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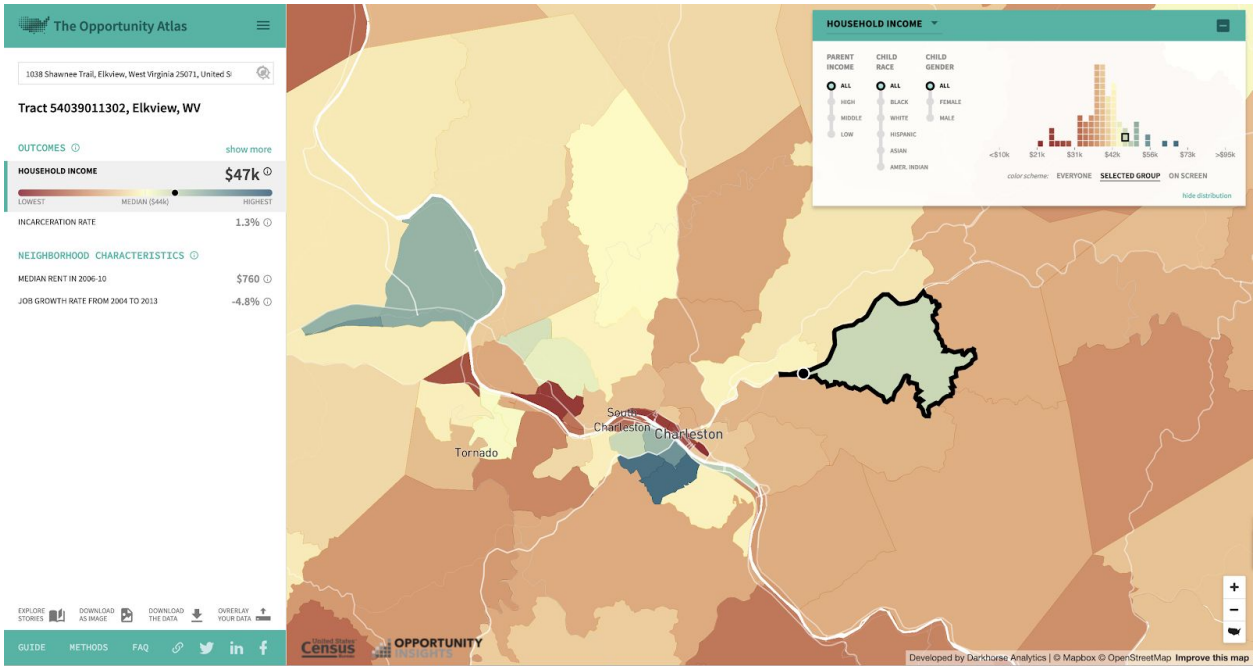
Project 1

Upward Mobility in the Elkview, West Virginia, Area

One of the key issues facing the United States in today's modern economy is the upward mobility afforded to members of society at all socioeconomic levels. With recent trends such as the shrinking middle class, de facto segregation in certain areas of the nation, struggle for many to attain an affordable education that will serve them well, and others, the factors that make it easiest for young people to rise in society are all the more pressing. Professor Raj Chetty's Opportunity Atlas project addresses these issues with big data analysis of census data, piecing together a literal picture of outcome distributions for every permutation of socioeconomic status for adults living and working from around the years 2000 to 2015, and connecting this 1978-1983 birth cohort's outcomes to the characteristics of their childhood neighborhoods and parents' statuses (Chetty et al. 1). An easy question arises as to the retained predictive power of observations made in this way, since the analysis depended on outcomes for these middle-aged individuals to crystallize many years after they experience those key childhood environments that Chetty believes contributes to their later mobility and earnings. However, Chetty finds that the value of such historical data only decays by 10% per decade and has been shown to be more reliable than current time data, such as that on poverty rates, for predicting current time observables (Chetty et al. 4). Thus, although his methods are slightly inaccurate, they do not pose a major research or statistical concern, and we can continuously measure changes in neighborhoods by monitoring variables such as minority shares, rents, and incarceration rates over time to keep a close eye on an area's development.

