

Social and Economic Costs of Inequality in the State of Virginia

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Abstract

This study examined selected social and economic costs of inequality in the state of Virginia. We explored the extent of inequality of place across the state, finding significant inequalities between counties on measures such as household income, poverty, college completion, single parenthood, and racial segregation. These inequalities of place were strongly associated with inequalities in the adult outcomes of children raised in different areas of the state, including unequal household income and unequal rates of upward mobility, college completion, incarceration, and marriage in adulthood. When examining the association between homicides and concentrated disadvantage in the capital city of Richmond, our mapping techniques demonstrated a strong association. Finally, we estimated that child poverty results in billions of dollars of economic costs to the state each year.

Keywords

Neighborhoods, communities, concentrated disadvantage, social mobility, inequality, Virginia, United States, child poverty, violence, poverty, life chances

Introduction

There has been a considerable amount of attention given to inequality-related issues in the United States in recent years, from the rise of multiple populist political candidates to the Black Lives Matter movement to Occupy to #MeToo to a variety of progressive policy proposals and beyond.¹ A reasonable case could be made that this attention is warranted, given the available data. The top 10% of Americans owns 71% of the wealth and earns 46% of the income, compared to less than 2% (wealth) and 13% (income) for the bottom 50% (WID 2021). The Gini coefficient (0.390), relative poverty rate (18%), and relative child poverty rate (21%) in the U.S. are all higher than most wealthy OECD countries with recent data available (OECD 2021a & 2021b). Despite significant progress since the 1960s, African Americans still lag behind Whites² in terms of the percentage of household income that they earn (61% of Whites' income) and the wealth that they own (13%) (Wilson 2020; Kent & Ricketts 2021). There has been significant progress on gender equality over this same time period as well, but

¹ Mitt Romney's proposed Family Security Act, for instance, shares many of the same principles as European-style child allowances, which might have been unheard of in past iterations of the GOP. See his plan here:

https://www.romney.senate.gov/sites/default/files/2021-02/family%20security%20act_one%20pager.pdf .

² Throughout this article, we capitalize Black as a sign of respect and we capitalize White, in the words of Eve L. Ewing, to avoid giving Whiteness power by allowing it to remain supposedly neutral and invisible, to avoid 'reinforcing the dangerous myth that White people in America do not have a racial identity. . . Whiteness is not only an absence. . . Rather, it is a specific social category that confers identifiable and measurable social benefits' (Ewing 2020). We realize there is considerable debate about capitalization, and this is certainly not the only manner in which to handle this use of language. We do not make this language choice lightly, and our choice is not authoritative.

again much work remains, with full-time female workers making around 80-84% of their male counterparts' earnings (depending upon how those earnings are measured) (Blau & Kahn 2017; Eppard & Blau 2020; Federal Reserve Bank of St. Louis 2021a & 2021b). In this article we explore selected social and economic costs of allowing inequality to persist, focusing specifically on the state of Virginia. Examining all inequality measures would be beyond the scope of a single study, so we narrowed our inquiry to selected social costs of inequalities of place and the economic costs of child poverty.

Literature Review

Inequality between American Neighborhoods and Communities

There has been considerable growth in empirical evidence linking the unequal characteristics of place (neighborhoods, communities, counties, commuting zones, etc.) and inequalities in the adult outcomes of children raised in these different conditions. This association has received particular attention due to studies utilizing big data (such as the seminal work of Chetty et. al. 2014). As Sharkey and Faber note in their review of the literature, the 'American system of stratification is organized, in part, along spatial lines' and 'the spatial dimension of American inequality plays an important role in the maintenance and reproduction of inequality across multiple dimensions' (2014, p. 572).

The extant literature implicates several features of residential conditions³ in connection with the life chances of people raised there, including (but not limited to) the socioeconomic profile of the neighborhood/community, degree of economic inequality, degree of racial segregation, the presence/quality of neighborhood/community institutions (including schools, childcare providers, healthcare providers, churches, police, social service providers, parks, and civic associations), the stability of the neighborhood population, available peer networks, adult supervision/role models in the area,⁴ social cohesion (including trust, collective efficacy, social support, social connectedness, shared norms and expectations, and formal and informal social controls), presence of violence and/or gangs, exposure to pollution and other environmental burdens, predominant family structures, local marriage markets, local labor markets, characteristics of nearby neighborhoods, rates of foreclosures/vacancies/evictions, perceptions of neighborhood order/disorder,⁵ and housing density, among other characteristics.

Inequality of Place and Upward Mobility

Inequality of place is heavily implicated in the likelihood of upward mobility for Americans across the life course. As Putnam notes, 'researchers have steadily piled up evidence of how important social context, social institutions, and social networks—in short, our communities—remain for our well-being and our kids' opportunities' (2015,

³ We use 'residential conditions' throughout to refer to neighborhoods and communities where American children are raised. Another term used in the literature is 'residential contexts' (see Sharkey & Faber 2014).

⁴ Sampson explains that, 'Seemingly banal acts such as the collective supervision of children and adult mentorship add up to make a difference' (2019, p.12).

