

# DIVIDED WE STAND: Segregation patterns over time in Alameda County, CA



## INTRODUCTION

It is a truism that the face of American communities is changing. But how are they changing over time? This project explores this question by focusing on Alameda County. Located just across the Bay from San Francisco and Silicon Valley, Alameda County is the home of rapidly changing cities like Oakland, San Leandro, and Fremont. Many have documented the racial and ethnic shifts in these communities (Cheng 2013; Lung-Amam 2013), but how integrated have these cultural groups been and how can we connect this to on-the-ground experiences?

## METHODOLOGY

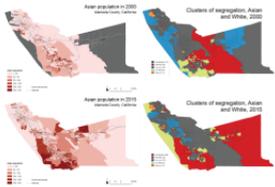
A dissimilarity index is commonly used to measure the level of segregation in a spatial unit. The formula for dissimilarity is shown in Figure 1. The formula calculated dissimilarity indices for Asian alone, Black/African American alone, and Hispanic/Latin@ alone each compared with White alone. Census data was available for the years 2000, 2010, and 2015. In essence the index indicates what percentage of Blacks/African Americans would have to move to be completely distributed with Whites in a block group.

A Local Moran's I analysis in GeoDa produced the cluster maps, which show each block group's level of segregation compared to its neighbors (using Queen contiguity).

The hot spot maps represent segregation over time. Each point is the centroid of a block group. These maps were generated using a Space-Time Cube and an Emerging Hot Spot Analysis in ArcMap.

$$D = \frac{1}{2} \sum_{i=1}^n \left| \frac{w_i}{W_i} - \frac{b_i}{B_i} \right|$$

Figure 1 - Formula for dissimilarity (D), where n = number of spatial units; w<sub>i</sub> = number of Whites in unit i; W<sub>i</sub> = total number of Whites; b<sub>i</sub> = number of Blacks in unit i and B<sub>i</sub> = total number of Blacks. (Source: Forest, Benjamin, 2005. Measures of Segregation and Isolation. <http://www.dartmouth.edu/~segregation/IndicesofSegregation.pdf>)



data, it is useful to relate the results to life on the ground. Looking at the cold spots of Asian and White dissimilarity in the East Oakland area, it is interesting to note this area is seeing soaring housing prices and rapid gentrification over recent years, displacing many long-time African American and Latino residents (Jones 2014; Drummond 2016). Looking at population figures, there appears to be somewhat of a concentration of Asian residents in the area around East Oakland and Alameda city. It is interesting to consider whether an integration of Asian and White residents is linked to the area's gentrification, particularly when the population maps for Black/African-American and Hispanic/Latin@ residents seem to indicate these groups are decreasing in the Oakland area.

Some speculate that growth in Silicon Valley, across the Bay, is spurring gentrification on the east side of this county and driving tech workers to seek housing in Fremont and Union City (Kelly 2016), where the cold spot is on the map showing segregation between Black/African American and White residents. Further, the population map shows few Black/African American residents live in these block groups and perhaps explains the cold spot, indicating more integration with White residents.

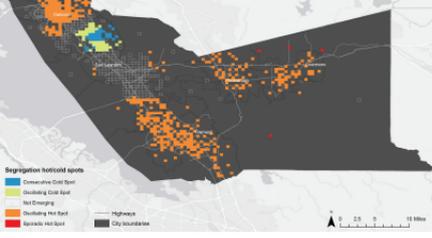
In considering these trends, it is important to note that while the term "segregation" has a negative connotation, the phenomenon may serve as a harbinger of gentrification in some cases and is worthy of further study. While cold spots appear to indicate that racial and ethnic groups are more integrated, one should keep in mind the index only considers two groups at a time and that more distribution in racial and ethnic groups does not necessarily better intercultural relations.

## LIMITATIONS

Some data limitations for this project include the limits to U.S. Census data. Only three years of data were available over 15 years, which limited somewhat the ability to conduct a nuanced space-time analysis. The racial and ethnic dis-

## Hot spots in segregation between Asian and White

2000-2015 in 5-year steps Alameda County, California



Hot spots in segregation between Asian and White

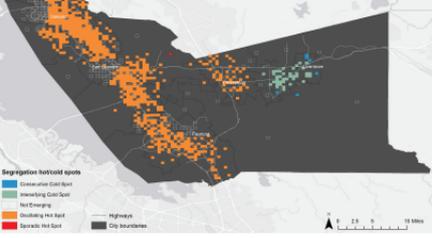
nations used by the Census data also are simplistic and there is a risk that working with such data can perpetuate generalizations and stereotypes.

While the dissimilarity index often is used in demographic studies, the method itself is somewhat limited in its ability to analyze more complex communities. Further, the formula can only compare two mutually exclusive groups, which also masks the complexity of cultural differences.

It is also important to consider, visually, how the sizes of Census block groups can bias the viewer toward simplistic conclusions. Most cluster maps show a large area of high-high clustering in the western part of the county. Viewers should bear in mind that some of these block groups are geographically larger than those near cities such as Oakland and San Leandro.

## Hot spots in segregation between Hispanic/Latin@ and White

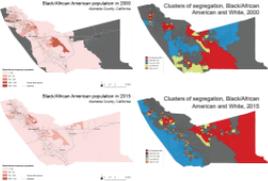
2000-2015 in 5-year steps Alameda County, California



## RESULTS

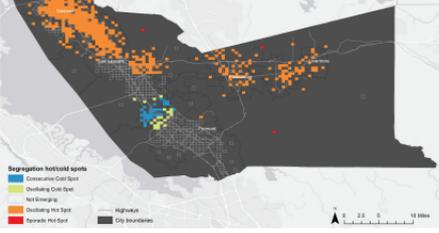
The hot spot maps indicate many hot spots are oscillating hot spots in segregation with White residents. This seems to indicate the phenomenon of racial and ethnic segregation does not necessarily change in a linear pattern, but fluctuates over time.

To better understand the



## Hot spots in segregation between Black/African American and White

2000-2015 in 5-year steps Alameda County, California



## CARTOGRAPHER: MONIQUE CHING

DATA SOURCES

- California Department of Transportation. <http://www.dot.ca.gov/hsp/btp/gis/databrary/>
- County of Alameda, CA. <https://www.acgov.org/government/geospatial.htm>
- U.S. Census Bureau. <https://www.acgov.org/government/geospatial.htm>
- U.S. Census Bureau. <https://www.census.gov/ipeds/data/databridge.html>
- Eric DeLorme, HERE, Mapbox, Inc.

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