know (1,950 with p<0.01) had significant positive effects on Payroll in Asian-owned businesses. Starting capital source Venture (1,360 with p<0.05) and None Needed (500.3 with p<0.1) had a significant positive effect on Payroll within Black-owned businesses.

Once again, small sample sizes barely generated coefficients for AIAN-owned businesses – none of which are statistically significant, and non-responses to the starting capital source category question for NHOPI-owned businesses resulted in a regression without a single coefficient.

*Results: Hypothesis 4*

Tables 6 and 7 contain the regression results for Hypothesis 4, which states that the more capital the business started with, the more positive the effect on dependent variables Receipts and Payroll. While this analysis focuses on starting capital quantities, dummy variables were created to control for both the industry and the starting capital sources, in order to factor out those effects and have a more accurate understanding of just the starting capital quantities themselves.

In regards to the dependent variable Receipts, the category of starting a business with $1,000,000 or more had a significant positive effect for All Races (7,372 with $p<0.01$) and White-owned (7,058 with $p<0.01$) businesses. The category of starting a business with capital amounts between $250,000 to $999,999, had a significant positive effect on Receipts within Black-owned (6,731 with $p<0.01$) businesses.

Similar positive effects also existed for dependent variable Payroll. Starting a business with $1,000,000 or more had a significant positive effect within All Races (2,047 with $p<0.01$), White-owned (2,033 with $p<0.01$) and Black-owned (1,225 with $p<0.05$) businesses. Again, the category of starting a business with capital amounts between $250,000 to $999,999, had a significant positive effect on Payroll within Black-owned (1,180 with $p<0.1$) businesses.

Responses were not frequent enough for AIAN-owned and NHOPI-owned businesses to generate meaningful coefficients for analysis. Again, AIAN-owned businesses had a few

coefficients, none of which were statistically significant, and NHOPI-owned businesses didn't have any.

*Results: Hypothesis 5*

Fortunately, all businesses must choose a NAICS code upon registering. This means that every business in the dataset has an industry code, making the results in Tables 8 – 15 much more robust. Hypothesis 5 states simply that the different business industries will have varying effects on dependent variables Payroll and Receipts. Twenty total NAICS industry categories made up this analysis with the most frequent classification omitted (Sector 44 – Retail Trade). The results included every business ownership race possibility, including the tied businesses.

Table 8 corresponds to the Straight Race groups, or the non-tied ownership businesses, with the dependent variable Receipts. Table 9 corresponds to the same but with dependent variable Payroll. I will present the results for both by race ownership.

In regards to the All Race category and for dependent variable Receipts (Table 8), sixteen of the nineteen independent variables were statistically significant (with $p<0.01$), fourteen had a negative effect on Receipts and the remaining two had a strong positive effect. For dependent variable Payroll (Table 9), nine industry categories were statistically significant (with $p<0.01$); four had a negative effect and the remaining nine had positive effects on Payroll.

For White-owned businesses and in regards to Receipts (Table 8), seventeen of the nineteen independent variables were statistically significant (most with $p<0.01$; just one had $p<0.1$), fifteen had a negative effect on Receipts and the remaining two had a strong positive effect. For dependent variable Payroll (Table 9), fourteen industry categories were statistically significant (most with $p<0.01$; two with $p<0.05$); four had a negative effect and the remaining ten had positive effects on Payroll.

For Asian-owned businesses and in regards to Receipts (Table 8), eleven of the nineteen independent variables were statistically significant (six with $p<0.01$; two with $p<0.05$; two with $p<0.1$), eight had a negative effect on Receipts and the remaining three had strong positive effects. For dependent variable Payroll (Table 9), eleven industry categories were statistically significant (most with $p<0.01$; one with $p<0.05$); two had a negative effect and the remaining nine had positive effects on Payroll.

For Black-owned businesses and in regards to Receipts (Table 8), twelve of the nineteen independent variables were statistically significant (nine with $p<0.01$; three with $p<0.05$), eight had a negative effect on Receipts and the remaining four had strong positive effects. For dependent variable Payroll (Table 9), seven industry categories were statistically significant (all with $p<0.01$); all had varying positive effects on Payroll.

For AIAN-owned businesses and in regards to Receipts (Table 8), four of the nineteen independent variables were statistically significant. These were industry areas Health Care & Social Assistance (-582.6 with $p<0.1$), Adminstrative Support & Waste Management (-593.0 with $p<0.1$), Other Services (-614.8 with $p<0.1$) and Utilities (6,168 with $p<0.01$). For dependent variable Payroll (Table 9), four industry categories were statistically significant. These were Construction (95.35 with $p<0.05$), Manufacturing (114.0 with $p<0.05$), Information (154.8 with $p<0.05$), and Management (1,558 with $p<0.05$). All had varying positive effects on payroll.

For NHOPI-owned businesses and in regards to the dependent variable Receipts (Table 8), just one variable – industry area Construction (2,482 with $p<0.01$) – was statistically significant with a positive effect. For dependent variable Payroll (Table 9), three industry categories were statistically significant with positive effects. These were Construction (285.0

with $p<0.05$), Manufacturing (344.8 with $p<0.1$), and Administrative Support & Waste Management (432.3 with $p<0.01$).

Table 10 and 11 correspond with the Tied Non-Indigenous race ownership groups for both Receipts and Payroll, respectively. These groups are the White/Asian-owned, White/Black-owned, and Asian/Black-owned businesses. All other tied ownership groups involve Native owners and are shown in separate tables.

For White/Asian-owned businesses and in regards to dependent variable Receipts (Table 10), six of the nineteen independent variables were statistically significant (three with $p<0.01$; one with $p<0.05$; two with $p<0.1$), three had a negative effect on Receipts and the remaining three had positive effects. For dependent variable Payroll (Table 11), six industry categories were statistically significant (two with $p<0.01$; three with $p<0.05$; one with $p<0.1$); all six had positive effects on Payroll.

For White/Black-owned businesses and in regards to dependent variable Receipts (Table 10), six of the nineteen independent variables were statistically significant (three with $p<0.01$; one with $p<0.05$; two with $p<0.1$), three had a negative effect on Receipts and the remaining three had positive effects. For dependent variable Payroll (Table 11), six industry categories were statistically significant (two with $p<0.01$; three with $p<0.05$; one with $p<0.1$); all six had positive effects on Payroll.

For Asian/Black-owned businesses. Just two industry areas had a statistically significant effect on dependent variable Receipts (Table 10), both positive. Two of the same categories and one other had a statistically significant positive effect on the dependent variable Payroll.

Tables 12 and 13 correspond to the tied AIAN groups for both Receipts and Payroll, respectively. For White/AIAN-owned businesses and in regards to dependent variable Receipts

(Table 10), eight of the nineteen independent variables were statistically significant (each with $p<0.05$), all had varying negative effects on Receipts. For dependent variable Payroll (Table 11), just one industry category, Construction (67.78 with $p<0.01$) was statistically significant with a positive effect on Payroll. Asian/AIAN-owned businesses and Black/AIAN-owned businesses had no statistically significant results.

