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Beyond the "Haves and Have Nots": Using an Interdisciplinary Approach to Inform Federal Data Collection Efforts with Indigenous Populations

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Beyond the "Haves and Have Nots": Using an Interdisciplinary Approach to Inform Federal Data Collection Efforts with Indigenous Populations

Abstract
This study demonstrates how multiple methods can inform national survey data collection efforts for Indigenous populations using Pacific Islanders as a case study. National data surveys are oftentimes limited in how they collect data on small populations due to data suppression, and they lack nuance in how they aggregate distinct populations. I conduct linear regression models of U.S. Census data to demonstrate that Pacific Islanders lag behind Whites in income, even after controlling for household characteristics and geography. Further analyses of oral histories and interviews with Pacific Islanders demonstrate that income disparities exist in part because of remittances, competing financial demands, and citizenship status. I argue that it is important to add survey questions that capture migrant experiences to improve national data survey collection efforts. By utilizing and improving both types of data collection, researchers can better comprehend the barriers and opportunities for decreasing the racial income and wealth gap, which will strengthen the economic stability of Pacific Islanders in the United States.

Keywords
federal surveys, Pacific Islanders, income, racial disparities, oral history, mixed methods

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Beyond the "Haves and Have Nots": Using an Interdisciplinary Approach to Inform Federal Data Collection Efforts with Indigenous Populations

Over the past 30 years, the racial economic gap has substantially increased in the United States, with White people experiencing the most growth in income and wealth relative to racial minorities (Asante-Muhammad, Collins, Hoxie, & Nieves, 2016). These trends are alarming for the future economic growth of the country. Families of color are falling further behind Whites in their ability to pay for everyday necessities with their income. Many studies have focused on the racial wealth and income gap between Black and White people, in part because of the foundational work of Oliver and Shapiro (1995), which traced the wealth gap from slavery to other historical policies of discrimination and disparities in inheritance and redlining (see also Blau & Graham, 1990; Conley, 1999; Wolff, 2002).

Yet, little is known about smaller Indigenous populations, in large part because of data and methodological issues with national surveys. In this study, I focus on Pacific Islanders, who have a long history as part of the United States dating back to the 19th century. Since that time, the United States has increased its territories, colonies, and diplomatic ties in the Pacific to expand its military stations (Camacho, 2011). However, it is commonplace for researchers to group Pacific Islanders with Asian Americans, American Indian and Alaska Natives, and/or other immigrant populations (see for example Chang, 2010; Hanna & Lindamood, 2008; Rothwell & Han, 2010) because of issues around respondent privacy. Nevertheless, the U.S. Office of Management and Budget (OMB, 1997) has mandated that Pacific Islander data be collected and reported as a separate racial group.

Thus, this study demonstrates how multiple methods can inform national survey data collection efforts for smaller Indigenous populations. These issues related to how national surveys can collect quality, relevant data are particularly pertinent, as the U.S. Census Bureau has begun efforts to modify the 2020 Census of the nation. The Decennial Census and, more recently, the American Community Survey (ACS) are surveys administered by the U.S. government, which are mandated by the U.S. Constitution to accurately allocate congressional districts. The surveys are also critical because $400 billion of federal funds for infrastructure and public amenities are allocated based on its population counts (U.S. Census Bureau, 2010). The Bureau had also started researching and testing new questions since 2013. However, national surveys, such as the Decennial Census or ACS, should incorporate additional variables to understand income disparities and the social contexts of smaller population groups.

By incorporating qualitative efforts, national surveys can better understand how to improve data collection efforts with Indigenous populations. To the author's knowledge, this is the first study to examine income gaps between Pacific Islanders and non-Hispanic Whites (hereinafter referred to as "Whites") who live in the United States using multiple methods. I have examined the magnitude of racial income disparities with statistical analyses of the 2008-2012 ACS 5-percent Public Use Microdata Sample (PUMS). Using multivariate regressions, I tested whether income gaps persisted after controlling for household characteristics and location. The quantitative analyses demonstrate what kinds of information are gleaned from the current ACS questions.

However, large federal data sets are limited because they are oftentimes not designed to capture Indigenous population income disparities. Thus, I examine published oral histories and interviews to identify additional questions that can help explain these economic impacts. With quantitative

methodological data issues for smaller Indigenous populations, the findings support the need for interdisciplinary studies and methodological nuances to understand how available quantitative data can be improved to capture national economic trends and their effects on individuals and families.

Literature Review

Pacific Islanders and Methodological Issues with Quantitative Data

While small in number, the Pacific Islander population has steadily grown in the United States. Between 2000 and 2010, the Pacific Islander population grew by 40% to more than 1.2 million people living in the United States (Empowering Pacific Islander Communities [EPIC] & Asian Americans Advancing Justice [AAAJ], 2014). The Census Bureau predicts there will be nearly 3 million Pacific Islanders in 2060 (Colby & Ortman, 2015). Pacific Islanders have varying socioeconomic backgrounds because of the myriad of relationships the United States has with each island (EPIC & AAAJ, 2014).[1] Depending on citizenship status, some Pacific Islanders are at a greater disadvantage in terms of their access to jobs in the United States and in developing credit or assets. For instance, immigrants oftentimes do not inherit wealth, their educational credentials from their home country may not transfer easily to the United States, and they may have limited knowledge of the United States labor market (Hao, 2001).

Despite their long history with the United States government, there are few studies that examine Pacific Islanders and economic stability because of challenges in finding and using quantitative data on Pacific Islanders. First, De La Cruz-Viesca (2011) and Yao (2008) described how government data sets, including the Consumer Expenditure Survey, Survey of Consumer Finances, and the Health and Retirement Study combine Pacific Islanders with Asian Americans and/or Native Americans in an "Other" category to meet sample size requirements. By combining hundreds of groups, these studies create a category that is meaningless because of the significant differences within and among these populations (Ericksen, 1997; Fernandez, 1996). In trying to meet statistical significance thresholds, the collected data do not shed light on how Pacific Islanders fare.

