Empirical Project 1:
Exploring the Impacts of Race and Incarceration on Upward Mobility in San Jose, California

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Boasting the headquarters of some of the world's largest tech companies (Google, Apple, etc.) as well as three of the top ten most expensive neighborhoods in the U.S.,[1] California's Silicon Valley is best known today as a hub of technology, innovation, and most of all, affluence. Its largest city and my hometown, San Jose, has the third-highest GDP per capita out of all cities in the world.[2] Following the city's technological and economic boom of the 1970's was an influx of immigration, reflected in the demographics: in 2010, 36.3 percent of Santa Clara County residents were born outside the U.S., or more than three times the national average of 12.1 percent. However, the effects of the city's technological boom and the resulting economic growth have not been enjoyed equally across demographic groups.

In San Jose and its suburbs, hidden behind the reputation of wealth lie huge disparities in upward mobility between neighborhoods. I grew up in a predominantly white and Asian-immigrant neighborhood without a heavy police presence and where factors like violence and poverty were not prevalent at all, but I was surprised to hear stories from friends who had very different experiences. Our experiences particularly diverged with regards to incarceration. While any thought of jail or prison rarely crossed my mind, it was commonplace for my friends who attended school in other parts of the city to know people in jail, and while my private school's security was extremely lax, my friends were reminded every morning of the presence of law enforcement by mandatory security checks before entering class. In analyzing differences in upward mobility, I began to wonder whether incarceration and its relationship with race played a part in determing children's future outcomes.

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[1] Callum Burroughs, "These Are the 20 Richest Places in the US," Business Insider (Business Insider, October 14, 2020), https://www.businessinsider.com/richest-towns-in-the-us-2019-2.
[2] Hall, Gina. bizjournals.com, January 23, 2015. https://www.bizjournals.com/sanjose/news/2015/01/23/san-jose-has-worlds-third-highest-gdp-per-capita.html.

Using the mean earnings of a child with a family in the lowest 25th percentile income distribution as the primary metric, tax and census data from Chetty et al. (2018)[3] suggests large differences in children's outcomes by area. The visual map, produced using the Opportunity Atlas, in Figure 1 provides some insight as to the distribution of mobility outcomes. Particularly, upward mobility appears to be lowest in the immigrant-rich downtown areas of Buena Vista, Little Portugal, Japantown, and Little Saigon, while the west side as well as a few census tracts in the southeastern corner of the city have relatively high mean earnings of children. Interestingly, the tract with the best mean outcomes of the city, Evergreen, sits right next to a tract with one of the lowest mean outcomes of the entire Santa Clara County, Morgan Hill.