Tables 14 and 15 correspond to the tied NHOPI groups for both Receipts and Payroll, respectively. For White/NHOPI-owned businesses only one industry category was statistically significant with a negative effect on dependent variable Receipts. It was the category of Professional/Scientific/Technical (-974.4 with $p<0.1$) in Table 14. For Asian/NHOPI-owned businesses only one industry category was statistically significant with a positive effect on the dependent variable Payroll (Table 15). It was the category of Construction (762.5 with $p<0.01$). For Black/NHOPI owned businesses, five industry categories had negative, statistically significant effects on the dependent variable Receipts (Table 14). Transportation/Warehousing (-666.7 with $p<0.01$), Professional/Scientific/Technical (-710 with $p<0.01$), Real Estate & Rental/Leasing (-733.3 with $p<0.01$), Health Care & Social Assistance (-760 with $p<0.01$), and Administrative support & Waste Management (-770 with $p<0.01$).

## VI. Discussion

Businesses that are majority owned by Native American/Alaska Native (AIAN-owned) and Native NHOPIs or Other Pacific Islanders, (NHOPI-owned) are the primary focus of this thesis. Consequently, while there are many results that could be discussed in regards to the different race ownership group combinations, the AIAN-owned, NHOPI-owned, and other businesses with tied ownership with these groups, will be the primary focus.

Results from Hypothesis 1 demonstrate that all non-White majority owned businesses had a negative effect on both Receipts and Payroll, since the omitted variable were the White-owned businesses and all effects for all other ownership categories were negative. AIAN-owned businesses had a strong statistically significant negative effect on Receipts (-1,691 where $p<0.01$), and NHOPI-owned businesses exerted a negative effect that was not statistically significant. Interestingly, the AIAN-owned businesses did not have the strongest negative effect, with White/AIAN-owned (-1,780 where $p<0.01$), and Black owned (-1,936 where $p<0.01$), businesses exerting a stronger negative effect on Receipts.

In regards to Payroll, the strongest, statistically significant negative effects were with NHOPI-owned (-291.1 where $p<0.1$), AIAN-owned (-339.3 where $p<0.01$), White/AIAN-owned (-348.9 where $p<0.01$), and Black owned (-360.5 where $p<0.01$) businesses. In both scenarios, the presence of Native owners seems to have a negative effect on the success variables of Receipts and Payroll.

As pointed out in the Results section, a curious phenomenon took place in that adding tied White ownership to Asian and Black (thus, White/Asian and White/Black) –owned businesses, lessened the negative effect relative to the stand alone owners of just Asian, or just Black-owned businesses. This further appears to strengthen H1.

However, the opposite is true for adding tied White ownership to AIAN and NHOPI (thus, White/AIAN and White/NHOPI) – owned businesses. Here, adding the tied White ownership increases the negative effect relative to the stand-alone owners of just AIAN, or just NHOPI-owned businesses. This appears to go contrary to H1. Although there is no definitive support for this contained in the analysis, I suggest that large cultural differences among Native and White owners may be producing these negative effects.

Taking into consideration the findings from the literature review section – that entrepreneurial success is connected to human, financial, and social capitals – the possibility exists that the negative effects taking place could be the result of Native owners possessing human, financial, and social capitals, in fewer quantities relative to White-owned businesses. However, this cannot be conclusively proven from just the results from H1. In fact, the results located in Table 1 must be interpreted with caution. Causality cannot be ascertained from this analysis. Simply being Native (or Black for that matter) does not require that success outcomes (Receipts and Payroll) be lower. Why exactly these negative effects are taking place, and to the degree that they are, cannot be conclusively demonstrated here. However, with all non-White majority owned businesses exerting a negative effect on both Receipts and Payroll relative to White-owned businesses, H1 is perhaps moderately, although cautiously verified.

Hypothesis 2 attempts to expose a possible explanation behind what's discovered by H1. Perhaps human capital as expressed through education level, is influencing Receipts and Payroll, and that lower levels of educational attainment among Native business owners could explain the negative effects discovered by H1. H2 states that the higher the owner education level, the more positive the effect on Receipts and Payroll. While a strong case can be made for possessing a Bachelors degree as having a strong positive effect on Receipts and Payroll (since there is statistical significance for the All category), it cannot be conclusively demonstrated for Native business owners. Furthermore, the All category is highly influenced by White-owned businesses, since White-owned businesses make up about 78.7% of the total sample. Unfortunately, the AIAN-owned and NHOPI-owned businesses did not answer the education level question at a high rate. The result was small sample sizes that barely generated coefficients

for AIAN-owned businesses and non-responses for NHOPI-owned businesses resulting in a completely blank regression table. H2 is not verified here.

Both Hypothesis 3 and Hypothesis 4 attempt to expose another level of explanation behind the results of H1. Perhaps financial capital as expressed through the starting capital source (H3), and the starting capital quantity (H4) is influencing Receipts and Payroll, and that lower levels of each among Native business owners could explain the negative effects discovered by H1.

Results for H3 show that for the All races category, starting the business with a Bank Loan (a source that requires vetting) has a statistically significant positive influence on both Payroll and Receipts. This is relative to the omitted variable of starting a business from capital source personal savings. However, Asian and Black-owned businesses had statistically significant positive effects toward Receipts and Payroll, in the variables of personal assets and "don't know." Hence, these findings undermine the vetting requirement emphasized in H3, suggesting that at least for other races, different factors may be at work. Once again, small sample sizes barely generated coefficients for AIAN-owned businesses – none of which are statistically significant, and non-responses to the starting capital source category question for NHOPI-owned businesses resulted in a regression without a single coefficient. H3 is not verified.

Results for H4 show that starting a business with $1,000,000 or more for the All category had a statistically significant positive effect on both Receipts and Payroll. Not surprisingly, the trend is similar for White-owned businesses. Scant response data for AIAN-owned and NHOPI-owned businesses, again leaves us unable to draw any conclusions based on the analysis for H4. This hypothesis is not verified.

Hypothesis 5 is very open-ended and states simply that different industry categories will have differing effects on Receipts and Payroll. Having exactly twenty different industry categories complicates the formation of a more specific hypothesis. Of the sixteen different race ownership possibilities (and including the All category which brings our total to seventeen), thirteen had regression results that included statistically significant coefficients. Attempting to break down and explain each industry for each race combination is outside of our focus. The objective is to focus on the implications for Native owned businesses.

For AIAN-owned businesses and in regards to the dependent variable Receipts, four of the nineteen independent variables were statistically significant. These were industry areas Health Care & Social Assistance (-582.6 with $p<0.1$), Adminstrative Support & Waste Management (-593.0 with $p<0.1$), Other Services (-614.8 with $p<0.1$) and Utilities (6,168 with $p<0.01$). For dependent variable Payroll, four industry categories were statistically significant. These were Construction (95.35 with $p<0.05$), Manufacturing (114.0 with $p<0.05$), Information (154.8 with $p<0.05$), and Management (1,558 with $p<0.05$). All had varying positive effects on payroll.

Another ownership category with Native American/Alaska Native owners had statistical significance – White/AIAN-owned businesses. In regards to dependent variable Receipts, eight of the nineteen independent variables were statistically significant (each with $p<0.05$), and all had varying negative effects on Receipts. These were Administrative Support & Waste Management (-372.5), Manufacturing (-418.4), Professional/Scientific/Technical (-444.6), Other Services (-457.8), Transportation/Warehousing (-468.8), Health Care & Social Assistance (-477.6), Real Estate & Rental/Leasing (-519.1) and Arts/Entertainment/Recreation (-605.5). For

dependent variable Payroll, just one industry category, Construction (67.78 with $p<0.01$) was statistically significant with a positive effect on Payroll.