Second, there are issues with how to report race and ethnicity. Many surveys have a select number of categories for participants to self-report their race and ethnicity (Okazaki & Sue, 1995). Consequently, participants from smaller populations may not have a category to select. In other instances, studies do not allow respondents to select more than one racial or ethnic category. This restriction proves particularly problematic for Pacific Islanders since a majority identify as multiracial (56 percent; EPIC & AAAJ, 2014; Kanaʻiaupuni & Malone, 2006; Yao, 2008). Individuals who are mixed-race also do not self-report consistently over time, depending on their context (Siegel & Passel, 1979).

[1] Individuals from Guam, Hawai'i, and the Commonwealth of the Northern Mariana Islands are considered American citizens, can work and live in the United States legally, and qualify for public benefits. American Samoan residents are U.S. nationals and can work in the United States and qualify for some federal benefits, but must obtain citizenship. Residents of the Federated States of Micronesia (which includes Yap, Chuuk, Pohnpei, and Kosrae), Republic of the Marshall Islands, and Republic of Palau are allowed to work and live in the United States, but do not qualify for federal benefits and are not citizens. Immigrants from Papua New Guinea, Tonga, Samoa, Tokelau, Kiribati, and other islands are not citizens, must apply for legal permanent resident status to work or live in the United States, and have to wait 5 years to apply for public benefits (EPIC & AAAJ, 2014).

Third, collected data on Pacific Islanders may be suppressed. For instance, the ACS suppresses data to keep respondent information anonymous and prevent the publication of unreliable statistics (U.S. Census Bureau, 2016). The ACS also sets a minimum threshold of 65,000 per subgroup in a geographic area for the 1-year survey or 7,000 per subgroup for the 5-year survey. Most quantitative analyses using Census data cannot include Pacific Islanders for most local analyses—researchers can only examine Pacific Islanders for the total United States or within the few states with substantial Pacific Islander populations. With these difficulties related to data access, researchers often exclude Pacific Islanders from their analyses (Okazaki & Sue, 1995).

Existing Studies on Pacific Islander Income

Despite these methodological issues, some studies have measured Pacific Islander income and wealth differences. Overall, they have shown that Pacific Islanders fall behind the general population of the United States. First, higher proportions of Pacific Islanders live in poverty and earn less per capita income than the total population (EPIC & AAAJ, 2014). They also have lower homeownership rates and are more likely to be housing burdened[2] (EPIC & AAAJ, 2014). In part because of their concentration in low-income jobs, the Insight Center for Community Economic Development (2011) found that Native Hawaiians received about 45 percent of the average Social Security benefit[3] of non-Native Hawaiians.

With less income, it is difficult to set aside funds for the future as savings and investments. A study by National Coalition for Asian Pacific American Community Development (CAPACD), the National Urban League, and the National Center of La Raza (2014) found that most low- and moderate-income Asian American and Pacific Islanders primarily save with a savings account (65 percent), compared to 14 percent who had a retirement account, and 7 percent who did not save at all. Naya (2007) also found that Native Hawaiians had on average lower interest, dividend, and rental income. They also received fewer benefits as a result of retirement, Social Security, and Supplementary Security Income than non-Native Hawaiians in Hawaiʻi. Native Hawaiians also earned less income from household assets (sum of interest, dividends, net rental income) in Hawaiʻi—on average, Native Hawaiians had $2,000 in assets compared to Whites who on average had $8,430 in assets (Ong, 2006).

These studies start to provide a statistical description of Pacific Islanders. However, the majority of studies do not test whether racial differences exist after controlling for household characteristics. Second, by relying on quantitative data, these studies do not capture the web of factors that contribute to barriers in income and wealth accumulation, such as employment, education, household formation, and citizenship. They are instead using existing secondary data that is not designed to capture Indigenous population characteristics.

[2] Housing burdened families are those who pay more than 30 percent of their income on housing (Schwartz & Wilson, 2008).

[3] Social Security benefits provide support for Americans who are retired, have disabilities, or are survivors of a family member who passed away. While not meant to replace a worker's total income, Social Security replaces 40 percent of a person's income upon retirement (Social Security Administration, 2017).

This study contributes to existing literature by using federal data to examine locational and household factors that explain income disparities between Whites and Pacific Islanders. I focus on income because it allows me to use the U.S. Census, which is one of the few federal surveys that disaggregate Pacific Islanders from other racial groups. I test differences across the United States and in a state-level analysis that focuses on California and Hawai'i because they have larger populations of Pacific Islanders. After introducing the data, I utilize oral histories and interviews to understand what additional variables could be added in the ACS to further explain these disparities. This study provides an example of how interdisciplinary methods can inform national data collection efforts to provide a more comprehensive portrait of Pacific Islander economic statuses.

Research Questions and Methodology

This study asks the following research questions:

a. What are the differences in household and per capita income between Pacific Islanders and Whites in the United States?

b. Do these differences persist after accounting for a number of household characteristics and geography?

c. How do qualitative data inform additional variables that can be used in federal surveys to better understand Pacific Islander economic disparities?

Quantitative Analyses

To address the first two research questions, I used 2008-2012 ACS 5-percent PUMS to examine household and per capita income (U.S. Census Bureau, 2015) by calculating bivariate statistics in SAS 9.4. ACS contains a 5 percent sample of housing units, and ACS counts are averaged from samples during the 5-year period. I focused on data from the head of household, and White (n = 4,472,390) and Pacific Islander (n = 6,059) households. Data are weighted by housing unit because the study focuses on households. ACS only surveys households in the 50 states and Washington, DC, and it does not include Pacific Islander households in a territory. To compare per capita household income with household income, per capita income is calculated by dividing household income by the number of persons in the household.[4]

This study focuses on both household and per capita household income because Pacific Islanders tend to live in larger households. In the 2008-2012 ACS, the average household size for Whites was 2.36 while the average household size for Pacific Islanders was 3.23 in the United States. By supporting more individuals in a household, household income may mask economic disparities. For example, if a six-person household has a total household income of $100,000 relative to a three-person household with an income of $75,000, the three-person household would have a higher per capita income than the six-person household. To address the second question, I used multivariate linear regressions to test how much household characteristics and location account for racial disparities in the United States. I

[4] This method differs from the published ACS data, which calculates per capita income by dividing aggregate income by total population.