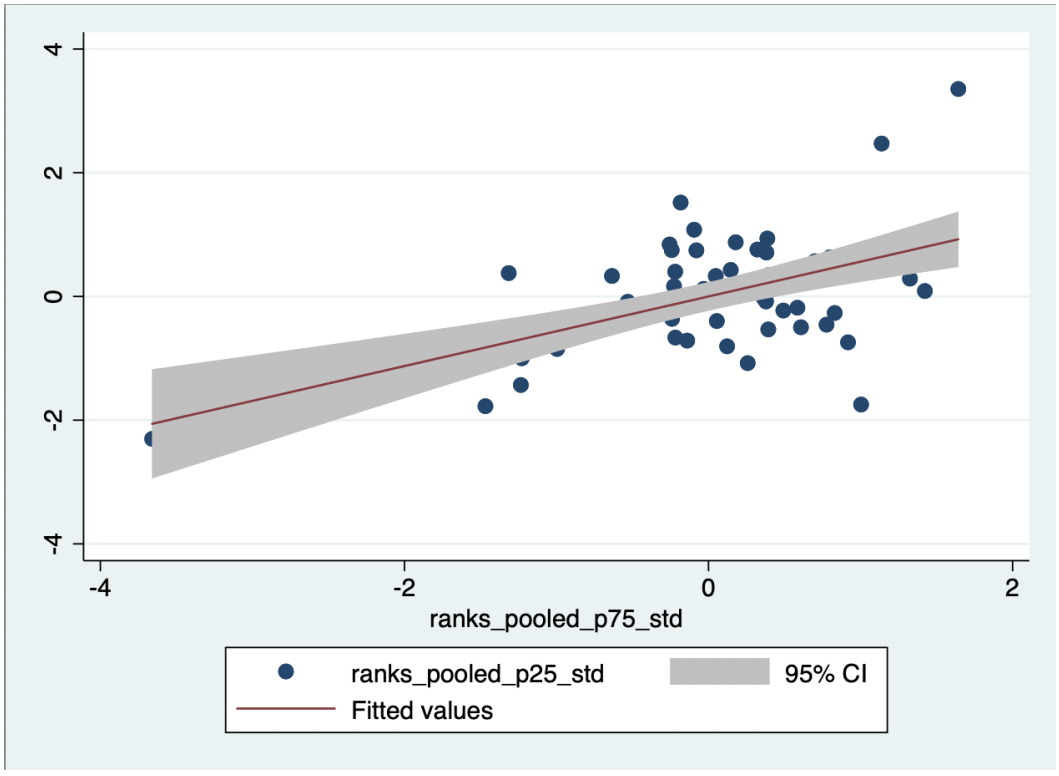


In my hometown of Elkview, West Virginia, we encounter a unique distribution of outcomes for an area that has traditionally exhibited low racial diversity, high rates of prime-male unemployment, and, despite the region's disadvantages, sustained residence by the area's poorest residents and a talent drain of the area's best-educated, most well-off individuals. In the U.S., children whose parents were in the 25th income percentile grew up to enter the 43rd percentile with an average income of $34311/yr.. However, in West Virginia, less upward mobility is available, with this same segment of individuals earning an average of $32073/yr., and in my census tract there is even less, with the average sitting at just $31622/yr., meaning that for children with parents in this income bracket who live in my area, there is much less opportunity for upward mobility compared to the average American child.

In my home county, we also see a lower standard deviation of $3,765 in the average income ($29,833) for this bracket; yet in my state standard deviation sits at $4,033, and in the U.S. overall the deviation is over $7,899. That means that in addition to the lower mobility afforded to children growing up in my area, these children more consistently end up in the same income bracket as adults, and as we will see soon, especially for those growing up in lower income brackets, this lower standard deviation

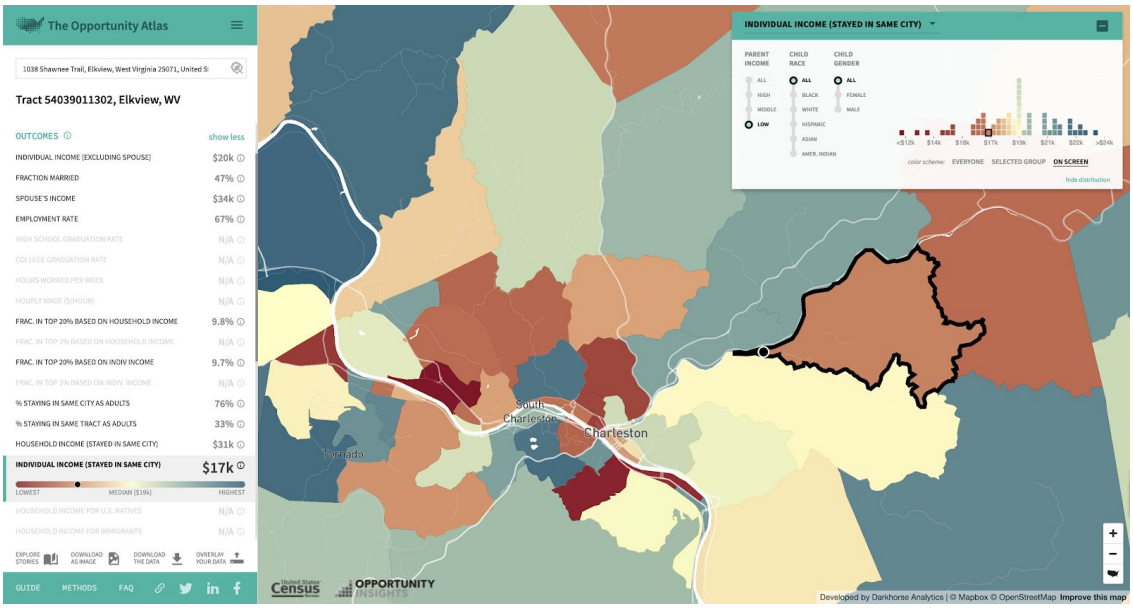
combined with the lower average income outcome means that a cycle of socioeconomic rigidity is reinforced more strongly that in the overall state or nation.