Between the AIAN-owned business outcomes and the White/AIAN-owned business outcomes for H5, there is considerable overlap. Mainly, five of the industry category variables with statistical significance for AIAN-owned businesses are also statistically significant for White/AIAN owned businesses.

For NHOPI-owned businesses, the industry area Construction (2,482 with $p<0.01$) – had a statistically significant positive effect on Receipts. For the dependent variable Payroll, Construction (285.0 with $p<0.05$), Manufacturing (344.8 with $p<0.1$), and Administrative Support & Waste Management (432.3 with $p<0.01$) each had positive effects. For White/NHOPI-owned businesses, the industry category Professional/Scientific/Technical (-974.4 with $p<0.1$) was statistically significant with a negative effect on Receipts. For Asian/NHOPI-owned businesses, Construction (762.5 with $p<0.01$) exerted a statistically significant positive effect on Payroll. Breaking from these trends are Black/NHOPI owned businesses who had five industry categories with negative, statistically significant effects on Receipts. Transportation/Warehousing (-666.7 with $p<0.01$), Professional/Scientific/Technical (-710 with $p<0.01$), Real Estate & Rental/Leasing (-733.3 with $p<0.01$), Health Care & Social Assistance (-760 with $p<0.01$), and Administrative support & Waste Management (-770 with $p<0.01$).

In regards to drawing conclusions from the results that involve Native-owned businesses in the H5 analysis, caution is warranted. It would be erroneous to draw the conclusion that Construction businesses are preferable if one is NHOPI, simply because of the positive effects observed in both the NHOPI-owned and Asian/NHOPI-owned businesses. The same is true of AIAN-owned businesses. If one is of Native American ancestry, should one start a Utilities

company, simply because of the incredible positive effect it has on Receipts? There is no justification for making these causal conclusions.

While H5 is easily satisfied (such a low bar is satisfied with varying effects across industries) it does little to conclusively show that some industries are preferable to others for Native business owners. Rather, this analysis seems to demonstrate more of what preferences exist for Native owned businesses – including the propensity to choose some industries over others. In fact, at a closer glance it becomes apparent that these analyses are also the victim of small sample sizes. For example, looking further into the industries exerting statistically significant effects for Native-owned businesses, one finds a small handful of businesses that are doing extremely well in that particular industry. Because of the small amount of total Native owned businesses, a few which do really well in a particular industry suddenly make that industry appear to do extremely well overall. Before drawing stronger conclusions, H5 would benefit further from larger sample sizes of Native business owners.

## VII. Conclusion

With H1 moderately verified interest is peaked in discovering why negative effects exist for Native owned businesses relative to White-owned businesses. H2, H3, and H4 seek to uncover components of the "why" behind the H1 results, but small sample sizes due to non-response inhibit generalizable results. H5 is fascinating in that the different industries are shown to have varying effects on Receipts and Payroll for Native-owned businesses. However, H5 is also the victim of small sample sizes.

This is a common theme in researching Native people. As is evident in the ratios of business owners throughout the sample, a Native American, Alaska Native or Native Hawaian individual is much less likely to be a business owner, and even then – less likely to be a majority

owner in that business – relative to all other races in the sample. Although this cannot be conclusively verified for Native people, the findings of previous research in the literature review section suggest that capital constraints could be affecting Native-owned businesses.

Over the years, progress has been made in regards to data that exists for Native-owned businesses. But data of this kind has not been collected for very long (a few decades). Soon to be released is the 2012 SBO data, and preliminary results released by the U.S. Census suggest that there is a larger quantity of Native business owners. Hopefully, this increased sample size will allow for more meaningful conclusions.

Discovering the variables that affect (and to what degree) the Native entrepreneurial experience is a necessary component in crafting meaningful policy to help Native people succeed. With the many unique challenges faced by Native people, a sense of economic security and freedom that could come from successful business ownership could play a critical role in improving all aspects of Native well being.

## VIII. Tables

Table 1
Hypothesis 1 Regression Results

| VARIABLES | Receipts | Payroll |
|---|---|---|
| Asian-owned | -1,131*** | -250.5*** |
| | (126.9) | (23.69) |
| Black-owned | -1,936*** | -360.5*** |
| | (105.7) | (19.73) |
| AIAN-owned | -1,691*** | -339.3*** |
| | (376.1) | (70.21) |
| NHOPI-owned | -1,520 | -291.1* |
| | (935.9) | (174.7) |
| White/Asian-owned | -993.0** | -142.3* |
| | (411.2) | (76.77) |
| White/Black-owned | -1,188** | -216.8** |
| | (506.1) | (94.48) |
| White/AIAN-owned | -1,780*** | -348.9*** |
| | (616.8) | (115.1) |
| White/NHOPI-owned | -1,753 | -353.4 |
| | (1,453) | (271.2) |
| Asian/Black-owned | -1,285 | -141.6 |
| | (2,067) | (385.8) |
| Asian/AIAN-owned | -1,236 | -245.5 |
| | (4,008) | (748.3) |
| Asian/NHOPI-owned | -1,794 | -324.5 |
| | (4,794) | (895.0) |
| Black/AIAN-owned | -1,843 | -353.0 |
| | (3,195) | (596.5) |
| Black/NHOPI-owned | -1,998 | -400.3 |
| | (7,453) | (1,391) |
| AIAN/NHOPI-owned | -2,083 | -390.3 |
| | (18,255) | (3,408) |
| Constant | 2,113*** | 400.3*** |
| | (36.55) | (6.823) |
| Observations | 626,267 | 626,267 |
| R-squared | 0.001 | 0.001 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2
Hypothesis 2 Regression Results: Receipts

| VARIABLES | ALL Receipts | White Receipts | Asian Receipts | Black Receipts | AIAN Receipts | NHOPI Receipts |
|---|---|---|---|---|---|---|
| High School | -131.3 | -218.2 | 211.2 | -382 | 40 | |
| | -1171 | -1400 | -2218 | -606.6 | -6530 | |
| Tech School | -1688 | -1898 | -1548 | 234.2 | | |
| | -2015 | -2384 | -4297 | -1010 | | |
| Some College | -763.8 | -762.8 | -2312 | 375.7 | -412.3 | |
| | -1194 | -1430 | -2353 | -713.5 | -3771 | |
| Associates | -459.5 | -518.3 | 1140 | -499.1 | | |
| | -1844 | -2279 | -2623 | -899.3 | | |
| Bachelors | 3,079*** | 2,952*** | 3,244* | 588.8 | | |
| | -918 | -1089 | -1860 | -738.8 | | |
| Masters | -1279 | -1408 | -2897 | -78.6 | 130 | |
| | -1072 | -1284 | -2135 | -701.8 | -7540 | |
| Constant | 1,786*** | 2,159*** | 980.1*** | 176.3*** | 422.3*** | 593.0*** |
| | -32.67 | -41.87 | -52.16 | -8.499 | -77.34 | -203.1 |
| Observations | 626341 | 484792 | 45138 | 67757 | 4757 | 762 |
| R-squared | 0 | 0 | 0 | 0 | 0 | 0 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3
Hypothesis 2 Regression Results: Payroll