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compare Pacific Islanders and Whites because Whites are still the majority group and are used as a benchmark in income disparity studies. Whites were single-race and non-Hispanic, while Pacific Islanders included multiracial and multiethnic individuals.

I used household variables consistent with similar human capital models that suggest that investment in people leads to economic benefits. Types of investment include education, labor skills, years of work experience, or worker's age to approximate experience (Mincer, 1958; Psacharopoulos & Patrinos, 2004; Sweetland, 1996). I included age, gender, educational attainment, marital status, number of children, employment status, citizenship status, and multigenerational households. Age was used as a proxy for work experience. Age squared was also included to test for the growth and decline in income over the lifecycle. For gender, males were coded as 1 and females were the reference category. Investment in education is highly correlated to income, and educational attainment was separated into less than a high school diploma, high school graduate, and post-secondary degree[5]—the reference group was less than a high school diploma. Marital status used a dichotomous dummy variable—unmarried people were the reference group. Individuals who are married would assumedly have a higher household income because there are possibly two people contributing to the household income.

Citizenship was categorized as those who were born in the United States or are naturalized citizens, with noncitizens as the reference group. U.S.-born respondents include those who are born to American parents abroad or in territories. A dichotomous variable indicated whether the household had more than two generations living in the same household (multigenerational). It is expected that larger households have more workers and/or dependents, affecting the aggregate household income and per capita income.

To test the effect of geography, the study used three analyses: United States, California, and Hawai'i. In the country-level regressions, I controlled for California and Hawai'i as variables because these states have the largest Pacific Islander populations in the country and are the least affordable states to live in among the 50 states (U.S. News & World Report, 2016). The national regressions identify whether there are racial disparities after accounting for the effects of living in either state. The study also tested racial income differences within California and Hawai'i using the same household variables to understand if these patterns continue within the states.

Qualitative Analyses

I complement the quantitative analysis with analyses of published oral histories and interviews that focus on Pacific Islander experiences in the United States and income disparities. Other studies have conducted analyses of published qualitative materials (see Gillies & Edwards, 2005; Godfrey &

[5] The post-secondary degree category includes those who have completed any post-secondary education beyond high school (e.g., trades certificate, community college diploma, or university degree).

Richardson, 2004; Lykes, 1983).[6] I examined *Pacific Voices Talk Story* (Lenson, 2001, 2003, 2004, 2007); *Pacific Islander Voices* (National Asian Pacific Center on Aging, 2010); and Minnesota History Center's Asian American and Pacific Islander Oral History Project (Minnesota Historical Society, 2012a). Other published oral histories were available online but were excluded because they were available in video format without a transcript, were focused on a specific event, and/or were collected before 2000.[7] Oral histories from before 2000 were excluded because of the difference in time context compared to the other qualitative texts.

People from diverse ethnic backgrounds living in different states were interviewed for *Pacific Voices Talk Story* in order to convey the experiences of a broader range of Pacific Islanders who were born in or migrated to the United States. Lenson (2001, 2003, 2004, 2007) collected the oral histories for preservation rather than primarily for data analysis. The National Asian Pacific Center on Aging (2010) focused on Pacific Islander seniors who work in their partner organizations, and they included mostly the experiences of Samoans in the United States. The Minnesota History Center (2012) collected and published oral histories on immigrant and refugee populations; the center has five in-depth oral histories of Pacific Islanders who settled in Minnesota.

I used a mix of inductive and deductive coding to identify themes (Fereday & Muir-Cochrane, 2006). I first identified themes as related to employment, education, multigenerational households, and citizenship because these factors were statistically significant in the regressions. As Fereday and Muir-Cochrane (2006) recommended, I also inductively analyzed the texts for additional themes that relate to understanding the causes or impacts of income disparities among Pacific Islanders. While the interviews and oral histories were examined for social phenomenology, or subjective meanings, in the daily lives of Pacific Islanders (Schutz, 1967), there are limitations in the themes and data because the author coded them without input from other researchers. Nevertheless, the focus of the study is to identify how mixed methods can inform federal data collection of Indigenous populations using these examples of qualitative texts rather than an exhaustive accounting of Pacific Islander economic statuses and experiences.

[6] There is some controversy over secondary analyses of qualitative data because the purpose of examining the text is different from the original purpose of data collection (Heaton, 2008). Heaton (2008) also noted that secondary analyses have no control over data collection. Bishop (2007) examined differences between primary and secondary analyses of qualitative texts, and she argued that few distinctions exist between these analyses. She acknowledges two points in time—when data were collected and when the data were analyzed—affecting distinctions with the individual interaction, situation, and institutional or cultural contexts. Though the researcher was not present for the original data collection, there are other instances in qualitative data collection where a researcher may not be present for the interview when, for example, working in a team setting. Also, Bishop described how data have to be recontextualized after an interview is conducted, whether immediately after data collection or at a later point. Lastly, Bishop (2007) asserted that after understanding the context of data collection and the purpose, researchers can assess how appropriate it is to analyze published qualitative data.

[7] See the University of Hawai'i at Mānoa's Center for Oral History (2010) or Marshallese Educational Initiative's (n.d.) Marshallese Oral History Project for example.

Results

Magnitude of Racial Differences

Pacific Islanders earned less household and per capita income than Whites (see Figure 1). There was a $9,000 gap in household income ($p < 0.01$). The gap increases for per capita income—Pacific Islanders earn about $12,000 less than Whites ($p < 0.01$). Pacific Islanders may have lower per capita income on average because, on average, each person in their households earns less than those in White households; alternatively, more children or older relatives in a household increases the number of dependents and decreases the per capita income of working adults.