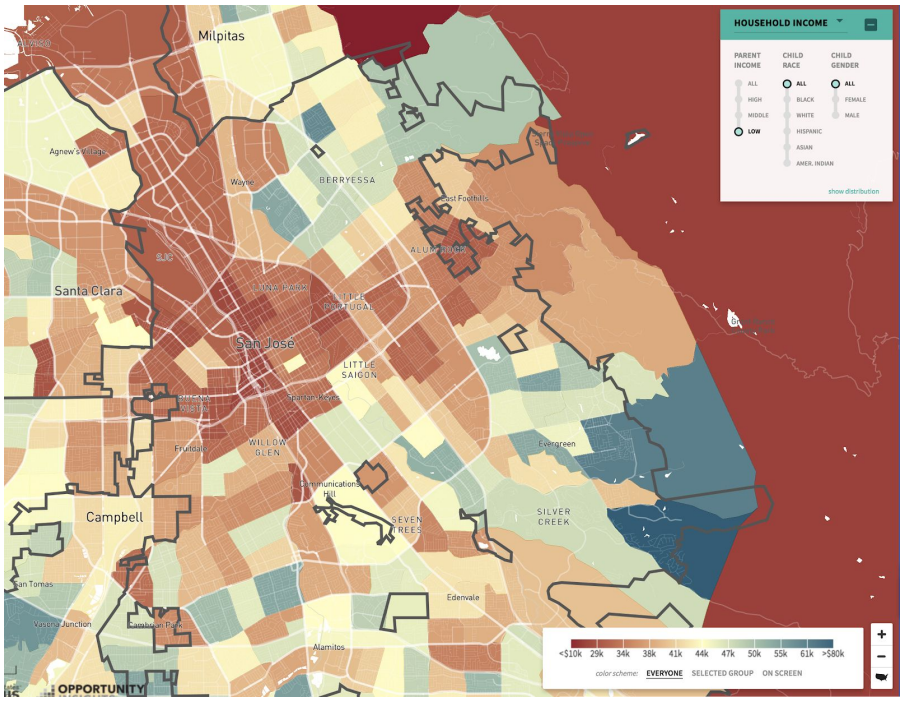
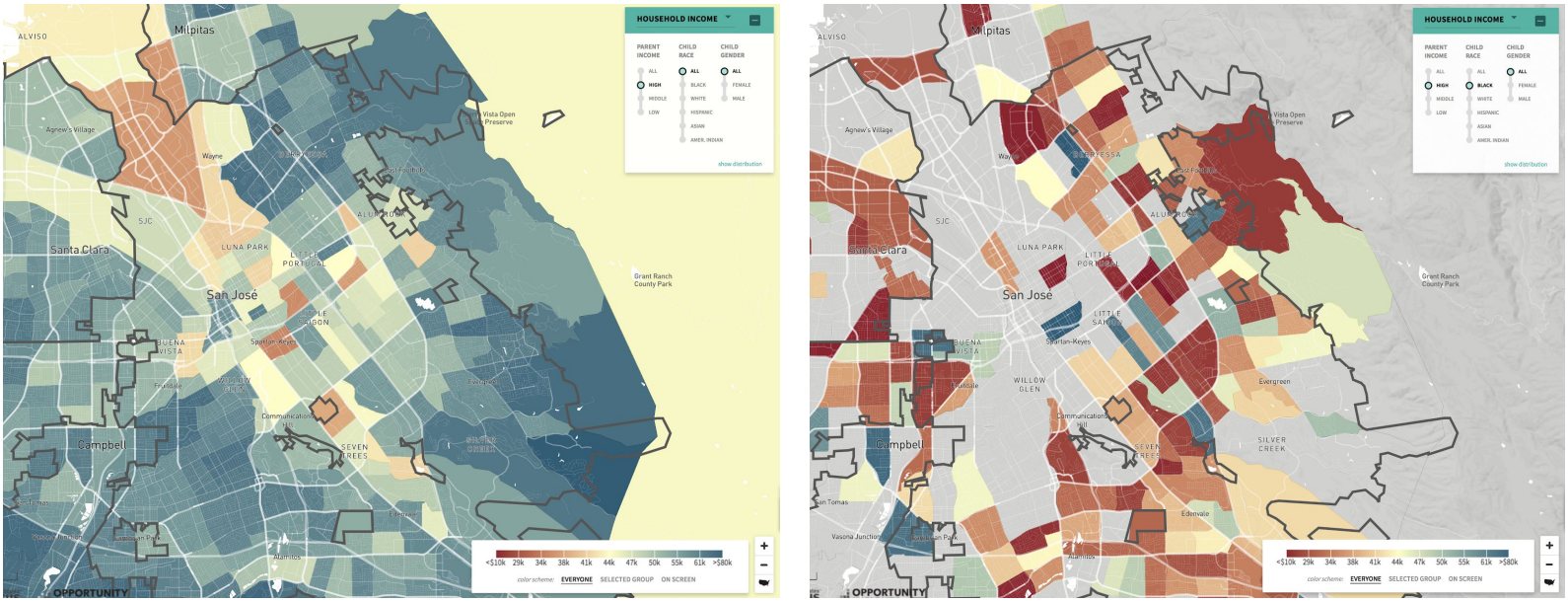


Figure 1. Color map showing mean outcomes of children born into the lowest 25th percentile income distribution. Dark Colors closer to blue indicate better outcomes, while colors closer to red indicate worse outcomes.

Investigating downward mobility affirms these trends across census tracts. The map representing mean earnings of a child born into the top 25th percentile highlights several census tracts that

[3] Raj Chetty et al., "The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility," 2018, https://doi.org/10.3386/w25147.

stand out for their shockingly low average outcomes. Most of these tracts are located in areas near downtown or near the city's east side that also seemed to have lower upward mobility metrics, as indicated in Figure 1. This trend becomes solidified even more when stratifying downward mobility by race: black children born to families in the top income quartile had very low mean earnings compared to the overall mean, with a shocking low mean income statistic of $9.4 thousand dollars for black children born in the Alum Rock census tract.