| VARIABLES | ALL Payroll | White Payroll | Asian Payroll | Black Payroll | AIAN Payroll | NHOPI Payroll |
|---|---|---|---|---|---|---|
| High School | -159.5 | -186.2 | 150.6 | -129.7 | 0 | |
| | -218.7 | -262.3 | -264.2 | -169.3 | -932 | |
| Tech School | -262.1 | -298 | -259.4 | 91.69 | | |
| | -376.3 | -446.4 | -511.8 | -281.9 | | |
| Some College | -306.5 | -330.2 | -242.2 | 6.158 | -61.09 | |
| | -222.9 | -267.8 | -280.2 | -199.2 | -538.2 | |
| Associates | -244.8 | -277.7 | 279 | -82.13 | | |
| | -344.3 | -426.8 | -312.4 | -251 | | |
| Bachelors | 775.4*** | 783.1*** | 202.6 | 209.9 | | |
| | -171.4 | -204 | -221.5 | -206.2 | | |
| Masters | -206.6 | -254.3 | -174.2 | 210 | 80 | |
| | -200.2 | -240.5 | -254.3 | -195.9 | -1076 | |
| Constant | 336.7*** | 409.1*** | 149.6*** | 39.75*** | 61.09*** | 109.3*** |
| | -6.1 | -7.842 | -6.212 | -2.372 | -11.04 | -28.47 |
| Observations | 626341 | 484792 | 45138 | 67757 | 4757 | 762 |
| R-squared | 0 | 0 | 0 | 0 | 0 | 0 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4
Hypothesis 3 Regression Results: Receipts

| VARIABLES | ALL Receipts | White Receipts | Asian Receipts | Black Receipts | AIAN Receipts | NHOPI Receipts |
|---|---|---|---|---|---|---|
| Assets | 415.3 | -3.025 | 6,520 | | | |
| | (1,737) | (2,018) | (4,130) | | | |
| Equity | -1,759 | -1,915 | -1,716 | -17.09 | -372.2 | |
| | (2,132) | (2,557) | (4,045) | (1,634) | (5,332) | |
| Credit Card | -216.5 | -205.8 | -2,647 | -118.5 | | |
| | (2,132) | (2,570) | (4,421) | (943.1) | | |
| Govt Loan | -2,339 | -2,503 | -7,128 | | | |
| | (5,021) | (5,880) | (14,217) | | | |
| Govt Guar. Loan | -2,050 | -1,750 | -479.2 | | | |
| | (5,244) | (6,672) | (6,427) | | | |
| Bank Loan | 2,735** | 2,560* | -26.91 | 393.7 | | |
| | (1,268) | (1,476) | (2,591) | (2,212) | | |
| Family Loan | 3,529 | 3,799 | 135.6 | | | |
| | (2,453) | (2,879) | (5,336) | | | |
| Venture Capital | -1,371 | -1,692 | -4,772 | 2,824 | | |
| | (3,470) | (4,029) | (12,108) | (2,212) | | |
| Grant | -2,621 | -3,138 | | -139.2 | | |
| | (8,746) | (10,499) | | (2,750) | | |
| Other | 7,221** | 7,527** | 667.4 | | | |
| | (2,958) | (3,448) | (5,884) | | | |
| Don't Know | 4,350 | 1,192 | 27,024*** | | -412.2 | |
| | (4,495) | (5,602) | (5,535) | | (3,771) | |
| None Needed | 1,288 | 1,093 | -913.7 | 289.7 | | |
| | (2,011) | (2,361) | (5,535) | (989.2) | | |
| Constant | 1,786*** | 2,159*** | 978.7*** | 176.3*** | 422.2*** | 593.0*** |
| | (32.65) | (41.84) | (52.12) | (8.498) | (77.32) | (203.1) |
| Observations | 626,341 | 484,792 | 45,138 | 67,757 | 4,757 | 762 |
| R-squared | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5
Hypothesis 3 Regression Results: Payroll

| VARIABLES | ALL Payroll | White Payroll | Asian Payroll | Black Payroll | AIAN Payroll | NHOPI Payroll |
|---|---|---|---|---|---|---|
| Assets | -56.48 | -150.5 | 1,127** | | | |
| | -324.4 | -378 | -492 | | | |
| Equity | -216.8 | -223.1 | -327.8 | -12.59 | -61.1 | |
| | -398.1 | -478.8 | -481.8 | -455.9 | -761 | |
| Credit Card | -294.8 | -325.5 | -410.5 | -34.31 | | |
| | -398.1 | -481.4 | -526.6 | -263.2 | | |
| Govt Loan | -220.1 | -219.9 | -1237 | | | |
| | -937.5 | -1101 | -1693 | | | |
| Govt Guar. Loan | -346.8 | -297.7 | -102.8 | | | |
| | -979.1 | -1250 | -765.6 | | | |
| Bank Loan | 888.1*** | 856.4*** | 9.461 | 420.3 | | |
| | -236.8 | -276.4 | -308.7 | -617.3 | | |
| Family Loan | 112.6 | 121.2 | 54.13 | | | |
| | -458.1 | -539.1 | -635.6 | | | |
| Venture Capital | 27.29 | -12.36 | -885.6 | 1,360** | | |
| | -648 | -754.6 | -1442 | -617.3 | | |
| Grant | -344.6 | -371.9 | | -27.16 | | |
| | -1633 | -1966 | | -767.4 | | |
| Other | 36.04 | 8.995 | 110.7 | | | |
| | -552.4 | -645.7 | -700.9 | | | |
| Don't Know | 593.8 | 417.1 | 1,950*** | | -61.1 | |
| | -839.3 | -1049 | -659.3 | | -538.1 | |
| None Needed | 382.6 | 323.6 | -144.5 | 500.3* | | |
| | -375.4 | -442.2 | -659.3 | -276.1 | | |
| Constant | 336.8*** | 409.2*** | 149.5*** | 39.75*** | 61.10*** | 109.3*** |
| | -6.097 | -7.836 | -6.209 | -2.372 | -11.04 | -28.47 |
| Observations | 626,341 | 484,792 | 45,138 | 67,757 | 4,757 | 762 |
| R-squared | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6
Hypothesis 4 Regression Results: Receipts

| VARIABLES | ALL Receipts | White Receipts | Asian Receipts | Black Receipts | AIAN Receipts | NHOPI Receipts |
|---|---|---|---|---|---|---|
| $5,000-$9,999 | -1731 | -2094 | -1408 | -83.76 | 99.08 | |
| | -2379 | -2960 | -4917 | -746.1 | -5322 | |
| $10,000-$24,999 | -1296 | -1679 | -697.5 | 162.5 | | |
| | -1943 | -2349 | -2946 | -1250 | | |
| $25,000-$49,999 | -705.4 | -672.9 | -1138 | 480.6 | | |
| | -2198 | -2702 | -2996 | -1581 | | |
| $50,000-$99,999 | -451.8 | -607.3 | -312.7 | -320 | -53.04 | |
| | -1915 | -2281 | -3498 | -1426 | -5323 | |
| $100,000-$249,999 | 587.5 | 487.3 | -983.4 | | | |
| | -1660 | -1949 | -3476 | | | |
| $250,000-$999,999 | 806.3 | 600.5 | 2947 | 6,731*** | | |
| | -1699 | -2010 | -2934 | -2203 | | |
| $1,000,000 + | 7,372*** | 7,058*** | 3770 | 2349 | | |
| | -1926 | -2257 | -4260 | -2204 | | |
| Observations | 626341 | 484792 | 45138 | 67757 | 4757 | 762 |
| R-squared | 0.006 | 0.006 | 0.015 | 0.008 | 0.01 | 0.027 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7
Hypothesis 4 Regression Results: Payroll