Whites and Pacific Islanders also have different household characteristics that affect income (see Table 1). First, Whites are more likely to be older—the average White person was 53 years old, while the average Pacific Islander was 45 years old. Whites also have higher educational attainment than Pacific Islanders. While 42 percent of Whites have a post-secondary degree, 27 percent of Pacific Islanders have a similar level of education. Age and education have a strong relationship with income because income tends to peak in middle age before retirement, and more education oftentimes leads to greater employable skills (Wolla & Sullivan, 2017).

Whites have additional household characteristics that contribute to higher income. Whites have fewer children on average (0.47 across all households) than Pacific Islanders (0.95). The lifetime income is highest for households without children because of the additional costs associated with children (Scholz & Seshadri, 2009). An overwhelming majority of Whites are also citizens (98 percent), compared to 72 percent of Pacific Islanders. Citizens have more opportunities to build their credit and assets (Hao, 2001).

The geographical distribution of Whites and Pacific Islanders varies significantly. While 28 percent and 25 percent of the Pacific Islander population in the country lives in Hawai‘i and California, respectively, 0.2 percent and 8 percent of Whites live in these states. It is important to recognize that a higher proportion of Pacific Islanders live in more expensive states than Whites—even if Pacific Islanders earn higher wages, they have to pay more for housing costs. Thus, statistical analyses that do not control for geography may overestimate the incomes of Pacific Islanders.

These factors help to explain why Pacific Islanders fall behind Whites in income. The next section describes statistical analyses that help to explain how much these factors account for racial income disparities. In other words, after accounting for household characteristics and where people live, are there still unexplained racial discrepancies in income?

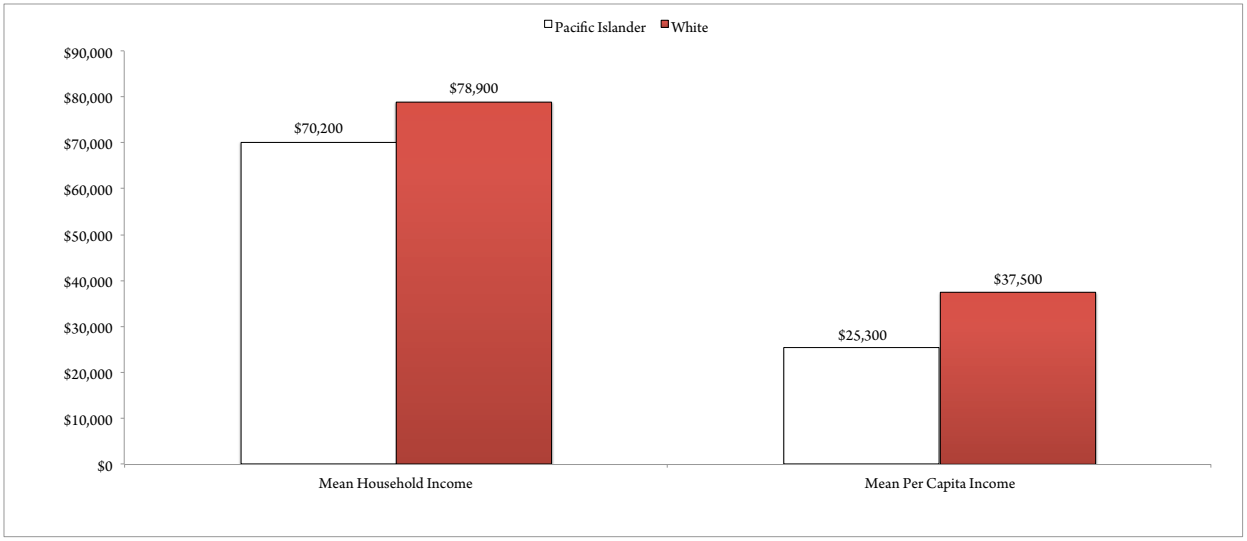

Figure 1. **Racial income disparities in the U.S., 2008 – 2012. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Pacific Islanders are those who are multiracial and multiethnic, while Whites are defined as non-Hispanic White. Group mean differences are statistically significant ($p < 0.01$).**

Table 1. Descriptive Statistics of Household Characteristics and Geographic Distribution by Race

	Pacific Islander	White
Mean Age	44.49	52.60
Male	53% (71,566)	55% (44,816,059)
Average number of children	0.95	0.47
Married	58% (78,549)	54% (43,431,490)
Employed	71% (96,432)	63% (51,035,661)
Multigenerational household	11% (14,286)	2% (1,935,681)
Educational attainment		
Less than high school	11% (15,171)	8% (6,801,443)
High school diploma	62% (83,966)	50% (40,546,578)
Post-secondary degree	27% (36,629)	42% (33,756,348)
Citizenship status		
US born	75% (101,384)	96% (77,520,112)
Naturalized	11% (15,089)	3% (2,334,997)
Noncitizen	14% (19,293)	2% (1,249,260)
Geography		
Live in California	28% (37,916)	8% (80,963,719)
Live in Hawai'i	25% (33,836)	0.2% (140, 650)
Sample size	135,766	81,104,369

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. For all variables, group mean differences are statistically significant ($p < 0.01$). Sample size is included in parentheses for categorical variables.

Statistically Significant Racial Disparities

The multivariate linear regressions show statistically significant racial income gaps remaining after accounting for household characteristics. Tables 2 and 3 show that racial disparities persist in three models that predict income—each subsequent model adds in more variables to demonstrate how much of the association between income and racial group (Model 1) can be explained by household characteristics (Model 2) and geography (Model 3). The models do not explain why there are racial income disparities, but rather highlight different factors that contribute to these associations. The state-level regressions test only Models 1 and 2.

