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Can Data Disaggregation Resolve Blind Spots in Policy Making?

Examining a Case for Native Hawaiians

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Abstract

This study addressed whether or not the increasing reliance on data-driven decision making stands to improve policy efforts to address challenges faced by Asian American and Pacific Islander communities. In doing this, this study examined those who identified as Native Hawaiian in the U.S. Census data and further disaggregated this sample by ancestry and geographic location to test whether there are variations within this population across socioeconomic indicators. The findings suggest that while further data disaggregation can sharpen policy making to address patterns of socioeconomic inequalities, disaggregation alone is still insufficient for fully capturing the complexity of human experiences that reinforce those disparities.

Introduction

If you are *not* using data to make decisions, according to Pamela Shorr (2003), you are "flying blind." In the context of education policy, Shorr reported that collecting, combining, and crunching data improves the decision-making process. Indeed, federal policies such as No Child Left Behind have pushed school districts to rely more heavily on utilizing data to get students on the "right learning path." Without data to inform decision making, she added, it is equivalent to piloting a plane at night in the middle of a storm—"you'd be a goner."

Given the sheer scale and accessibility of data compared to past decades, Wladawsky-Berger (2013) noted that data-driven decision making has become one of the most promising applications. Today, large volumes of data are much easier to capture, curate, manage, and

process than in the past, enhancing its application for a wider range of individuals and organizations. Recognizing the potential, the White House committed more than $200 million to a "Big Data" Initiative in March 2012. Given that a broad spectrum of institutions and governmental agencies have already embraced Big Data and data science, will this trend help to make better and more effective policy decisions when it comes to addressing challenges faced by Asian American and Pacific Islander (AAPI) communities?

Until recently, large data sets such as those collected by the U.S. Census Bureau have had limited applications for addressing the needs of AAPI communities. One major problem is that such data sets did not reflect the diversity of AAPI communities. For example, the individuals represented under the umbrella AAPI category are highly varied and include more than forty-nine ethnic groups that speak more than three hundred different languages. Lumping together these diverse groups together under one overarching category contributes to what Hune and Kagawa-Singer (2011) pointed to as one of the "multiple ways in which AAPIs are made invisible, absent from and thus silenced, or inadequately represented or distorted in research, data, programming, and policies" (x). As Barringer, Gardner, and Levin (1993) also noted, "We believe that questions addressed to misleading categories, such as 'How do Asian Americans adapt to the United States?,' will inevitably result in misleading answers" (2). Subsequently, there has been ongoing pressure at the federal and state levels to collect and report on data that can be disaggregated by specific ethnic groups.

In light of the fact that we are becoming a more data-driven society, are there other concerns, issues, or *blind spots* besides disaggregation of ethnic data that should be kept in mind when it comes to making data-driven policy decisions that affect AAPI communities? After all, the local contexts in which AAPI communities are situated are also highly varied and constantly being reshaped by shifting economic, political, and social forces. Can those and other issues be accounted for by simply refining data sets in ways that allow for further disaggregation down to a more granular level? If not, do the limits of finer disaggregation hint at other critical issues concerning data-driven policy making?

To explore these questions, we drew from data collected by the U.S. Census Bureau and focused on those who identified as Native Hawaiians. We chose this population because they present an extraordinary test case for exploring the promises and limits of data-driven policy making. Until recently, Native Hawaiians could not be regularly

disaggregated from other Asian groups in large-scale data sets. Due in part to such data limitations, this population has been overlooked—yet some studies have pointed out that they are at greater risk than other AAPI groups when it comes to facing challenges related to education (Asian and Pacific Islander American Health Forum, 2014; Benham, 2006; Teranishi, 2010), physical and mental health (Cook et al., 2005; Hishinuma et al., 2000), and underemployment (McGregor, 2002; Museus, 2013). The capacity to differentiate Native Hawaiians from other AAPI groups in the U.S. Census certainly promises to improve the value of such data to inform policy making. At the same time, Native Hawaiians have had a very complex and unique history of colonization and militarization within U.S. society (Trask, 1993), which has led to significant variations within this group. Such complexity within the population can potentially reveal the limits of data-driven policy making.

In short, by examining those who identified as Native Hawaiians in the U.S. Census, this study can uniquely reveal the promises and limits of data-driven policy making that affect AAPI communities. The goal of this paper is not to offer policy recommendations for Native Hawaiian communities based on our analyses. Instead, our purpose is to examine patterns within our results, based on the complex attributes of Native Hawaiians, which can help to illuminate the extent to which the trend toward embracing heightened application of data can inform policy making that addresses opportunity gaps for AAPIs.

