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Vulnerability Indicators and At-Risk Smaller Populations in California and Los Angeles:

American Indians, Pacific Islanders, and Select Asian Ethnic Groups

Jonathan D. Ong and Paul M. Ong

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Series on Disaggregating Ethnic/Race Data for COVID-19 Research and Policy

This brief is a part of a larger project that assesses the ability and performance of existing health equity and vulnerability metrics to identify the risks facing through granular disaggregation of race and ethnicity, and that develops alternative approaches.

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Disclaimer

The views expressed herein are those of the author and not necessarily those of the University of California, Los Angeles. The author alone is responsible for the content of this report.

Information about the Author

Jonathan D. Ong is a researcher at Ong&Associates and a graduate student in computer science at Arizona State University. Professor Paul M. Ong is the Director of the UCLA Center for Neighborhood Knowledge, and has a Ph.D. in Economics from the University of California, Berkeley.

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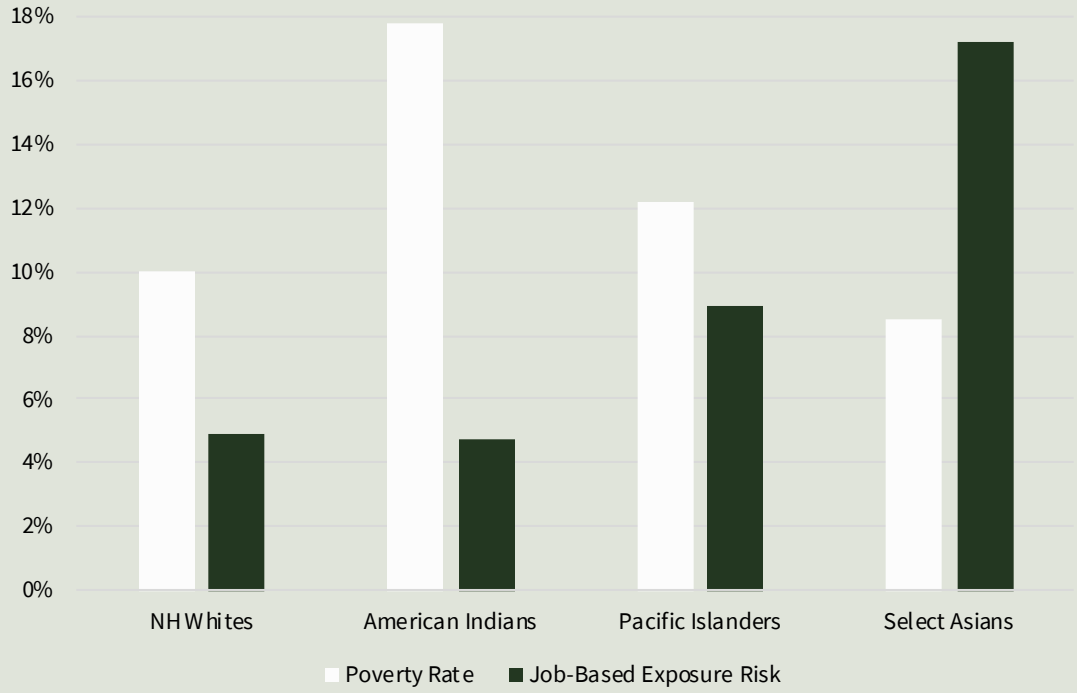
Introduction

This brief summarizes an assessment of the number of American Indians, Pacific Islanders and select Asian American ethnic subgroups that are included in neighborhoods designated as highly vulnerable along multiple dimensions by four indicators. The analysis examines the distribution by census tracts for California and Los Angeles County. These indices are potential analytical tools that policy makers could use to prioritize the most-at-risk places for interventions, including the distribution of COVID-19 vaccines. Although other dimensions of vulnerability should be primary in distributing vaccines (e.g., working on the front line, caring for infected patients, other essential workers), place-based information could play a supporting role. Data can identify neighborhoods at high risk of transmission due to population density and overcrowded housing, with large numbers of people experiencing higher severity and mortality if infected, or with numerous communication barriers.