Table 2 displays the regression models predicting household income. All of the variables are statistically significant ($p < 0.01$). Model 1 shows a statistically significant log difference of -0.054 between Pacific Islanders and Whites in household income. In Model 2, the household characteristics are significant predictors of household income. As predicted, variables such as post-secondary degree, employment status, multigenerational households, and marital status would be associated with higher household income. Racial income disparities continue to be significant between Pacific Islanders and Whites. Model 3 shows that after adding geography (California and Hawai‘i) into the statistical model, the racial income gap persists. The other coefficients of household variables are similar between Models 2 and 3 except for citizenship—the difference in household income between citizens and noncitizens increases after controlling for geography. Thus, after adjusting for where people live and household characteristics, there are racial differences in household income.

There are also differences between racial groups when examining per capita income. Table 3 shows a statistically significant difference of -0.42 in log per capita income between Whites and Pacific Islanders ($p < 0.01$). As with Table 2, the household characteristics have a statistically significant relationship with per capita income ($p < 0.01$). As expected, having a larger number of children and living in a multigenerational household were associated with lower per capita income. Higher educational attainment and being employed also predicted higher per capita income values. While household characteristics help to explain racial disparities in income, there is still a statistically significant difference in per capita income between Pacific Islanders and Whites in Model 2. Similar to household income, the other coefficients for the household variables are similar between Models 2 and 3. Also, Model 3, which contains all of the countrol variables, continues to show an unexplained gap in per capita income between Whites and Pacific Islanders.

The multivariate regressions for California and Hawai‘i show similar findings with the country-level analyses, where racial disparities endure even after controlling for household characteristics (see Appendix). The coefficients for the household variables are also similar in the state-level and country-level tests. However, the racial disparities between Pacific Islanders and Whites are greater in California and Hawai‘i. In other words, after accounting for household characteristics, the difference in predicted household and per capita income for these racial groups is higher in California and Hawai‘i. As expected, in the two states with higher costs of living, the racial income gap is greater, and Pacific Islanders fall even further behind Whites.

Table 2. Linear Regression Models Predicting Household Income (logged)

Household Characteristics	Model 1	Model 2	Model 3
Race			
Pacific Islander	-0.054 (0.011)	-0.036 (0.009)	-0.088 (0.009)
White	Reference	Reference	Reference
Age		0.034 (0.000)	0.033 (0.000)
Age squared		-0.025 (0.001)	-0.025 (0.000)
Gender			
Male		0.093 (0.008)	0.093 (0.001)
Female		Reference	Reference
Number of children		0.020 (0.000)	0.021 (0.000)
Martial Status			
Married		0.641 (0.008)	0.644 (0.001)
Not married		Reference	Reference
Employment Status			
Employed		0.622 (0.001)	0.624 (0.001)
Unemployed		Reference	Reference
Multigenerational family		0.334 (0.002)	0.331 (0.002)
Educational Attainment			
Post-secondary degree		0.768 (0.001)	0.757 (0.001)
High school diploma		0.311 (0.001)	0.306 (0.001)
Less than high school		Reference	Reference

Table 2. Linear Regression Models Predicting Household Income (logged) (continued)

Household Characteristics	Model 1	Model 2	Model 3
Citizenship Status			
Citizen		0.059	0.074
		(0.003)	(0.003)
Non-US citizen		Reference	Reference
Geography			
California			0.182
			(0.001)
Hawai'i			0.071
			(0.008)
Rest of the US			Reference
Intercept	10.880	8.537	8.517
	(0.000)	(0.005)	(0.004)
Observations	4,439,946	4,439,946	4,439,946
R-squared[a]	0.000	0.368	0.370
F-value	22.37	234,644	200,703

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors are in parentheses. All variables are statistically significant ($p < 0.01$).
[a]Adjusted *R*-squared and *R*-squared had the same values.

Table 3. Linear Regression Models Predicting Per Capita Income (logged)

Household Characteristics	Model 1	Model 2	Model 3
Race			
Pacific Islander	-0.419	-0.137	-0.181
	(0.011)	(0.009)	(0.009)
White	Reference	Reference	Reference
Age		0.033	0.033
		(0.000)	(0.000)
Age squared		-0.021	-0.021
		(0.000)	(0.000)
Gender			
Male		0.099	0.099
		(0.001)	(0.000)
Female		Reference	Reference
Number of children		-0.273	-0.273
		(0.000)	(0.000)
Marital status			
Married		0.154	0.156
		(0.001)	(0.001)
Not married		Reference	Reference
Employment status			
Employed		0.610	0.611
		(0.001)	(0.001)
Unemployed		Reference	Reference
Multigenerational family		-0.454	-0.456
		(0.002)	(0.002)
Educational attainment			
Post-secondary degree		0.829	0.820
		(0.001)	(0.001)
High school diploma		0.333	0.328
		(0.001)	(0.001)
Less than high school		Reference	Reference

Table 3. Linear Regression Models Predicting Per Capita Income (logged) (continued)

Household Characteristics	Model 1	Model 2	Model 3
Citizenship status			
Citizen		0.041	0.054
		(0.003)	(0.003)
Non-US citizen		Reference	Reference
Geography			
California			0.158
			(0.001)
Hawai'i			0.051
			(0.008)
Rest of the US			Reference
Intercept	10.167	8.134	8.117
	(0.000)	(0.004)	(0.004)
Observations	4,439,946	4,439,946	4,439,946
R-squared[a]	0.000	0.310	0.312
F-value	1,534.84	181,262	154,919

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors are in parentheses. All variables are statistically significant ($p < 0.01$).
[a]Adjusted *R*-squared and *R*-squared had the same values.

Thus, the quantitative analyses of ACS data demonstrate that there are significant gaps between Whites and Pacific Islanders in household and per capita income. However, I examine if there are additional questions that can be added to federal surveys to improve data collection of Indigenous populations. The next section answers the third research question by using oral histories and interviews to identify additional variables that can strengthen Census data collection. I focus on remittances, competing demands, and citizenship status as variables that can better inform researchers' understandings of economic circumstances among Pacific Islanders.