Background

The fear that policy makers are "flying blind" when it comes to addressing the challenges of AAPI communities has been a long-standing concern and whether or not there are adequate data to address differentiated needs of those communities has been at the center of those concerns (Lee, 1996; Nguyen et al., 2014; Teranishi and Nguyen, 2012). For example, concerns were raised in the early 1990s about how the U.S. Office of Management and Budget (OMB) developed standards and policies for federal government to collect, record, and present data on race. Up until that time, federal departments and agencies—including the U.S. Census Bureau—were guided by *Statistical Policy Directive Number 15*, which was issued by OMB in 1977. The directive put in place *Race and Ethnic Standards for Federal Statistics and Administrative Reporting*, which called for a systematic collection and organization of racial data into just four categories: American Indian or Alaska Native, black, white, and Asian or Pacific Islander (Office of Management and Budget, 1995).

Regarding the impact of those standards on AAPIs, Lee (1996) argued that the single category of "Asian or Pacific Islander" created a "monolithic monotone" that conceals "ethnic, cultural, social-class, gender, language, sexual, generational, achievement, and other differences" while signifying that all AAPIs are successful. Such concerns fueled an extensive review of OMB's directive, which included public hearings across the country, including in Honolulu, Hawai'i. On October 30, 1997, after completing their review, OMB amended *Statistical Policy Directive Number 15*. One of those changes included separating the racial category of "Asian or Pacific Islander" into two different groups: "Native Hawaiian or Other Pacific Islander" and "Asian" (Office of Management and Budget, 1997). The updated directive also allowed individuals to mark multiple racial categories. These changes were reflected in the 2000 Decennial Census, which allowed for the reporting on a wider range of ethnic groups. Although both the 1980 (nine ethnic groups) and 1990 Decennial Census (eighteen ethnic groups) also allowed for identification by specific Asian ethnic groups, the 2000 Census significantly (twenty-eight ethnic groups) expanded those options. Today, Census categories still remain imperfect and there continue to be efforts to revise and update how race and ethnic data is collected and reported.

Efforts to address the inadequacies of data collection that would better assist underserved AAPI communities were further aided by the White House. On October 14, 2009, President Obama signed Executive Order 13515, which reestablished the White House Initiative on Asian Americans and Pacific Islanders. One of the priority areas identified on the initiative's website[1] "to collect, analyze, and disseminate data on AAPIs to address masked needs within AAPI subgroups." According to the same website:

> Lack of data, including granular data on AAPIs, has given rise to the model minority myth—the notion that virtually all AAPIs are self-sufficient, well-educated, and upwardly mobile. Greater access to disaggregated data will promote better policies that reflect trends, contributions, realities, and diverse needs in the AAPI community.

Related efforts have also been advanced in states with large concentrations of AAPIs. Currently, California requires specified agencies to use additional separate collection categories and other tabulations for major Asian groups and Native Hawaiian and Pacific Islander groups. In 2015, California State Assembly member Rob Bonta introduced leg-

islation (AB 176) that would add to how the state collects demographic data. The proposed bill would add the State Department of Public Health to the list of agencies and require the uniform use of those specified categories and tabulations for all sectors of public higher education in California. Not only would all campuses including community colleges be required under this bill to account for each major Asian group and each major Pacific Islander group when they collect and report on demographic data as to the ancestry or ethnic origin of students, but the bill will also require the regular public updating of tabulations for those categories on each campus website.[2]

Native Hawaiian Communities

Efforts to collect and report on the vast differences, nuances, and diversity within the AAPI community are especially crucial for Native Hawaiian communities. According to a recent report issued by the National Commission on Asian American and Pacific Islander Research in Education (2013), there are significant disparities across the thirty different ethnic groups that fall under the AAPI category that are identified by the U.S. Census Bureau. For example, fewer than 20 percent of Native Hawaiians have a college degree, whereas 74 percent of Taiwanese Americans and 71 percent of Asian Indians have a bachelor's degree or higher. Such findings point to the significance of disaggregating data, which would enable policy makers to better recognize the communities with the most pressing needs.

Indeed, two recent reports that rely on disaggregated ethnic data made even clearer the disparities that Pacific Islander communities face. A national report, utilizing U.S. Census data, on Native Hawaiians and Pacific Islanders (NHPIs) revealed alarming economic and educational disparities (Empowering Pacific Islander Communities and Asian Americans Advancing Justice, 2014). In terms of economics and wealth, NHPIs tend to fall below the national average across multiple measures of income; NHPIs, between 2007 and 2011, are more likely to be living in poverty, have a larger proportion that are low income, and have a lower average per capita income. The report also documented that between 2007 and 2011, the number of unemployed NHPIs had increased at a rate (123 percent) higher than any other racial group. During the same time period, the number of NHPI who were living below poverty also increased at a rate (56 percent) higher than any other racial group. With regard to education, the report details that the rate of bachelor's degree attainment for NHPI ethnic groups was below the national average, al-

though about 81 percent of NHPI high school students aspire to obtain a bachelor's degree or higher.