When we repeat this analysis for those in with parents in the 75th income percentile, we see a jump in average income in my tract to $55,564, and similar increases at the state and national levels, with lower standard deviation for tracts in Kanawha county ($4,919) compared to the U.S. standard deviation ($9,326). If we look at individuals with parents in the 100th income percentile, we actually notice that average income in my tract is $82,887 compared to the national average of $69,218, which is likely weighed down by the larger standard deviation of $16,362 due to some areas of the nation experiencing downward mobility for these individuals. The downward mobility we also see in my tract for both of these new income brackets is likely due to regression to the mean for some of these individuals, especially those with the wealthiest parents, though some of this downward mobility may be due to environmental factors in the area, such as the poverty rate and number of single parents, which we will also analyze.



To connect outcomes for children with parents in the 25th and 75th percentile, we observe a very small positive correlation between the two groups' ranks (correlation coefficient of .0217997), which means that in my home county, areas where children from low-income families do well generally have the same outcomes for those from high-income families. Breaking down all our previous findings by race, we see that black children from poorer families tend to have worse outcomes than the pooled average and especially compared to whites, while the opposite trend is observed for those of Asian descent. This trend tends to persist regardless of what parent income percentile we are considering when looking at children's outcomes.

Opportunity Atlas also offers some possible covariates to explain the variation and outcomes we observe (Chetty et al. 29). For example, we see that there is a strong negative correlation coefficient of -0.562455 between the share of poor people in Kanawha County and income outcomes for individuals from disadvantaged backgrounds, with a 95% confidence interval of [-0.8106646, -0.3142455], signalling that living in a neighborhood with higher poverty rates tends to depress children's income later in life. For more well-off individuals in the county with parents in the 75th income bracket, the correlation coefficient between their eventual incomes and fraction of residents in their area with a high school diploma or more is 0.3188545 with a 95% confidence interval of [0.1204445, 0.5172645] (In both bases, variables have been standardized). This indicates that those that come from slightly better-off backgrounds came from areas with higher graduation rates, likely a self-perpetuated phenomenon also connected with the education their higher-earning parents obtained and influenced their children to be more likely to obtain.



My hypothesis from examining the Opportunity Atlas maps for my region and examining correlational findings is that among the high percentage of people in the county and the surrounding area, two main groups of people are staying in the same area they grew up in: those with very high incomes and high rates of employment and those with very low incomes (who also had low income parents) and low employment rates. We also see a higher percentage of single parents in the poorest areas. The outcome for my tract is exhibited above, where individuals who stayed in the same city whose parents were in the lowest income bracket had average earnings of $8200/yr., whereas those whose parents were in the highest income bracket ended up averaged $48000/yr. roughly.

When we perform more standardized correlation analysis, we see that those who grew up in the 25th percentile had lower adult incomes if they lived in an area with more single parents, evidenced by the negative correlation coefficient of -.6554559 between these two variables. We also familiarly notice that for those with parents in the 75th percentile, better outcomes were positively correlated with higher year 2000 employment rates, with the correlation coefficient between these two variables standing at a strong 0.5164213, with a confidence interval of [0.2850975, 0.7477451].

Thus, my hypothesis is generally confirmed by the data: there is a general trend of many high talent people leaving the state, with those staying for relatively few high-paying jobs (or perhaps taking over businesses or professions their parents held), and most of those staying who are poorer exhibiting low employment rates, higher rates of poverty, and higher rates of single parenting, all of which go on to negatively affect later earnings and creating a cycle of perpetuated low mobility. We also see these people at the extremes of income backgrounds living in areas of low ethnic diversity as well. Thus, those with lower income parents tend to end up in lower income brackets themselves and largely tend to reside in the same city they grew up in, but those in higher income brackets are either moving away or maintaining their parents' standards of living. Though we cannot conclude from any of this correlational analysis that there are causal effects at play here since we have not performed any quasi-experimental analysis, I would say that in addition to relatively low upward mobility for the poorest individuals in my tract and downward mobility for the wealthier individuals, there is also still an overwhelming level of de facto segregation that could be contributing to mobility barriers, results consistent with my own experience of living in the area. This state of constancy could be best disrupted by increasing economic and opportunity exposure for young children, including giving those from disadvantaged backgrounds opportunities to travel and offering improved education resources to increase college degree attainment, as well as providing more assistance to single mothers to improve their outcomes and that of their children while increasing racial diversity and overall desire for change and mobility among a more socioeconomically stagnant population.

Works Cited

Chetty, Raj, et al. "The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility." www.opportunityatlas.org, Oct. 2008, opportunityinsights.org/wp-content/uploads/2018/10/atlas_paper.pdf.