Additional Variables to Understand Income Disparities

Remittances

While the Census includes questions related to income, it does not ask respondents about connections to other countries and how it may affect their economic status. As with other migrants, Pacific Islanders oftentimes move to the United States to pursue economic or educational opportunities. After moving,

they continue to provide financial support for their families on the islands. ACS currently does not include questions related to remittances, or sending money to family.

A number of interviews explained how remittances to family are a core motivator for moving. For example, Makalio or "Max" described how:

> The first priority in each person leave the country are go and help the family back home. That's all. So that's why all these people everywhere, that was their priority, to come to this country or any country in the world, find a good job or find a job and support family back home . . . Whatever is left from my budget for this month, I gotta send home to help my sisters and my brothers and my nephews and my nieces. (Minnesota Historical Society, 2012b, pp. 23-24)

Petelo echoed this sentiment, "I work now because I need the money. I take care of my wife from Samoa over here. I send the money over for my wife and kids. This is very important to me" (National Asian Pacific Center on Aging, 2010, p. 29). These family pressures can be tied to additional stress. For example, Vete (1995) also noted, "the amount and frequency of remitting to parents are taken as measures of one's love . . . Anyone who does not appear to love their parents by remitting frequently is frowned upon . . . This can be absolutely humiliating and heart-rending" (p. 62).

Not only are remittances important for the family unit, but also help to support the islands' overall economy. Dan stated:

> Even to this day, a great deal of the economies of American Samoa and (Western) Samoa stems from families in the US, New Zealand, and Australia sending money home . . . People still migrate from Samoa, raising money in these other places to send remittances back home that help the family. I know that many in our generation moved from Samoa for this same reason. (Lenson, 2001, p. 151)

Other surveys have yielded mixed results about the prevalence of remittances. In their survey of Federated States of Micronesia migrants in the United States, Guam, and Commonwealth of Northern Mariana Islands, Hezel and Levin (2012) found that migrants remitted an estimated total of $1.7 million per year to Guam, $655,000 to Hawai'i, and $15,000 to the Federated States of Micronesia. The authors were surprised at the small percentage of migrants who sent remittances, and they found in focus groups that individuals were helping family through other financial gifts, such as buying airfare or cash gifts to address special circumstances (holidays, weddings, or funerals; Hezel & Levin, 2012). In contrast, the 2010 Federated States of Micronesia Census reported that 11 percent of the population received cash remittances, or about $7.7 million total (Federated States of Micronesia Office of Statistics, 2010).

The U.S. Census Bureau survey does not have a question related to sending money to family. Other national surveys are beginning to add these variables, such as the National Asset Scorecard for Communities of Color; however, this survey focuses on five American cities (Meschede, Darity, & Hamilton, 2015). If ACS includes questions on remittances, researchers can examine how prevalent remittances are and how much money (for both gifts or cash) respondents send, which may also help explain economic disparities.

Competing Demands

As the quantitative analysis displayed, Pacific Islanders tend to live in larger households than Whites, which was associated with higher household income and lower per capita income. Participants shared that their households included both immediate and extended family members. Sulu shared, "I have eight natural brothers and sisters and also cousins who lived with us forever. I consider them my family to this day . . . My father raised about fourteen of us in all" (Lenson, 2004, pp. 148-149). Ba-Maurie also extended the definition of family by raising his nephew and now his nephew's extended family: "Well, this nephew's mother left him when he was a baby, so I took over raising him . . . He's married and lives in my house with three kids, a wife, a brother-in-law, and a step-daughter" (Lenson, 2001, p. 100).

These households include more people because of family interdependence. Napua's family lived together in Hawai'i because if they "didn't have enough money, we shared something" (Lenson, 2003, p. 289). For example, Lee (2003) described how Tongans oftentimes live in larger households because older generations take care of new grandchildren; in return, working family members help care for older family members to avoid sending them to retirement facilities. Additionally, it is commonplace for various relatives to temporarily stay with families while looking for employment. For example, Sulu described how her "parents took in every one of our cousins who came over . . . for six months, a year, or two years" (Lenson, 2004, p. 149). Sulu partially attributed it to cultural reasons: "Back home, Samoans take care of their own" (Lenson, 2004, p. 148).

The consequences of living with more family members are mixed. Within the household, there are more people to contribute financially, and a number of interviewees were working a range of jobs to help. For example, after attending school, Tui described how "we had to clean and check the vegetables, because we would sell them to the neighbors to make money and grow some more" (Lenson, 2004, p. 124). Saichi similarly remembers, "I come from a poor family and have always been a worker, starting from when I delivered newspapers on my bike . . . There wasn't time for sports since working for the family came first" (Lenson, 2004, p. 90). By supporting family, though, some Pacific Islanders experienced challenges with having their income pay for competing demands. For example, Ba-Maurie had expected that her nephew and his family would help to support their housing expenses. Instead, she lamented:

> Now I want my own house back . . . my nephew won't leave. Then, last year, my niece and her husband moved in with me [in an apartment]. . . I'm paying a lot of rent just to help my nephew live in my house! . . . My problem is I try to help, but who helps me? I live on my Social Security and retirement, not that much. (Lenson, 2001, p. 101)

With many family members depending on her, Ba-Maurie is in a financial bind, especially because she is retired and lives on a fixed income. While Pacific Islanders may live in larger households to help take care of each other, doing so can either help pool resources or create additional economic strain on the entire household.

The U.S. Census asks respondents about some additional costs they spend on housing. For example, ACS includes questions about condo fees, utility bills, property taxes, or rent. However, the survey overlooks other competing demands that may strain households' incomes. While remittances relate to families' overseas expenses, it would be critical for ACS to also include domestic costs that migrant or multigenerational families may experience.