A second report (Empowering Pacific Islander Communities and Asian Americans Advancing Justice, 2015) further disaggregated those who identified as NHPIs with specific focus on the state of California, which has the second-largest NHPI population in the United States, behind Hawai'i. According to this report, half of the NHPI population in California reported multiple ancestries (50 percent), compared to the state average of only 5 percent. The proportion of those who reported more than one ancestry is especially high among Native Hawaiians (69 percent). As for economic circumstances, NHPIs in California consistently fare worse than whites, across a host of variables including poverty rate and per capita income. Similar to national findings, NHPIs in California had one of the lowest high school graduation rates (78 percent) and one of the highest dropout rates (14 percent). Although these reports did not focus just on Native Hawaiians, such disparities experienced by NHPIs would certainly be concealed if large-scale data could not be further disaggregated beyond just the AAPI racial category.

While the capacity to disaggregate those who identify as Native Hawaiians from other AAPI populations certainly improves the capacity of data to drive policy making, the Native Hawaiian population is also extraordinarily diverse. Although there are many other important forms of diversity (e.g., gender, sexual orientation, generational, and immigration status), we focused here on geographic location and ancestry, which broadly define as race and ethnicity. Given the rich yet complicated history of Hawai'i(McGregor, 2002; Trask, 1993), these particular forms are especially unique for Native Hawaiians as compared to other AAPI groups.

Drawing from the 1980 Census, Barringer et al. (1993) found that about half of those who identified as "Hawaiian" in either the ancestry or race categories also reported another ancestry. Although they did not explain this finding, others have discussed the complexity of defining who is Hawaiian and what that means. According to Spickard (2002),

> Pacific Islanders historically have constructed their ethnic identities rather more complexly than many other peoples. Pacific Islanders have long had a greater consciousness than other American groups of being mixed peoples, of having multiple ethnic identities. . . . They seem more comfortable than other Americans with holding in tension two or more ethnic identities, with being deeply involved in more than one at a time. (43)

Shook (2002) further noted that in 1983, the number of "part-Hawaiians" (174,579) was much higher than the number of "pure Hawaiians" in Hawai'i (8,291). Because there are numerous problems in determining the primary cultural affiliation of individuals in a multicultural society, those figures have led to disagreement among agencies in Hawai'i on how ethnicity should be determined.

Moreover, Shook (2002) argued that the loss of the social organization of the *ali'i* (chief) system, the land, the language, and many other cultural traditions due in large part to colonialism and modernization raises serious questions about the connectedness of those who identify as Hawaiian. The difficulty in specifying who is Hawaiian and what this means undermines the capacity of data to inform policy making for Native Hawaiians. Although Shook (2002) maintained that there are still recognizable patterns of social interactions such as family structure and socialization practices widely shared by Hawaiians, it remains to be seen if shared patterns of policy interest will also emerge when U.S. Census data are disaggregated to a more granular level that accounts for variations in ancestry among Native Hawaiians.

Another basis of ethnic connectedness is one's relationship to *place*. According to Spickard (2002), "In Hawaiian, it is the *'āina*, the land, and one must *mālama 'āina* - care for the land"(1377). He added that leaders of the Hawaiian cultural and political renaissance have "stressed the importance of reclaiming the *'āina* above almost everything else." Related to this are efforts to address the broader issues of decolonization toward reestablishing and recognizing a sovereign Native Hawaiian nation. McGregor (2002) maintained that those who are active in those efforts seek:

> . . . full redress for past injustices; restitution of all of the territory of the Native Hawaiian nation; compensation for mismanagement and destruction of national lands and natural resources; and most significant, the re-establishment and recognition of a government to exercise sovereignty and self-determination. (347)

While organizing ethnic connectedness around *'āina* may make sense for those who live in Hawai'i, what about for those who identify as Native Hawaiian but live on the mainland? In their analyses of 1990 U.S. Census data, Barringer et al. (1993) reported that just more than a third of those who identified as Hawaiian lived outside of Hawai'i, with California accounting for the largest concentration of non-Hawai'i residents. The 2010 U.S. Census detailed that 45 percent of those who iden-

tify as Native Hawaiian live outside of Hawai'i, with 14 percent of the total population residing in California. If *'āina* is a fundamental source of Hawaiian identity, then one would not expect those who live outside of Hawai'i and are more removed spatially from their native roots to view their identity in the same way as those who live in Hawai'i.

We would also expect those Hawaiians who migrate to be different in other ways from their counterparts who live in Hawai'i. According to Ravuvu (2002), venturing into a different society with "strange people with strange habits and customs" involves a "great deal of risk-taking," courage, and a "positive frame of mind" (87). Indeed, Connell (2002) reported that throughout the South Pacific, the most educated tend to be the first to migrate, which invariably "results in the loss of the most energetic, skilled, and innovative individuals" for the states of origin (76). While Connell also acknowledged that migration can improve the potential for gaining higher wages, education, and new skills, he also warned that migration that emerges out of inequality may reinforce more than it challenges the social hierarchy. Not only might migrants face new forms and greater intensity of discrimination in their new host state, Connell also noted that they might have to send back remittances to their state of origin to, for example, repay debts or finance migration moves for kin (Poirine, 1997). Thus, as with ancestry, geographic location can potentially differentiate experiences among Hawaiians in significant ways, even though they all identify themselves in the same way on the U.S. Census survey.