Identifying such places, however, is technically challenging. A previous brief examined the performance of four indicators with respect to inclusion of people of color and minority neighborhoods.[1] As expected African Americans and Hispanics make up a large share of the residents in vulnerable neighborhoods, while Asian Americans comprise a proportionately smaller share. Other findings, however, point to potential problems and limitations. The authors found considerable differences (non-agreement or low concordance) among the tracts classified as being highly vulnerable; therefore, the choice of indicator inherently translates into significant discrepancies in the places prioritized as eligible or ineligible for interventions. They also found substantial variations among the indicators in racial compositions and number of minority neighborhoods included.

While insightful, that previous brief has limitations. That analysis does not include smaller racial groups, and the generalized results obscure a diversity of possible outcomes by ethnic subgroups. This is unfortunate because many of smaller populations have suffered disproportionately from the pandemic. Despite a paucity of disaggregated data and a lack of consistency in information across geographies on impact of COVID-19, the available information shows or suggests that American Indians, Pacific Islanders, Cambodians, Filipinos and Koreans have higher than average rates of infections or deaths, or both.[2] These groups are also disadvantaged in other ways, as illustrated in Figure 1. In California, poverty rates for American Indians and Pacific Islanders are higher than for non-Hispanic Whites (18%, 12% and 10%, respectively[3]). Among the Asian American groups in the state, Cambodians and Koreans also have higher rates of poverty (14% and 14%, respectively). Moreover, Pacific Islanders and the selected Asian American ethnic groups in California are two to over three times as likely to work in jobs with high risk of pandemic exposure (the nursing occupations, hospitals or nursing homes) (9% and 17% respectively, versus 5% for non-Hispanic Whites). Filipinos, in particular, are more likely to face this job-based risk (21%). Nationally, Filipino nurses are ten times more likely to die from COVID-19 than other nurses. Employment in these sectors elevates the risk of COVID-19. Because of likely transmission paths, their families and neighbors are also at elevated risk. Because of these race and ethnic specific risks, it is useful to examine how vulnerability indicators perform in including these small populations in designated high-risk places.

Figure 1: Poverty and Pandemic Job-Risk Rates



Data and Method

The analysis assesses four indicators at the census tract level in California and Los Angeles Count. (1) The social vulnerability index (SVI) was created by the CDC to identify vulnerable areas for disaster planning and response.[4,5] (2) The second national indicator is the Area Deprivation Index (ADI), which was initially developed by the Health Resources & Services Administration, and subsequently refined by Dr. Amy Kind and her research team.[6] The ADI is designed to identify disadvantaged neighborhoods in need of additional health resources. (3) The Public Health Alliance of Southern California developed the Healthy Places Index (HPI) to help policy makers target the most disadvantaged communities for interventions and resources.[7] (4) The analysis also includes a newer indicator constructed specifically for the pandemic, the UCLA Pre-Existing Health Vulnerability (PHV) index. PHV captures the risks or severity of COVID-19 infection due to preexisting health conditions[8] utilizing data from the California Health Interview Survey (CHIS).[9] Several governmental agencies have recommended using the ADI, HPI and SVI as possible policy instruments to designate the most vulnerable census tracts.[10] For this analysis, designation of neighborhood vulnerability is operationally defined as being in the top 25% (top quartile) at-risk tracts among all tracts. There are two ranking systems, one based on all tracts within California and the other based on tracts within a county.

The assessment compares the share (inclusion rate) of the state's population residing in neighborhoods classified as being at risk, which is defined as the top quartile (top 25%) of census tracts in vulnerability. The analysis utilizes the population counts from the 2015-19 American Community Survey for the following three groups: (1) American Indians and Alaskan Natives (AIANs) alone or in combination;[11] (2) Native Hawaiians and other Pacific Islanders (NHOPIs) alone or in combination; and (3) Asians alone who are among the three high-risk ethnic groups discussed earlier. The basic metric is the percent of the group included in designated vulnerable places. We calculate percentages separately for the state as a whole and for Los Angeles County. We further disaggregate the Asian population into subgroups (Cambodians, Filipinos and Koreans) to examine ethnic heterogeneity.