| VARIABLES | ALL Payroll | White Payroll | Asian Payroll | Black Payroll | AIAN Payroll | NHOPI Payroll |
|---|---|---|---|---|---|---|
| $5,000-$9,999 | -39.17 | -85.62 | 727.8 | -0.357 | 68.07 | |
| | -444.7 | -555.2 | -585.7 | -208.7 | -761.1 | |
| $10,000-$24,999 | -50.03 | -97.58 | -87.81 | 83.56 | | |
| | -363.3 | -440.6 | -351 | -349.7 | | |
| $25,000-$49,999 | 35.41 | 45.88 | -126.1 | 305 | | |
| | -411 | -506.8 | -356.9 | -442.1 | | |
| $50,000-$99,999 | 141.3 | 130.3 | -114 | -64.49 | -23.1 | |
| | -358 | -427.8 | -416.7 | -398.8 | -761.3 | |
| $100,000-$249,999 | 100.8 | 80.12 | -39.57 | | | |
| | -310.4 | -365.5 | -414.1 | | | |
| $250,000-$999,999 | 280.3 | 247.6 | 516.6 | 1,180* | | |
| | -317.6 | -377 | -349.5 | -616.2 | | |
| $1,000,000 + | 2,047*** | 2,033*** | 269.3 | 1,225** | | |
| | -360.1 | -423.3 | -507.4 | -616.3 | | |
| Observations | 626341 | 484792 | 45138 | 67757 | 4757 | 762 |
| R-squared | 0.004 | 0.004 | 0.015 | 0.004 | 0.006 | 0.039 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8
Regression Results from Hypothesis 5 – Straight Race Groups – Receipts

| VARIABLES | ALL Receipts | White Receipts | Asian Receipts | Black Receipts | AIAN Receipts | NHOPI Receipts |
|---|---|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -2,396*** | -2,978*** | -955.0 | -148.2 | -560.1 | -294.5 |
| | (375.5) | (462.4) | (771.5) | (139.1) | (524.5) | (2,185) |
| Mining/Quarrying/Oil&Gas | -428.9 | -906.5* | -320.4 | 130.5 | -223.4 | 6,080 |
| | (460.5) | (542.6) | (1,474) | (266.8) | (879.4) | (5,627) |
| Utilities | -423.5 | -631.6 | -843.3 | -185.3 | 6,168*** | -295.2 |
| | (721.8) | (906.9) | (1,591) | (196.1) | (1,239) | (3,997) |
| Construction | -1,450*** | -1,945*** | -554.8** | -90.18** | 170.6 | 2,482*** |
| | (132.6) | (165.6) | (277.0) | (43.20) | (299.2) | (811.1) |
| Manufacturing | 3,518*** | 3,741*** | 1,780*** | 303.0*** | 316.6 | 1,469 |
| | (179.2) | (223.0) | (302.3) | (62.39) | (381.6) | (1,265) |
| Wholesale Trade | 6,402*** | 6,804*** | 4,960*** | 1,116*** | 109.6 | 112.3 |
| | (183.6) | (229.8) | (250.5) | (73.76) | (478.6) | (1,364) |
| Transportation/Warehousing | -1,869*** | -2,232*** | -682.5*** | -123.7*** | -515.0 | -341.4 |
| | (160.7) | (211.0) | (247.6) | (40.32) | (345.9) | (837.0) |
| Information | -1,020*** | -1,314*** | -189.5 | 36.11 | -449.5 | -294.0 |
| | (237.5) | (303.9) | (397.8) | (67.53) | (521.1) | (1,645) |
| Finance/Insurance | -806.0*** | -1,178*** | 339.5 | -83.48 | -421.5 | -378.4 |
| | (188.4) | (235.7) | (302.9) | (59.00) | (602.5) | (966.1) |
| Real Estate & Rental/Leasing | -1,924*** | -2,434*** | -903.4*** | -194.7*** | -599.6 | -354.9 |
| | (150.4) | (187.6) | (245.8) | (50.80) | (470.5) | (1,157) |
| Professional/Scientific/Technical | -1,792*** | -2,302*** | -288.7 | -58.39 | -405.6 | -303.7 |
| | (139.4) | (177.5) | (204.6) | (42.35) | (357.9) | (934.9) |
| Management | -223.6 | -839.4 | 2,362* | 688.2** | 304.1 | 129.8 |
| | (591.2) | (692.2) | (1,369) | (337.2) | (5,319) | (5,627) |
| Admin-support& Waste Mgt | -1,918*** | -2,361*** | -650.7** | -119.7*** | -593.0* | 216.7 |
| | (149.5) | (192.1) | (282.6) | (38.86) | (355.5) | (898.6) |
| Educational Svs | -2,274*** | -2,761*** | -844.2* | -160.7** | -640.0 | -304.9 |
| | (288.2) | (380.6) | (479.0) | (65.69) | (608.4) | (1,544) |
| Health Care & Social Assistance | -2,164*** | -2,539*** | -627.9*** | -186.2*** | -582.6* | -328.7 |
| | (149.0) | (203.7) | (223.3) | (35.04) | (344.6) | (903.3) |
| Arts/Entertainment/Recreation | -2,351*** | -2,890*** | -846.6** | -170.7*** | -648.5 | -310.2 |
| | (201.6) | (259.0) | (393.2) | (51.58) | (430.1) | (1,011) |
| Accomodation&Food Svcs | -1,309*** | -1,618*** | -303.3 | 381.8*** | -543.6 | 115.6 |
| | (180.3) | (238.3) | (197.4) | (59.23) | (455.9) | (1,058) |
| Other Svcs | -2,600*** | -3,163*** | -977.4*** | -230.6*** | -614.8* | -366.6 |
| | (138.0) | (185.2) | (180.2) | (35.08) | (333.0) | (850.2) |
| Public Admin | -2,394*** | -2,983*** | -908.6 | -139.7 | -655.9 | -420.2 |
| | (922.4) | (1,132) | (1,474) | (333.4) | (2,387) | (5,627) |
| Constant | 2,812*** | 3,450*** | 1,063*** | 270.0*** | 695.9*** | 420.2 |
| | (93.72) | (120.9) | (120.3) | (28.75) | (221.8) | (541.5) |
| Observations | 626,341 | 484,792 | 45,138 | 67,757 | 4,757 | 762 |
| R-squared | 0.006 | 0.006 | 0.015 | 0.008 | 0.010 | 0.027 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9
Regression Results from Hypothesis 5 – Straight Race Groups – Payroll