According to Lee and Wong (2011), "[i]n the absence of more comprehensive data and a more accurate portrayal of the actually lived conditions of AANHPIs, misperceptions and stereotyped views often prevail" (2). While advancements in data collection to allow for the disaggregation of data by ethnic groups have made clearer the underservice of those who identify as Native Hawaiians, it may still not account for key differences that exist at the granular level within that population. Differences in whether one has multiple ancestries and whether one lives in Hawai'i, are just two ways that may contribute to differences in experiences and degree of underservice, which are relevant for policy making. By contrast, there might also be common patterns for Native Hawaiians shared across both ancestry and geographic location, which would reinforce the value of disaggregating data chiefly by ethnicity. Yet, if there are more discrepant than shared patterns, then calls for disaggregating data by ethnicity, for the AAPI population, may present complications if intended for effective data-driven policy making for Native Hawaiians.

Methodology

To examine the extent to which the trend toward embracing data-driven decision making can serve better Native Hawaiian communities at the policy level, we analyzed data collected by the U.S. Census Bureau. The sample included those individuals and families who self-identified as Native Hawaiian. We also further disaggregated this sample by ancestry and by geographic location. For the latter, we chose the two states with the largest numbers of self-identified Hawaiians: Hawai'i and California. The analyses compared these disaggregated Hawaiian groups across various policy relevant indicators (educational attainment, household income, unemployment, and poverty rates).

Data

The primary source of data for this study is a five-year iteration (2008-12) of the U.S. Census Bureau's American Community Survey (ACS) Public Use Microdata Sample (PUMS), for both household-level and individual-level records. Starting in 2010, the U.S. Census Bureau ceased to collect detailed information during their Decennial Census, known colloquially as the "Long Form." Instead, each Decennial Census deployed a "Short Form" of basic questions to ensure a full enumeration of the U.S. population. To achieve more current and detailed data, on a yearly basis, the U.S. Census Bureau now utilizes an annual ACS to gather information on all peoples living in the United States. Today, the ACS is now considered to be the "Long Form."

The data we used from the ACS is organized into three formats for researchers. The first is a one-year estimate, where data is collected over a twelve-month period for areas with populations of sixty-five thousand or greater. Second, the three-year estimate data set is collected over a thirty-six month period for areas with a population of twenty thousand or greater. The third format is the five-year estimates. This data set is collected over a sixty-month period and is deployed across all communities and areas, without regard to population size. While this is considered the most reliable data set, it also may not reflect very recent trends or changes.

The U.S. Census Bureau recommends using five-year data sets when examining small populations. Because Native Hawaiians are a relatively small ethnic group in the United States, using the 2008–12 ACS five-year data set provided the most detailed information on this populations' circumstance. We chose to utilize data from Native Hawaiians who reported to be living in Hawai'i and in California. Disaggre-

gating the sample by these two states with the largest concentration of Native Hawaiians allowed us to examine variations due to geographic location. Sampling weights provided by the U.S. Census Bureau's ACS PUMS were used to transform the data sample to the entire Native Hawaiian population.

Variables

To differentiate variations in ancestry among Native Hawaiians, we used two detailed race/ethnicity variables from the data set. We first included all individuals who identified as Native Hawaiian from those two categories in our sample. Then we disaggregated this sample by race and ethnicity, creating dummy variables, into four different groups: Native Hawaiian only; Native Hawaiian and Asian; Native Hawaiian and non-Hispanic white; and Native Hawaiian, Asian, and non-Hispanic white. We chose to differentiate ancestry in this way because each of the preceding groups is relatively well represented and account for nearly all of those who identified as Native Hawaiian.

Lastly, we selected four policy-relevant variables as dependent measures. These measures focus on socioeconomic status. They include educational attainment, household income, unemployment, and poverty. We tested for variations on these measures by Native Hawaiian ancestry and geographic location.

Analyses

Because the purpose of the study tests whether or not there are recognizable patterns across disaggregated data among those who identified as Native Hawaiian, utilizing a statistical analysis program, SAS, we conducted a series of descriptive statistics. Yet, even higher-level statistical approaches still require conducting a series of basic descriptive analyses to determine the appropriateness of the data and analysis. Because we are primarily interested in those latter issues about the data, our approach stands to reveal either the promise or limits of further data application. In doing this, the subsequent findings would contribute to the ongoing dialogue about becoming a more data-driven society, especially as it relates to state and national policy making.

Limitations

As explained earlier, the findings from this study are not intended to shape decision making nor provide recommendations for Native Hawaiian communities but instead to examine more broadly the prom-

ises and limits of data-driven policy making. Still, the findings may reveal insights into Native Hawaiian communities but these should be interpreted with caution. Although we used the five-year sample to maximize the study's sample size of Native Hawaiians, the ACS is not based on the entire population but a sampled population, which presents a higher degree of sampling error. For California, 4.6 percent of the Native Hawaiian population is sampled, while 5.5 percent of the population is sampled in Hawai'i. This problem is magnified as data is further disaggregated to a more granular level whereby the sample size becomes too small to generate reliable estimates. We also recognize that our socioeconomic measures are rudimentary and that there are more precise ways to estimate wealth and household net worth (see, e.g., De La Cruz-Viesca, 2011). Finally, we are restricted to the racial and ethnic categories that are available in the PUMS dictionary. Certainly, there are more types of multiracial Native Hawaiians, but these individuals may not be listed as a category in PUMS because not enough people identified with these categories.