Citizenship Status

Income disparities are also affected by citizenship and migration. Many migrated for better opportunities for themselves and their families. Jim noted that he left American Samoa because "the wages were very low" and came to the United States to work in a power plant—he "wanted to come away from there to take care of [his] family and raise them the normal way" (Lenson, 2007, p. 17).

However, this process of moving to the United States had challenges. Esther observed that new migrants:

> Just get on the plane and come . . . [but] they have no knowledge about budgeting or stretching your money to make it last. They don't know that you have to pay for housing, rent, utilities, food, gas—everything! (Lenson, 2004, p. 257)

A number of respondents also described experiencing difficulties because of language. Eseneiaso felt that:

> The hardest thing about adjusting was English. I didn't have enough education. It was hard to speak out. I learned English at school in Samoa. But here, you use it all the time. Back home, you only use English at school. (National Asian Pacific Center on Aging, 2010, p. 32)

As with other immigrants, it took some Pacific Islanders time to adjust to everyday life in the United States. However, Pacific Islanders' adjustment also depended on citizenship status because of varying experiences in moving. For example, some respondents explained that they were able to easily migrate to the United States because of military service. For example, Sulu's father was in the American military and was able to move his family from Samoa to Guam and eventually Honolulu because people from American Samoa are considered U.S. nationals.

On the other hand, as a migrant from the Marshall Islands, Que experienced significant barriers to becoming a citizen, affecting his educational opportunities. He had lived in Honolulu and sought citizenship there, eventually moving to Los Angeles. However, immigration services kept his passport in Honolulu, and immigration services in Los Angeles "cracked down," telling him that they would deport him if he could not obtain his passport (Lenson, 2007). He described how "for three years . . . [he] had to go to downtown LA, face these immigration guys . . . otherwise [he] wouldn't be able to graduate" (Lenson, 2007, p. 164). He was eventually able to resolve his situation, in part because he performed academically well in school and had consistently attended school.

The relationship between the United States and the islands also affected employment opportunities. Jim's citizenship status also impacted his employment opportunities. He was a U.S. national after moving from American Samoa and did not apply for citizenship. His employer, Convair, eventually "kicked [him] out" since the United States would not allow noncitizens to work on projects like missiles and in the defense program" (Lenson, 2007, p. 12).

While Jim's citizenship status negatively affected his employment opportunities, Esther found that she had an easier time getting other types of government jobs. She explained trying to recruit more Micronesians into California jobs:

> I tried to tell other Micronesians to log onto the state's website and look at the jobs. They're entry level, the pay's not all that great, but the benefits—medical, dental, vision—all of that counts . . . Even though FSMers—people from the Federated States of Micronesia—are not citizens, a provision in the Compact of Free Association allows them to work for the state and federal government. (Lenson, 2004, pp. 234-235)

The ACS currently asks respondents about their citizenship status and if they were born in the United States, born in U.S. territories (Puerto Rico, Guam, U.S. Virgin Islands, or Northern Marianas), born of American parent(s), or had become a citizen through naturalization. This question does not capture the complex relationships that the United States has with the islands in the Pacific. By simplifying the question on citizenship status to these categories, the ACS data do not include information tied to whether migrants can easily move to and from the United States, whether they can work or serve in the military, and other connections to the United States.

Policy Implications and Conclusion

The current ACS data demonstrate that Pacific Islanders do experience disparities in household and per capita income relative to Whites. Not only are there discrepancies, but also racial gaps in income persist even after controlling for household characteristics and geography. These disparities are particularly exacerbated by the challenges that some Pacific Islanders experience in their efforts to expand their economic opportunities.

However, the ACS does not include variables that sufficiently capture the experiences of migrant and Indigenous groups with different citizenship statuses. While the ACS is meant to capture the experiences of respondents in the 50 states, the study demonstrates the importance of adding questions that recognize an individual's financial connections to family in other countries or islands. I also recommend including questions related to other costs that affect households, such as family expenses, education, or raising children. The ACS also can further distinguish among immigration statuses because of their implications for citizenship, employment, and eligibility for public benefits.

There are some upcoming challenges for the next iterations of the ACS and Decennial Census. The U.S. Government Accountability Office (2017) report on high-risk federal programs warned of underfunding the population count—as the number of households has grown over the past several decades, they estimate that the cost to count each household has increased from $16 to $92 between 1970 and 2010 (in 2010 dollars). Also, the rates of unreturned mail responses has grown over the years, and the Census Bureau has not conducted enough tests to evaluate new technologies, such as internet survey response, and the associated risks to privacy (U.S. Government Accountability Office, 2017). There are also political challenges. For example, Congress approved a Census Bureau budget with10 percent less funding for the than under the Obama administration and both political parties are debating how to deal with unreliable cost estimates—the director of the Census Bureau also abruptly announced that he will resign from his position June 30, 2017 (Bahrampour, 2017; U.S. Government Accountability Office, 2017).

While recent political debates have focused on the Decennial Census, the funding also affects the ACS, which is administered annually and has more detailed questions about population characteristics than the decadal census. Any group or geographic region that is undercounted is penalized and underfunded.

In times of fiscal constraints, it is imperative for policymakers to reinvest funding to improve the ACS and upcoming Decennial Census. Without having accurate counts and data on populations in the United States, policymakers do not have information on how to spend or save funding related to transportation, educational grants, infrastructure, health services, and other public amenities or programs.

The findings demonstrate the possibilities of using qualitative data to inform national data collection efforts of Indigenous populations. However, the study is limited in several ways. First, it is beyond the scope of this study to examine differences based on Pacific Islander respondents' country of origin or ethnicity. Second, the study is also a useful starting point for future studies to examine differences between individuals who decided to migrate and those who decided to stay on the islands (see for example Akee, 2010; Hezel & Levin, 2012). Third, it would also be useful to collect additional interviews or oral histories that examine Pacific Islanders' experiences with economic disparities—because the interviews asked respondents about their lives overall, not all respondents shared issues related to income.