| VARIABLES | ALL Payroll | White Payroll | Asian Payroll | Black Payroll | AIAN Payroll | NHOPI Payroll |
|---|---|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -166.3** | -211.0** | -78.06 | -4.417 | -23.80 | -12.75 |
| | (70.20) | (86.72) | (91.90) | (38.91) | (75.02) | (304.4) |
| Mining/Quarrying/Oil&Gas | 232.1*** | 210.5** | 0.694 | 21.61 | -17.31 | 914.4 |
| | (86.09) | (101.8) | (175.5) | (74.61) | (125.8) | (783.8) |
| Utilities | -30.35 | -41.51 | -25.26 | -15.34 | 69.14 | 14.39 |
| | (134.9) | (170.1) | (189.5) | (54.84) | (177.2) | (556.8) |
| Construction | 3.953 | -26.26 | -10.72 | 12.10 | 95.35** | 285.0** |
| | (24.79) | (31.07) | (32.99) | (12.08) | (42.80) | (113.0) |
| Manufacturing | 823.9*** | 911.0*** | 447.9*** | 82.99*** | 114.0** | 344.8* |
| | (33.50) | (41.82) | (36.01) | (17.45) | (54.57) | (176.2) |
| Wholesale Trade | 397.4*** | 421.8*** | 250.3*** | 58.03*** | -9.955 | 60.89 |
| | (34.34) | (43.10) | (29.83) | (20.63) | (68.45) | (190.1) |
| Transportation/Warehousing | 0.923 | 22.81 | -27.14 | 5.524 | -6.604 | -20.02 |
| | (30.04) | (39.57) | (29.49) | (11.28) | (49.47) | (116.6) |
| Information | 270.7*** | 306.4*** | 223.9*** | 60.00*** | 154.8** | 14.39 |
| | (44.40) | (57.01) | (47.39) | (18.89) | (74.53) | (229.1) |
| Finance/Insurance | 234.5*** | 251.2*** | 121.9*** | 24.19 | 61.45 | -23.36 |
| | (35.22) | (44.21) | (36.08) | (16.50) | (86.16) | (134.6) |
| Real Estate & Rental/Leasing | -77.33*** | -109.9*** | -62.07** | -9.724 | -36.52 | -17.94 |
| | (28.12) | (35.20) | (29.28) | (14.21) | (67.29) | (161.2) |
| Professional/Scientific/Technical | 179.8*** | 178.9*** | 216.6*** | 68.07*** | 28.59 | 21.24 |
| | (26.07) | (33.29) | (24.37) | (11.84) | (51.18) | (130.2) |
| Management | 3,317*** | 3,388*** | 2,704*** | 716.9*** | 1,558** | 714.4 |
| | (110.5) | (129.8) | (163.0) | (94.31) | (760.7) | (783.8) |
| Admin-support& Waste Mgt | 248.6*** | 304.5*** | 78.01** | 50.21*** | -19.41 | 432.3*** |
| | (27.95) | (36.03) | (33.66) | (10.87) | (50.84) | (125.2) |
| Educational Svs | -72.11 | -84.01 | -10.74 | 18.05 | 16.65 | -2.941 |
| | (53.88) | (71.39) | (57.05) | (18.37) | (87.01) | (215.1) |
| Health Care & Social Assistance | 30.32 | 88.89** | 75.23*** | 8.891 | -15.20 | 4.559 |
| | (27.86) | (38.21) | (26.60) | (9.801) | (49.29) | (125.8) |
| Arts/Entertainment/Recreation | -101.3*** | -125.4*** | 6.637 | -5.696 | -38.83 | -0.956 |
| | (37.69) | (48.57) | (46.83) | (14.43) | (61.51) | (140.9) |
| Accomodation&Food Svcs | 191.7*** | 238.2*** | 106.8*** | 155.5*** | -11.76 | 118.9 |
| | (33.72) | (44.69) | (23.51) | (16.57) | (65.20) | (147.3) |
| Other Svcs | -178.2*** | -210.0*** | -66.49*** | -12.58 | -30.36 | -21.36 |
| | (25.80) | (34.73) | (21.47) | (9.813) | (47.62) | (118.4) |
| Public Admin | -4.503 | -23.42 | -55.02 | 1.527 | -30.44 | 554.4 |
| | (172.5) | (212.2) | (175.5) | (93.24) | (341.4) | (783.8) |
| Constant | 237.7*** | 293.7*** | 82.34*** | 19.84** | 42.44 | 25.61 |
| | (17.52) | (22.68) | (14.32) | (8.042) | (31.72) | (75.42) |
| Observations | 626,341 | 484,792 | 45,138 | 67,757 | 4,757 | 762 |
| R-squared | 0.003 | 0.003 | 0.015 | 0.004 | 0.006 | 0.039 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10
Regression Results from Hypothesis 5 – Tied Non-Indigenous Race Groups – Receipts

| VARIABLES | White/Asian Receipts | White/Black Receipts | Asian/Black Receipts |
|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -1,011 | -1,993 | |
| | (1,234) | (3,407) | |
| Mining/Quarrying/Oil&Gas | 13.37 | -1,984 | |
| | (1,950) | (3,797) | |
| Utilities | -1,053 | -2,013 | |
| | (2,382) | (5,334) | |
| Construction | -165.3 | -1,429 | 7,811*** |
| | (443.6) | (934.9) | (2,083) |
| Manufacturing | 1,524*** | 6,370*** | 94 |
| | (464.6) | (1,270) | (1,918) |
| Wholesale Trade | 2,532*** | -1,007 | 1,371 |
| | (446.9) | (1,335) | (1,855) |
| Transportation/Warehousing | -645.9 | -1,380 | -20 |
| | (512.3) | (1,026) | (2,512) |
| Information | 1,507*** | -1,477 | -35.50 |
| | (505.1) | (1,230) | (2,761) |
| Finance/Insurance | 490.8 | -1,221 | 82 |
| | (499.5) | (1,298) | (2,083) |
| Real Estate & Rental/Leasing | -747.4* | -1,852* | -115.3 |
| | (404.8) | (965.6) | (1,675) |
| Professional/Scientific/Technical | 36.15 | -1,448* | 2,884** |
| | (339.2) | (874.7) | (1,411) |
| Management | -864.4 | -1,850 | |
| | (2,382) | (5,334) | |
| Admin-support& Waste Mgt | -522.1 | -1,129 | -72.71 |
| | (500.6) | (921.5) | (1,612) |
| Educational Svs | -872.2 | -1,946 | |
| | (707.4) | (1,580) | |
| Health Care & Social Assistance | -37.12 | -1,522 | 1,910 |
| | (409.6) | (936.0) | (1,712) |
| Arts/Entertainment/Recreation | -929.0* | -1,875* | -8 |
| | (552.0) | (1,038) | (5,229) |
| Accomodation&Food Svcs | -629.8 | -1,652 | -40.14 |
| | (454.6) | (1,212) | (1,712) |
| Other Svcs | -931.8** | -1,843** | -61.08 |
| | (399.5) | (892.6) | (1,753) |
| Public Admin | -1,013 | -1,985 | |
| | (4,113) | (7,518) | |
| Constant | 1,088*** | 2,020*** | 148 |
| | (238.4) | (615.9) | (1,025) |
| Observations | 3,974 | 2,619 | 173 |
| R-squared | 0.024 | 0.020 | 0.126 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11
Regression Results from Hypothesis 5 – Tied Non-Indigenous Race Groups – Payroll