Results

Table 1 shows the distribution of those who identified as Native Hawaiian by state residence and by ancestry. As expected, four times as many people identified as Native Hawaiians in Hawai'i (212,764) than in California (54,745). Of those who reside in Hawai'i and identified as Native Hawaiian, most indicated to be of only Native Hawaiian ancestry (36.6 percent), followed by a combination of Native Hawaiian and Asian ancestry (21.1 percent), then Native Hawaiian and non-Hispanic white ancestry (15.7 percent). A much smaller percentage (6 percent) indicated to be a combination of Native Hawaiian, Asian, and white ancestry. These four ways of self-identification accounted for 79.4 percent of those in Hawai'i who identified as Native Hawaiian. The remainder of Native Hawaiians included very small groups of individuals who reported other combinations of specific ancestries (e.g., Hispanic, black, and other race not reported).

By comparison, a larger percentage of Native Hawaiians in California reported single race (43 percent). Additionally, a much larger percentage in California than in Hawai'i self-identified as Native Hawaiian and white (27.9 percent), but fewer proportionally in California self-identified as Native Hawaiian and Asian (14.3 percent). Lastly, very few indicated being a combination of Native Hawaiian, Asian, and white ancestry (3.1 percent). These four ways of self-identification ac-

Table 1: Native Hawaiian Population by Ancestry and State, 2008–2012

	State	
	California	Hawai‘i
Ancestry	% (N)	% (N)
Native Hawaiian All	100% (54,745)	100% (212,764)
Native Hawaiian Only	43.0% (23,534)	36.6% (77,808)
Native Hawaiian and Asian	14.3% (7,843)	21.1% (44,918)
Native Hawaiian and White	27.9% (15,256)	15.7% (33,415)
Native Hawaiian, Asian, and White	3.1% (1,718)	6.0% (12,846)

Note: Samples (N) are weighted to better reflect the actual population and do not add up to 100 percent due to missing cases and other combinations of Native Hawaiian ancestries.

Source: U.S. Census ACS PUMS 5-Year Estimates, 2008–12.

Table 2: Percent of Native Hawaiian Population with a Bachelor's Degree or Higher by Ancestry and State, 2008–2012

	State	
	California (N = 52,377)	Hawai‘i (N = 202,640)
Ancestry	%	%
Native Hawaiian All	17.2%	9.2%
Native Hawaiian Only	16.6%	8.8%
Native Hawaiian and Asian	21.8%	8.8%
Native Hawaiian and White	15.4%	10.2%
Native Hawaiian, Asian, and White	23.4%	12.7%

Note: Population twenty-five years of age or above, N refers to the weighted population.

Source: U.S. Census ACS PUMS 5-Year Estimates, 2008–12.

counted for 88.3 percent of those who identified as Native Hawaiian in California.

Because many other social and political factors beyond just ancestry contribute to how individuals identify themselves, the results reported in Table 1 do not necessarily show that the population of Native Hawaiians who live in Hawai‘i is different in terms of ancestry from those who live in California. Instead, what the

results suggest is that those Native Hawaiians in California appear to be slightly more prone toward identifying as Native Hawaiian only, whereas those in Hawai'i are more prone toward identifying mixed ancestries. It is beyond the scope of this manuscript to speculate on what contributes to these tendencies and what this might mean. Still, it is noteworthy that more than half of those who identified as Native Hawaiians, regardless of geographic location also identified with another ancestry. The implications of this high rate of mixed-ancestry identification, especially unique among Hawaiians compared to other AAPI populations, for data-driven policy making will be explored further in the following analyses.

Education

Table 2 shows the findings from our analyses of degree attainment. We found significant differences by state of residence. Overall, those who identified as Native Hawaiian and live in California reported having earned a bachelor's degree or higher at a rate nearly twice as high as their counterparts who live in Hawai'i, 17.2 percent and 9.2 percent, respectively. There were, however, variations by ancestry within each state.

In California, those who identified as a combination of Native Hawaiian and white reported the lowest rate of degree attainment (15.4 percent). By comparison, those who identified as a combination of Native Hawaiian, Asian, and white reported the highest rate (23.4 percent). For those who identified as Native Hawaiian only, their reported rate of degree attainment (16.6 percent) was also among the lowest and is almost 8 percentage points lower than the highest rate.