Nevertheless, the findings demonstrate the policy benefits of using multiple methods to revise data collection with Indigenous groups. The study included a preliminary analysis of the income gap that Pacific Islanders experience in the United States using an interdisciplinary approach and mixed methods. For a smaller population that oftentimes experiences challenges related data availability and sample size, it is imperative to include other forms of data that can provide additional context and framing of Pacific Islander experiences. The qualitative analysis also highlights other areas of future research and can inform quantitative data collection. By utilizing and improving both types of data collection, researchers can comprehend the barriers as well as the opportunities for decreasing the racial income and wealth gap, which will strengthen the economic stability of Pacific Islanders in the United States.

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Appendix

Appendix Table 1. Linear Regression Models Predicting Household Income (logged) for California

Household Characteristics	Model 1	Model 2
Race		
Pacific Islander	-0.125	-0.113
	(0.023)	(0.019)
White	Reference	Reference
Age		0.030
		(0.000)
Age Squared		-0.023
		(0.000)
Gender		
Male		0.083
		(0.003)
Female		Reference
Number of children		0.022
		(0.002)
Marital status		
Married		0.634
		(0.003)
Not married		Reference
Employment status		
Employed		0.655
		(0.004)
Unemployed		Reference
Multigenerational family		0.305
		(0.009)

Appendix Table 1. Linear Regression Models Predicting Household Income (logged) for California (continued)

Household Characteristics	Model 1	Model 2
Educational attainment		
Post-secondary degree		0.713
		(0.007)
High school diploma		0.292
		(0.007)
Less than high school		Reference
Citizenship status		
Citizen		0.184
		(0.008)
Non-US citizen		Reference
Intercept	11.072	8.745
	(0.002)	(0.016)
Observations	347,656	347,656
R-squared[a]	0.000	0.323
F-value	30.03	15,096

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors in parentheses. All variables are statistically significant ($p < 0.01$).
[a]Adjusted *R*-squared and *R*-squared had the same values.

Appendix Table 2. Linear Regression Models Predicting Per Capita Income (logged) for California

Household Characteristics	Model 1	Model 2
Race		
Pacific Islander	-0.534	-0.231
	(0.021)	(0.018)
White	Reference	Reference
Age		0.031
		(0.000)
Age squared		-0.020
		(0.000)
Gender		
Male		0.081
		(0.003)
Female		Reference
Number of children		-0.271
		(0.002)
Marital status		
Married		0.158
		(0.003)
Not married		Reference
Employment status		
Employed		0.641
		(0.004)
Unemployed		Reference
Multigenerational family		-0.493
		(0.009)

Appendix Table 2. Linear Regression Models Predicting Per Capita Income (logged) for California (continued)

Household Characteristics	Model 1	Model 2
Educational attainment		
Post-secondary degree		0.789
		(0.007)
High school diploma		0.324
		(0.007)
Less than high school		Reference
Citizenship status		
Citizen		0.153
		(0.008)
Non-US citizen		Reference
Intercept	10.380	8.287
	(0.002)	(0.016)
Observations	347,656	347,656
R-squared[a]	0.002	0.263
F-value	621.79	11,258

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors in parentheses. All variables are statistically significant ($p < 0.01$).

[a] Adjusted R-squared and R-squared had the same values.

Appendix Table 3. Linear Regression Models Predicting Household Income (logged) for Hawai'i

Household Characteristics	Model 1	Model 2
Race		
Pacific Islander	-0.200	-0.089
	(0.026)	(0.025)
White	Reference	Reference
Age		0.014
		(0.003)
Age squared		-0.005
		(0.003)
Gender		
Male		0.113
		(0.019)
Female		Reference
Number of children		-0.015
		(0.010)
Marital status		
Married		0.562
		(0.019)
Not married		Reference
Employment status		
Employed		0.645
		(0.023)
Unemployed		Reference
Multigenerational family		0.498
		(0.042)

Appendix Table 3. Linear Regression Models Predicting Household Income (logged) for Hawai'i (continued)

Household Characteristics	Model 1	Model 2
Educational attainment		
Post-secondary degree		0.512
		(0.046)
High school diploma		0.157
		(0.045)
Less than high school		Reference
Citizenship status		
Citizen		0.278
		(0.042)
Non-US citizen		Reference
Intercept	10.317	9.024
	(0.011)	(0.095)
Observations	8,880	8,880
R-squared[a]	0.006	0.253
F-value	57.44	273.96

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors in parentheses. All variables are statistically significant ($p < 0.01$).

[a] Adjusted *R*-squared and *R*-squared had the same values.

Appendix Table 4. Linear Regression Models Predicting Per Capita Income (logged) for Hawai'i

Household Characteristics	Model 1	Model 2
Race		
Pacific Islander	-0.636	-0.241
	(0.026)	(0.024)
White	Reference	Reference
Age		0.015
		(0.003)
Age squared		-0.004
		(0.003)
Gender		
Male		0.125
		(0.018)
Female		Reference
Number of children		-0.285
		(0.010)
Marital status		
Married		0.168
		(0.018)
Not married		Reference
Employment status		
Employed		0.647
		(0.022)
Unemployed		Reference
Multigenerational family		-0.364
		(0.041)

Appendix Table 4. Linear Regression Models Predicting Per Capita Income (logged) for Hawai'i (continued)

Household Characteristics	Model 1	Model 2
Educational attainment		
Post-secondary degree		0.577
		(0.044)
High school diploma		0.195
		(0.043)
Less than high school		Reference
Citizenship status		
Citizen		0.320
		(0.040)
Non-US citizen		Reference
Intercept	10.317	8.475
	(0.011)	(0.091)
Observations	8,880	8,880
R-squared[a]	0.065	0.310
F-value	616.33	364.00

Note. Source: U.S. Census Bureau, Public Use Microdata Sample, 2008-2012. Robust standard errors in parentheses. All variables are statistically significant $(p < 0.01)$.
[a]Adjusted *R*-squared and *R*-squared had the same values.