| VARIABLES | White/Asian Payroll | White/Black Payroll | Asian/Black Payroll |
|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -87.02 | -142.0 | |
| | (338.6) | (691.6) | |
| Mining/Quarrying/Oil&Gas | 257.4 | -142.0 | |
| | (535.1) | (770.7) | |
| Utilities | -87.02 | -142.0 | |
| | (653.7) | (1,083) | |
| Construction | 150.5 | 9.274 | 1,599** |
| | (121.7) | (189.8) | (745.1) |
| Manufacturing | 269.7** | 882.1*** | -3 |
| | (127.5) | (257.8) | (686.3) |
| Wholesale Trade | 273.0** | -18.83 | 126.4 |
| | (122.6) | (271.0) | (663.6) |
| Transportation/Warehousing | -23.17 | -48.67 | 8 |
| | (140.6) | (208.2) | (898.6) |
| Information | 780.2*** | -75.90 | 30 |
| | (138.6) | (249.7) | (987.8) |
| Finance/Insurance | 214.9 | 173.6 | 35 |
| | (137.1) | (263.5) | (745.1) |
| Real Estate & Rental/Leasing | 22.45 | -126.1 | -10 |
| | (111.1) | (196.0) | (599.1) |
| Professional/Scientific/Technical | 433.4*** | 35.50 | 1,237** |
| | (93.08) | (177.6) | (504.7) |
| Management | 1,096* | 470.5 | |
| | (653.7) | (1,083) | |
| Admin-support& Waste Mgt | 199.0 | 457.9** | 1.765 |
| | (137.4) | (187.1) | (576.6) |
| Educational Svs | -10.57 | -118.6 | |
| | (194.1) | (320.8) | |
| Health Care & Social Assistance | 235.0** | -17.71 | 1,110* |
| | (112.4) | (190.0) | (612.3) |
| Arts/Entertainment/Recreation | -46.43 | -130.0 | -10 |
| | (151.5) | (210.6) | (1,871) |
| Accomodation&Food Svcs | 35.07 | -41.38 | 2.857 |
| | (124.7) | (246.1) | (612.3) |
| Other Svcs | -50.19 | -93.52 | 14.62 |
| | (109.6) | (181.2) | (627.2) |
| Public Admin | -77.02 | -137.0 | |
| | (1,128) | (1,526) | |
| Constant | 87.02 | 142.0 | 10 |
| | (65.42) | (125.0) | (366.8) |
| Observations | 3,974 | 2,619 | 173 |
| R-squared | 0.017 | 0.011 | 0.095 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12
Regression Results from Hypothesis 5 – Tied AIAN Race Groups – Receipts

| VARIABLES | White/AIAN Receipts | Asian/AIAN Receipts | Black/AIAN Receipts | AIAN/NHOPI Receipts |
|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -448.5 | | 17.50 | |
| | (276.8) | | (395.8) | |
| Mining/Quarrying/Oil&Gas | -546.9 | | | |
| | (433.5) | | | |
| Utilities | -576.4 | | | |
| | (603.3) | | | |
| Construction | -152.2 | -98.57 | 17.50 | |
| | (153.6) | (2,042) | (228.5) | |
| Manufacturing | -418.4** | 1,137 | 27.50 | |
| | (200.6) | (941.2) | (237.5) | |
| Wholesale Trade | 185.2 | -83.57 | | |
| | (272.2) | (1,531) | | |
| Transportation/Warehousing | -468.8** | -108.6 | 42.50 | |
| | (193.1) | (2,042) | (216.8) | |
| Information | -535.0* | -98.57 | | |
| | (276.8) | (2,042) | | |
| Finance/Insurance | -349.5 | | | |
| | (270.0) | | | |
| Real Estate & Rental/Leasing | -519.1** | -68.57 | 19.17 | |
| | (242.0) | (1,197) | (228.5) | |
| Professional/Scientific/Technical | -444.6** | -96.07 | 19.17 | 60 |
| | (180.0) | (988.4) | (228.5) | (0) |
| Management | -539.7 | | | |
| | (1,783) | | | |
| Admin-support& Waste Mgt | -372.5** | | 4.167 | |
| | (186.4) | | (212.7) | |
| Educational Svs | -589.7 | | | |
| | (379.4) | | | |
| Health Care & Social Assistance | -477.6** | -98.57 | 78.33 | |
| | (221.9) | (2,042) | (204.4) | |
| Arts/Entertainment/Recreation | -605.5** | | 82.50 | |
| | (256.2) | | (306.5) | |
| Accomodation&Food Svcs | -324.2 | 863.9 | | |
| | (240.6) | (1,197) | | |
| Other Svcs | -457.8** | 128.9 | 301.1 | |
| | (180.0) | (1,197) | (206.7) | |
| Public Admin | 450.3 | | | |
| | (1,783) | | | |
| Constant | 649.7*** | 108.6 | 2.500 | -0 |
| | (109.3) | (721.8) | (177.0) | (0) |
| Observations | 1,758 | 43 | 70 | 2 |
| R-squared | 0.013 | 0.091 | 0.088 | 1.000 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13
Regression Results from Hypothesis 5 – Tied AIAN Race Groups – Payroll

| VARIABLES | White/AIAN Payroll | Asian/AIAN Payroll | Black/AIAN Payroll | AIAN/NHOPI Payroll |
|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | -26.25 | | -0 | |
| | (47.13) | | (88.88) | |
| Mining/Quarrying/Oil&Gas | -31.41 | | | |
| | (73.82) | | | |
| Utilities | -41.96 | | | |
| | (102.7) | | | |
| Construction | 67.78*** | -21.43 | -0 | |
| | (26.16) | (484.3) | (51.31) | |
| Manufacturing | -9.016 | 238.6 | -0 | |
| | (34.16) | (223.3) | (53.33) | |
| Wholesale Trade | 37.06 | -21.43 | | |
| | (46.34) | (363.3) | | |
| Transportation/Warehousing | -28.28 | -21.43 | -0 | |
| | (32.88) | (484.3) | (48.68) | |
| Information | -12.78 | -21.43 | | |
| | (47.13) | (484.3) | | |
| Finance/Insurance | 27.85 | | | |
| | (45.97) | | | |
| Real Estate & Rental/Leasing | -30.49 | -21.43 | -0 | |
| | (41.20) | (284.0) | (51.31) | |
| Professional/Scientific/Technical | 20.55 | -21.43 | -0 | 20 |
| | (30.65) | (234.5) | (51.31) | (0) |
| Management | 8.038 | | | |
| | (303.6) | | | |
| Admin-support& Waste Mgt | 14.37 | | -0 | |
| | (31.74) | | (47.77) | |
| Educational Svs | -24.46 | | | |
| | (64.60) | | | |
| Health Care & Social Assistance | 12.04 | -21.43 | 43.33 | |
| | (37.78) | (484.3) | (45.90) | |
| Arts/Entertainment/Recreation | -39.76 | | 40 | |
| | (43.63) | | (68.84) | |
| Accomodation&Food Svcs | 24.85 | 176.1 | | |
| | (40.96) | (284.0) | | |
| Other Svcs | -7.446 | -21.43 | 61.82 | |
| | (30.65) | (284.0) | (46.41) | |
| Public Admin | 128.0 | | | |
| | (303.6) | | | |
| Constant | 41.96** | 21.43 | 0 | -0 |
| | (18.62) | (171.2) | (39.75) | (0) |
| Observations | 1,758 | 43 | 70 | 2 |
| R-squared | 0.011 | 0.076 | 0.106 | 1.000 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14
Regression Results from Hypothesis 5 – Tied NHOPI Race Groups – Receipts