A similar pattern emerged for those living in Hawai'i. Again, those who identified as a combination of Native Hawaiian, Asian, and white reported the highest degree attainment rate (12.7 percent). Conversely, those who identified as Native Hawaiian only and as Native Hawaiian and Asian reported the lowest rates (8.8 percent). Those latter rates are especially alarming because their same group counterparts in California reported rates that were much higher; more than twice as high for those who identified as Native Hawaiian and Asian in California (21.8 percent). Moreover, the lowest average rates of degree attainment in Hawai'i (8.8 percent) posted by both the Native Hawaiian only and Native Hawaiian and Asian groups were nearly three times lower than the highest rate reported in California by those who identified as a combination of Native Hawaiian, Asian, and white (23.4 percent). Finally,

the highest rate of degree attainment reported by any group in Hawai'i (12.7 percent) would rank below the lowest rate reported in California (15.4 percent).

In short, the results in Table 2 show variations in degree attainment across both geographic location and Native Hawaiian ancestry. It is unclear from these findings whether those differences reflect real world issues and problems in accessing key educational opportunities and what that might mean for policy making. Still, a particular pattern did emerge from the findings, so we now turn our attention to examining income variations among these same groups to see if a similar pattern emerges from the data.

Household Income

Table 3 displays the findings from our analyses of household income levels. We found differences in the median household income by state of residence. Overall, those who identified as Native Hawaiian and live in Hawai'i reported having a lower median household income ($62,370) than their counterparts in California ($72,648). In Hawai'i, there was little variation in median household income among those who identified as Native Hawaiian, whereas in California the variation across ancestry was much more pronounced.

In California, those who identified as Native Hawaiian, Asian, and white have a dramatically higher median household income ($116,174) than those who identified as Native Hawaiian only ($68,336) or as Native Hawaiian and white ($68,973). The highest reported median income by those in California who identified as Native Hawaiian, Asian, and white is especially noteworthy because it was nearly twice that of the median income reported by those who live in Hawai'i ($62,370) and also, their same ancestry counterparts in Hawai'i reported the overall lowest median income ($54,551).

Unemployment

We found noticeable differences in unemployment rates by state of residence. As shown in Table 4, those who identified as Native Hawaiian and lived in Hawai'i have a lower unemployment rate (6.4 percent) than their counterparts in California (9.3 percent). These differences may reflect the harsher impact of the national economic recession on California during 2008–12, more than chronic differences in unemployment.

Within each state, there were also variations by ancestry. In California, those who identified as Native Hawaiian only had the highest

Table 3: Native Hawaiian Median Household Income by Ancestry and State, 2008–2012

	State	
	California (N = 16,882)	Hawai'i (N = 56,967)
Ancestry	$	$
Native Hawaiian All	$72,648	$62,370
Native Hawaiian Only	$68,336	$61,651
Native Hawaiian and Asian	$80,327	$61,623
Native Hawaiian and White	$68,973	$62,890
Native Hawaiian, Asian, and White	$116,174	$54,551

Note: N refers to the weighted number of households.
Source: U.S. Census ACS PUMS 5-Year Estimates, 2008–12.

Table 4: Native Hawaiian Unemployment Rate by Ancestry and State, 2008–2012

	State	
	California (N = 41,482)	Hawai'i (N = 157,039)
Ancestry	%	%
Native Hawaiian All	9.3%	6.4%
Native Hawaiian Only	10.1%	6.7%
Native Hawaiian and Asian	7.2%	4.9%
Native Hawaiian and White	9.8%	7.3%
Native Hawaiian, Asian, and White	4.5%	7.1%

Note: N refers to the weighted population
Source: U.S. Census ACS PUMS 5-Year Estimates, 2008–12

rate of unemployment (10.1 percent), followed by those who identified as Native Hawaiian and white (9.8 percent). By comparison, the rate of unemployment was considerably lower for those who identified as Native Hawaiian, Asian, and white (4.5 percent), which was the lowest overall rate even though California had an overall higher unemployment rate than Hawai'i. By comparison,

those who identified as Native Hawaiian and white in Hawai'i also had among the highest unemployment rate (7.3 percent), but unlike their California counterparts, those who identified as Native Hawai'ian, Asian, and white had the second-highest unemployment rate (7.1 percent). Lastly, those who identified as Native Hawai'ian and Asian reported the lowest unemployment rate (4.9 percent) in Hawai'i.

Poverty

Table 5 shows the results from our analyses of those living below the federal poverty level.[3] We found slight differences by state of residence. Overall, those who identified as Native Hawaiian and live in Hawai'i reported being below the poverty level at a rate slightly higher than their counterparts who live in California, 13.7 percent and 11.8 percent, respectively.