Findings

Table 1 summarizes the findings for the three small populations, and the general population. The percentage in a cell in the table reports the proportion of a group (defined by rows) that reside in highly vulnerable neighborhoods designated by a vulnerability indicator (defined by columns). For example, the up most left cell reports that 25% of the total population (row) reside in highly vulnerable census tracts designated by ADI.

Table 1: Inclusion Rates of Populations in High-Risk Census Tracts

	ADI	HPI	PHV	SVI
Statewide				
Total Population	25%	24%	26%	25%
Small Populations	19%	18%	19%	21%
American Indians	36%	27%	31%	29%
Pacific Islanders	22%	18%	23%	21%
Selected Asians	12%	15%	14%	18%
Los Angeles County				
Total Population	26%	24%	26%	25%
Small Populations	18%	16%	13%	19%
American Indians	29%	23%	24%	27%
Pacific Islanders	21%	17%	21%	18%
Selected Asians	14%	14%	9%	17%

For both the state and Los Angeles, approximately a quarter of the total population are in the designated most vulnerable census tracts for all four indicators. The slight discrepancies in the percentages are caused by the fact that not all tracts are equal in population size. Unfortunately, the population comprised of the small groups is disproportionately underrepresented in designated at-risk places. The percentages range from a low of 13% (PHV for Los Angeles County) to a high of 21% (SVI for the state). There are noticeable differences among the three small groups. The indicators tend to include more than a quarter of American Indians (AIANs), with the exception of HPI and PHV for Los Angeles. These high inclusion rates are partially due to the high poverty rate among American Indians. The select Asian population is significantly underrepresented at both the state and county level, and for all four indicators.

Table 2 presents the results by disaggregating Asian Americans into the three ethnicities. With the exception of PHV for Los Angeles County, the indicators include a large percent of Cambodians in designated vulnerable tracts. The high inclusion of Cambodians is due in part to their lower socioeconomic status; however, this does not apply to Koreans, who are substantially under-reported by all four indicators at both the state and county level.

Table 2: Inclusion Rates of Asian American Ethnic Groups

	ADI	HPI	PHV	SVI
Statewide				
Selected AAs	12%	15%	14%	18%
Cambodians	29%	42%	32%	45%
Filipinos	13%	13%	15%	18%
Koreans	6%	13%	6%	14%
Los Angeles County				
Selected AAs	14%	14%	9%	17%
Cambodians	41%	38%	10%	43%
Filipinos	14%	10%	10%	14%
Koreans	9%	17%	8%	17%

Concluding Remarks

While the four indicators are useful for their intended purposes, they do not perform well in including the small populations as a whole. In other words, placed-based prioritization or eligibility based on these indicators would disadvantage a disproportionately large segment of these small populations through exclusion. The limitation is due in part to the underlying complexity of spatial and aspatial vulnerabilities across populations, and systematic differences in housing segregation and concentration. There is, consequently, considerable heterogeneity in outcomes, both among the three racial groups, and among the three Asian American ethnic groups. The findings reveal that inclusion rates for American Indians and Cambodians are better than for the other groups. The outcomes are contingent on which indicator is used, thus having profound implications in terms of providing services, relief and attention. It may be tempting to select the indicator that performs "best" for a given population, but this can become an unnecessary contest with conflicts among competing groups. The better option is developing spatial and aspatial indicators customized to specific pandemic-related goals and objectives. It is equally important that future research examines additional populations that have been largely ignored by researchers and policy makers.

Art by Pilpeled; Photo by Daniel Salcius

Appendix: CNK COVID-19 Equity Initiative Briefs

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UCLACenterforNeighborhoodKnowledge

knowledge@luskin.ucla.edu

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