| VARIABLES | AIAN/NHOPI Receipts | White/NHOPI Receipts | Asian/NHOPI Receipts | Black/NHOPI Receipts |
|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | | | | |
| Mining/Quarrying/Oil&Gas | | -1,003 | | |
| | | (1,714) | | |
| Utilities | | -1,053 | | |
| | | (1,237) | | |
| Construction | | -877.2 | 1,142 | |
| | | (568.9) | (813.6) | |
| Manufacturing | | -1,017 | -905.8 | |
| | | (796.6) | (717.5) | |
| Wholesale Trade | | -889.3 | | |
| | | (1,118) | | |
| Transportation/Warehousing | | -766.6 | -762.5 | |
| | | (541.5) | (813.6) | -666.7*** |
| Information | | -848.3 | | (92.54) |
| | | (659.9) | | |
| Finance/Insurance | | 37.36 | -882.5 | |
| | | (688.9) | (1,050) | |
| Real Estate & Rental/Leasing | | -864.6 | | |
| | | (615.2) | | -733.3*** |
| Professional/Scientific/Technical | 60 | -974.4* | -900 | (92.54) |
| | (0) | (575.4) | (664.3) | -710*** |
| Management | | -1,063 | | (92.54) |
| | | (2,399) | | |
| Admin-support& Waste Mgt | | -937.8 | -905 | |
| | | (615.2) | (664.3) | -770*** |
| Educational Svs | | -1,030 | -622.5 | (113.3) |
| | | (724.5) | (1,050) | |
| Health Care & Social Assistance | | -856.7 | -807.5 | |
| | | (562.8) | (664.3) | -760*** |
| Arts/Entertainment/Recreation | | -429.5 | | (113.3) |
| | | (909.2) | | |
| Accomodation&Food Svcs | | -589.9 | -822.5 | |
| | | (865.1) | (664.3) | |
| Other Svcs | | -784.7 | | |
| | | (625.1) | | |
| Public Admin | | -683.3 | | |
| | | (2,399) | | |
| Constant | -0 | 1,063*** | 912.5* | 770*** |
| | (0) | (350.0) | (469.7) | (80.14) |
| Observations | 2 | 317 | 29 | 12 |
| R-squared | 1.000 | 0.024 | 0.350 | 0.926 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15
Regression Results from Hypothesis 5 – Tied NHOPI Race Groups – Payroll

| VARIABLES | AIAN/NHOPI Payroll | White/NHOPI Payroll | Asian/NHOPI Payroll | Black/NHOPI Payroll |
|---|---|---|---|---|
| Agriculture/Forestry/Fishing/Hunting | | | | |
| Mining/Quarrying/Oil&Gas | | -106.1 | | |
| | | (198.0) | | |
| Utilities | | -106.1 | | |
| | | (142.9) | | |
| Construction | | -71.44 | 762.5*** | |
| | | (65.70) | (246.3) | |
| Manufacturing | | -104.3 | -87.50 | |
| | | (92.00) | (217.2) | |
| Wholesale Trade | | -68.09 | | |
| | | (129.1) | | |
| Transportation/Warehousing | | -90.94 | -87.50 | 0 |
| | | (62.53) | (246.3) | (0) |
| Information | | -60.53 | | |
| | | (76.21) | | |
| Finance/Insurance | | -34.84 | -87.50 | |
| | | (79.56) | (318.0) | |
| Real Estate & Rental/Leasing | | -94.27 | | 0 |
| | | (71.06) | | (0) |
| Professional/Scientific/Technical | 20 | -87.20 | -87.50 | 0 |
| | (0) | (66.46) | (201.1) | (0) |
| Management | | 23.91 | | |
| | | (277.1) | | |
| Admin-support& Waste Mgt | | -57.00 | -87.50 | 0 |
| | | (71.06) | (201.1) | (0) |
| Educational Svs | | -104.7 | 42.50 | |
| | | (83.67) | (318.0) | |
| Health Care & Social Assistance | | -69.19 | -87.50 | 0 |
| | | (65.00) | (201.1) | (0) |
| Arts/Entertainment/Recreation | | 8.913 | | |
| | | (105.0) | | |
| Accomodation&Food Svcs | | 39.47 | -82.50 | |
| | | (99.91) | (201.1) | |
| Other Svcs | | -16.56 | | |
| | | (72.19) | | |
| Public Admin | | -46.09 | | |
| | | (277.1) | | |
| Constant | -0 | 106.1*** | 87.50 | 0 |
| | (0) | (40.42) | (142.2) | (0) |
| Observations | 2 | 317 | 29 | 12 |
| R-squared | 1.000 | 0.021 | 0.463 | |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 16

Distribution of Races within Majority-owned Businesses

| VARIABLES | White | Asian | Black | AIAN | NHOPI |
|---|---|---|---|---|---|
| White-owned | 743,768 | 6,214 | 3,799 | 3,045 | 573 |
| Asian-owned | 4,584 | 66,209 | 214 | 105 | 69 |
| Black-owned | 2,935 | 220 | 83,205 | 110 | 30 |
| AIAN-owned | 1,861 | 43 | 72 | 7,500 | 6 |
| NHOPI-owned | 334 | 35 | 12 | 10 | 1,248 |
| White/Asian-owned | 4,100 | 4,100 | 2 | 1 | 0 |
| White/Black-owned | 2,676 | 6 | 2,676 | 0 | 0 |
| White/AIAN-owned | 1,767 | 1 | 0 | 1,767 | 0 |
| White/NHOPI-owned | 317 | 0 | 2 | 0 | 317 |
| Asian/Black-owned | 7 | 174 | 174 | 5 | 0 |
| Asian/AIAN-owned | 3 | 43 | 5 | 43 | 0 |
| Asian/NHOPI-owned | 0 | 29 | 0 | 0 | 29 |
| Black/AIAN-owned | 8 | 5 | 70 | 70 | 0 |
| Black/NHOPI-owned | 0 | 0 | 12 | 0 | 12 |
| AIAN/NHOPI-owned | 0 | 0 | 0 | 2 | 2 |
| Total | 762,360 | 77,079 | 90,243 | 12,658 | 2,286 |

Table 17

Percentage of Owned, Not Owned, and Tied by Race

| VARIABLES | White | Asian | Black | AIAN | NHOPI |
|---|---|---|---|---|---|
| Owned | 97.6% | 85.9% | 92.2% | 59.3% | 54.6% |
| Not Owned | 1.3% | 8.5% | 4.5% | 25.9% | 29.7% |
| Tied | 1.2% | 5.6% | 3.2% | 14.9% | 15.7% |

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