Table 5: Percent of Native Hawaiian Population below Poverty Level by Ancestry and State, 2008–2012

	State	
	California (N = 54,745)	Hawai'i (N = 212,764)
Ancestry	%	%
Native Hawaiian All	11.8%	13.7%
Native Hawaiian Only	14.1%	16.0%
Native Hawaiian and Asian	10.3%	11.0%
Native Hawaiian and White	11.5%	15.3%
Native Hawaiian, Asian, and White	4.4%	12.6%

Note: N refers to the weighted population

Source: U.S. Census ACS PUMS 5-Year Estimates, 2008–12

Similar patterns emerged across ancestry within each state. Curiously, these results only somewhat mirrored those concerning median household income. In California, those who identified as Native Hawaiian only were the most likely to be living in poverty (14.1 percent), followed by those who identified as Native Hawaiian and white (11.5 percent). By comparison, those who identified as Native Hawaiian, Asian, and white were far less likely to be living in poverty (4.4 percent). Similarly, those in Hawai'i who identified as Native Hawaiian only reported the highest rate of living in poverty (16 percent), which was 5 percentage

points higher than the lowest rate in Hawai'i reported by those who identified as Native Hawaiian and Asian (11 percent). When it comes to living below the federal poverty level, those who identified as Native Hawaiian only seem to be at greatest risk, irrespective of geographic location.

Summary

Overall, some key patterns emerged when those who identified as Native Hawaiians in data collected by the U.S. Census Bureau were further disaggregated by geographic location and ancestry. First, those Native Hawaiians who reside in California tended to report higher levels of income and educational attainment, whereas their counterparts in Hawaii tended to report higher rates of unemployment and poverty. Second, those who identified as Native Hawaiian only tended to do worse than their state counterparts, having among the highest unemployment and poverty rates and lowest median household income and educational attainment rates. While those who identified as Native Hawaiian, Asian, and white in California consistently reported doing much better than everyone else, but the sample size for this group was quite small.

As suggested earlier, these findings should be interpreted with caution. Also, it is not clear if the differences observed, often by only a few percentage points, are statistically significant. Still, variations by geographic location and ancestry documented here for Native Hawaiians confirm the heterogeneity of this population, which has implications for data-driven policy making. We will discuss some of those implications in the next section.

Discussion

Given the increasing reliance on data to inform decision making, advocates for AAPI communities have ramped up their efforts to improve the collection and reporting of data on AAPIs. In the last decade alone, many initiatives at the grassroots and policy levels have called for AAPI data disaggregation. For example, one top priority for the Congressional Asian Pacific American Caucus (n.d.), a cohort of federal legislators in the U.S. House of Representatives and Senate, is to "increase the reporting of disaggregated student achievement data based on ethnicity and increase the reporting of the school resources provided to communities that face educational challenges." Related to that priority, Congressman Mike Honda introduced the All Students Count Act (HR 5343) in 2014, which requires all State Departments of Education to collect and disaggregate AAPI student by ethnicity.

This study addressed whether those efforts concerning data disaggregation at the most basic level stand to improve significantly the capacity of data-driven policy making to address challenges faced by AAPI communities. While previous studies have already pointed out the importance of disaggregating data by ethnic groups within the AAPI population, our study took this call for disaggregation a step further. We disaggregated those who identified as Native Hawaiians on the U.S. Census by ancestry and geographic location and examined for within ethnic group variations across a set of socioeconomic indicators. Our findings show that more granular-level disaggregation reflects different trends within the Native Hawaiian population, which can sharpen policy making for the most underserved communities. For example, those who identified as Native Hawaiian in California tended on average to do better on a range of socioeconomic indicators than those who live in Hawai'i. Likewise, those in California who identified as being Native Hawaiian, Asian, and white or Native Hawaiian and Asian appeared to be doing consistently better on the same indicators than all other Native Hawaiian groups. The opposite tended to be the case for those who identified as Native Hawaiian only, as they fared worse compared to their same state counterparts.

While the application of these findings are limited due to a number of issues discussed earlier, especially regarding ethnic identification, they do suggest that the Native Hawaiian population is heterogeneous in ways that are relevant to data-driven policy making. The inclusion or exclusion of Native Hawaiian groups by ancestry or geographic location can either magnify or obscure disparities. For example, given the difference in bachelor's degree attainment by state of residence and ancestry documented in this study, pointing to national attainment rates for Native Hawaiians could underreport the problem of accessing higher education for those living in Hawai'i, particularly for those who reside there and identify as Native Hawaiian only. For that specific group, their rate of obtaining a bachelor's degree or higher (8.8 percent) is much lower than the California state average rate (17.2 percent) and the rate for those in Hawai'i who identified as Native Hawaiian, Asian, and white (12.7 percent).

While more detailed and readily accessible data can uncover masked needs within AAPI subgroups, it also raises questions about how well ethnic categories represent the interests and needs of ethnic communities. Our findings suggest that disaggregating the broader AAPI category to just those that identify as Native Hawaiians, can still mask

other important variations. For example, the degree of circumstance for Native Hawaiians depends on geographic location and ancestry. If these findings reflect realities of different communities, does this then suggest that policy should not be made at the national level because local conditions vary dramatically? Moreover, should policy makers be suspicious of ethnic categories because they tend to represent a much more complex arrangement of backgrounds and identities that shape different realities? While the answers to these questions are better left for those who theorize about the fundamental meaning of race and ethnicity, those questions also hint at the limits of data-driven policy making.