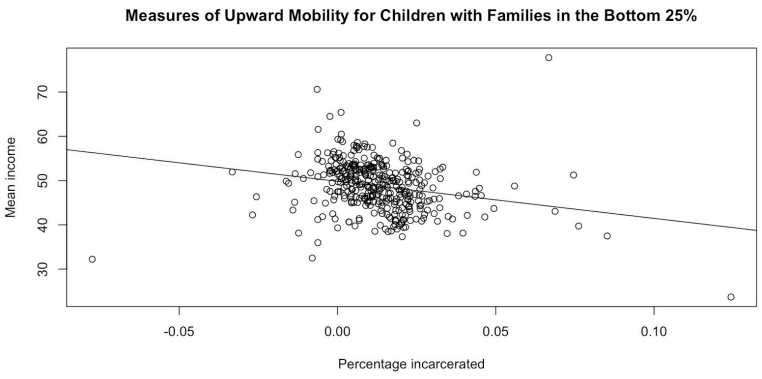


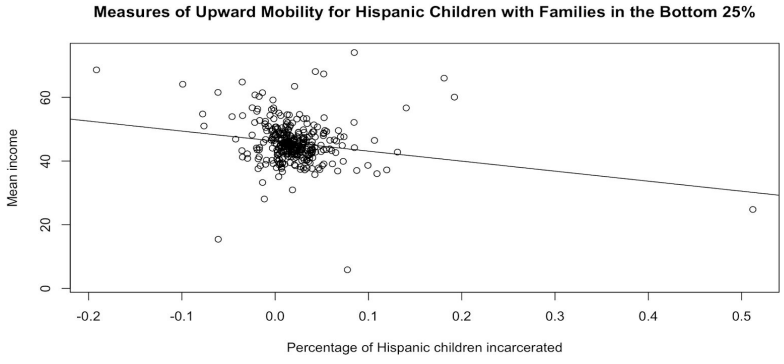
Figures 2 & 3: Color map showing mean outcomes of children overall *(left)* and black children *(right)* born to families in the top quartile income distribution. Grayed census tracts represent tracts with insufficient data.

Exploring racial trends with regards to children's outcomes provided insight as to the relationships between these variables. Across the entire Santa Clara County, Asian children born in the bottom 25th income percentile had the highest future mean earnings of about $62.1 thousand per year, followed by white children ($50.4 thousand), then by Hispanic children ($45.6 thousand), and finally by black children ($37.5 thousand). These statistics reveal large discrepancies in upward mobility across racial groups, and analysis of correlations between

racial shares confirmed these discrepancies. The correlation between the proportion of Asian households and upward mobility in the county was 0.423, significantly higher than the national average correlation of 0.303, and shockingly, the correlation between the proportion of Hispanic households and upward mobility was -0.539, almost five times as large as the national average correlation of -0.116. In other words, census tracts with higher proportions of Asian households tend to also have higher mean earnings of children born into the lowest income quartile, even more so in Santa Clara than nationally. Conversely, census tracts with higher proportions of Hispanic households tend to have lower mean earnings of children in the lowest income quantile, and this association is much stronger in Santa Clara county than nationally.

I turned to exploring incarceration trends across racial groups in the county to help answer the question of why disparities in upward mobility seemed to be so strongly related to race. Though the correlation between incarceration rate and upward mobility was less strongly negative in the county than overall nationally and statewide, stratifying by race uncovers a concerning statistic. While Asian, black, and white children surprisingly all had relatively insignificant negative correlations between -0.01 and -0.06, Hispanic children had a much more strongly negative correlation of -0.201 between incarceration rate and upward mobility. This data suggests that tracts with higher rates of incarceration tend to have disproportionately low upward mobility for Hispanic children compared to other races.





Figures 4 & 5: Scatter plots showing the association between incarceration rates and upward mobility for children overall *(left)* and for Hispanic children *(right)*.

The relationships between racial makeup, incarceration rates, and upward mobility across county census tracts reveal interesting trends and hint that these may be contributing factors to upward mobility in San Jose. These trends are made even more clear when subsetting incarceration rate statistics by race. In particular, Hispanic children in the county born into the lowest quartile income distribution seem to have disproportionately high correlations between incarceration and upward mobility when compared to black, white, and Asian children. This is visible by the plots in Figures 4 and 5, which display a more strongly negative association between incarceration and mean future income for Hispanic children (Figure 5) than in the county overall (Figure 4).

It is important to recognize that these results only demonstrate correlation between variables, not causation. Without experimental confirmation and appropriate randomization procedures, it is not statistically sound to immediately conclude that one variable has a causal impact on another, so these results should not be used to assume that incarceration, education, race, or any other variable can cause changes in upward mobility levels. However, this analysis provided some strong evidence for my hypothesis that race, incarceration, and mobility are heavily correlated. These correlations uncovered surprising racial trends with upward mobility and incarceration rates in the county, and I would especially advocate for policymakers to more closely examine the disproportionate impacts of racial demographics and incarceration on upward mobility, particularly for black and Hispanic households.

Works Cited

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