Wladawsky-Berger (2013) warned that one of the biggest mistakes made when leveraging data to guide decision making is to confuse complex decisions with operational ones (i.e., day-to-day decisions concerning the operation of an organization). He argued that policy decisions such as whether or not to fund certain strategies or services tend to be more complex and unstructured than operational decisions such as executing the strategies or delivering actual services, which are generally highly structured, routine, and short-term oriented. Because policy decisions aim to set long-term directions, there is much more uncertainty and risk involved, "Circumstances change, however, and as they become more complex, the simplifications can fail" (Snowden and Boone, 2007, 70). As our findings show, assessing needs for overlooked groups, such as Native Hawaiians, depends on more complex analyses as those needs vary by location and ethnic identification. Increasing the volume of similar data is limited for informing broad-level policy because that data work best for providing short-term guidance concerning situations that are more stable and ordered. The constructs of race and ethnicity, however, require not just more data to improve capacity for finer disaggregation but also different types of data and analyses, as those constructs tend to be disordered and their consigned categories are regarded as fluid, unstable, and evolving (Carbado and Gulati, 2013; Le Espiritu, 1992; Omi and Winant, 2015). As such, oversimplification by race and ethnic categories inherent in large data sets can lead to misleading results, which, according to De La Cruz-Viesca (2011), "masks a high degree of variation in social and economic status across these subgroups" (91).

At the same time, disaggregating down to a more granular level for a population as complex as Native Hawaiians may not necessarily improve data-driven policy making for them. Besides complicating the meaning of ethnicity, another problem here is that more granular-level analyses for highly heterogeneous populations can yield distressingly

small sample sizes even when using large data sets. Subsequently, the available sample may end up being too small and fail to fully capture the population of interest in a manner that is statistically appropriate. The data may be due to issues with the sampling process rather than with the actual size of the population. In other words, while the sample size is statistically *insufficient*, it does not necessarily mean that a particular population is *insignificant*. Yet, when the sample size is too small, those populations are at risk of being dismissed if policy makers overemphasize data-driven decision making. When this occurs, policies applied to those dismissed populations that usually end up being captured under broader ethnic or geographic categories, for example, may subsequently either over- or underreach with respect to addressing those subpopulations' actual circumstances.

Thus, while analyzing data by race and ethnic categories still remains crucial for identifying broad patterns of economic inequality, such practices are inadequate for capturing the complexity of human experiences that reinforces those disparities. Those limitations can only be partially addressed through more refined disaggregation of data. Accordingly, Wright and Balutski (2013) caution against using large national data sets alone to illuminate trends and experiences for NHPIs. They underscored the importance of collecting and examining community-level data, including qualitative studies to be used in conjunction with U.S. Census data to more accurately describe and understand the nuanced achievements and challenges of this population.

In conclusion, more and better data do indeed prevent policy makers from "flying blind" when it comes to addressing the needs of underserved communities. Without good data to inform policy making, those communities would continue to be overlooked and neglected. While increasing reliance on data to drive decision making has promising applications, it also has limitations that can lead to serious blind spots, undermining services to certain sectors of the AAPI population. Of main concern is that basing decisions on only one form of data, such as using only those collected through large scale surveys, oversimplify the impact of race and ethnicity despite conducting even more granular-level analyses. According to Ong (2011), AAPIs have been "conspicuously absent, lacking attention from many of those in power" (53) because AAPIs often comprise a relatively small sample size even in large data sets, have extreme within-group disparities especially concerning economic indicators, and are not prioritized for timely data collection. If the brave new world of data-driven decision making continues to fly to

greater heights as recent trends suggest, then researchers will have to address better those blind spots so that policy makers can develop more durable solutions for the most overlooked communities. Otherwise, those communities may well become as Shorr (2003) puts it, "goners" in the age of Big Data.

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Notes

1. White House Initiative on Asian Americans and Pacific Islanders website: http://www.ed.gov/edblogs/aapi/data/
2. Currently, California state law requires the collection of the following AAPI groups, including but not limited to Chinese, Japanese, Filipino, Korean, Vietnamese, Asian Indian, Laotian, Cambodian, Hawaiian, Guamanian, and Samoan. Passage of AB 176 would expand the collection of subgroups to include the following ethnicities: Bangladeshi, Fijian, Hmong, Indonesian, Laotian, Malaysian, Pakistani, Sri Lankan, Taiwanese, Thai, and Tongan (for the Department of Health Care Services and the Department of Managed Health Care). As for California's higher education systems, the bill would require colleges and universities to collect data by categories as used by the U.S. Census and report additional data on Bangladeshi, Cambodian, Fijian, Hmong, Indonesian, Laotian, Malaysian, Pakistani, Sri Lankan, Taiwanese, Thai, and Tongan students.
3. Those who live in poverty earn less than the federal poverty threshold, which will vary depending on household size and income. The 2012 U.S. Census Bureau poverty threshold for a family of four with two children under the age of eighteen is $23,283.

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