⁵ As Sackett explains, 'strong evidence indicates that shared *perceptions* of past disorder (that is, what people thought about a neighborhood years ago) are a better predictor of homicides in neighborhoods than are present levels of physical disorder' (2016). He goes on to discuss vacant lots and foreclosures, noting that, 'Vacancies and evictions can also lead to violent crime by destabilizing communities and creating venues for crime. A study of Pittsburgh found that violent crime increased by 19 percent within 250 feet of a newly vacant foreclosed home and that the crime rate increased the longer the property remained vacant. In 2016's *Evicted*, Desmond notes that Milwaukee neighborhoods in the mid-2000s with high eviction rates had higher violent crime rates the following year after controlling for factors including past crime rates. Desmond suggests that eviction affects crime by frustrating the relationship among neighbors and preventing the development of community efficacy that could prevent violence' (Sackett 2016).

p. 206).⁶ This is particularly troubling given that the proportion of American families living in middle-income neighborhoods has been declining, while the proportion of families living in either poor or affluent neighborhoods has risen significantly over the last four decades (Bischoff & Reardon 2014). Children raised amongst concentrated disadvantage tend to have worse economic outcomes and less upward mobility compared to their counterparts in more advantaged areas (Chetty 2014; Chetty et. al. 2014; Wolfers 2015; Sampson 2019; Eppard et. al. 2020a, 2020b, 2020c).

The big data developed and utilized by Chetty and his colleagues (2014) has been particularly instructive. Chetty and his colleagues found significant variations in rates of upward mobility across American commuting zones, variations strongly associated with single motherhood ($r = -0.76$), social capital ($r = 0.64$), test score percentile ($r = 0.59$), income inequality ($r = -0.58$), fraction Black residents ($r = -0.58$), high school dropout rate ($r = -0.57$), fraction married ($r = 0.57$), and fraction religious ($r = 0.52$) (2014, Online Appendix Table VIII).⁷

In another important study, Chetty and his colleagues re-analyzed data from the Moving to Opportunity (MTO) experiment⁸ (Chetty et. al. 2015). They found that compared to children who did not move, children who moved when they were young fared better in the areas of college graduation rates, likelihood of marriage, likelihood of single parenthood, economic performance, and the quality of their adult neighborhood of residence.⁹

Living amongst concentrated disadvantage at the neighborhood/community level appears to be detrimental for children even if their own individual household is not particularly disadvantaged. Chetty and his colleagues, for instance, found that single parenthood was strongly associated with upward mobility for all children ($r = -0.76$), as well as for children who themselves had married parents ($r = -0.66$) (2014, Online Appendix Figure XII). Sharkey found that even for children in families with incomes in the top three quintiles, growing up in a high-poverty versus a low-poverty neighborhood increases their chances of downward mobility by 52 percent (2009, p. 2).

Inequality of Place and Children's Success

Children raised amongst concentrated disadvantage tend to fare worse compared to children raised in more-advantaged areas (Massey & Denton 1993; Wilson 1996; Sampson et. al. 1999; Sampson et. al. 2002; Pebley & Sastry 2008; Sharkey 2009; Sampson 2012; Sharkey 2013; Sharkey & Faber 2014; Chetty et. al. 2015; Putnam 2015; Sharkey & Sampson 2015; Rojas-Gaona et. al. 2016; Sampson & Winter 2016; Sampson 2019; Eppard et. al. 2020a, 2020b, 2020c).

⁶ Elsewhere he explains that 'growing class segregation across neighborhoods, schools, marriages (and probably also civic associations, workplaces, and friendship circles) means that rich Americans and poor Americans are living, learning, and raising children in increasingly separate and unequal worlds, removing the stepping-stones to upward mobility' (Putnam 2015, p. 41).

⁷ Summarizing this work, Chetty explains: 'we find a strong negative correlation between standard measures of racial and income segregation and upward mobility. . . These findings lead us to identify segregation as the first of five major factors that are strongly correlated with mobility. The second factor we explore is inequality. [Commuting zones] with larger Gini coefficients have less upward mobility, consistent with the 'Great Gatsby curve'. . . Third, proxies for the quality of the K-12 school system are also correlated with mobility. . . Fourth, social capital indices—which are proxies for the strength of social networks and community involvement in an area—are very strongly correlated with mobility. . . Finally, the strongest predictors of upward mobility are measures of family structure such as the fraction of single parents in the area' (2014, pp. 5-6).

⁸ The MTO was a 1990s federal government experiment which gave a number of American families who were living in public housing a voucher to move to better neighborhoods in order to see if it improved their lives.

⁹ Summarizing this new analysis, Wolfers explains that: 'the next generation—the grandchildren of the winners of this lottery—are more likely to be raised by two parents, to enjoy higher family incomes and to spend their entire childhood in better neighborhoods. That is, the gains from this policy experiment are likely to persist over several generations' (2015).

Compared to children raised in more advantaged areas, children in disadvantaged areas tend to develop worse cognitive skills, perform worse in school, and are less likely to complete high school and college (Bronzaft & McCarthy 1975; Evans & Maxwell 1997; Aaronson 1998; Plotnick & Hoffman 1999; Leventhal & Brooks-Gunn 2000; Duncan et. al. 2001; Harding 2003; Stansfeld et. al. 2005; Sampson et. al. 2008; Schwartz 2010; Sharkey 2010; Sharkey & Elwert 2011; Wodtke et. al. 2011; Sastry 2012; Sharkey et. al. 2013; Sharkey & Faber 2014; Hamner et. al. 2015).¹⁰ The extent of the negative impact is dependent upon the degree of neighborhood/community disadvantage, the period of childhood in which one is exposed, duration of exposure, which residential conditions one is exposed to, and individual vulnerability (Sharkey & Faber 2014).¹¹

Sharkey's (2013) data revealed that poverty experienced by a child or their parent can have a substantial impact on the child's cognitive skills. The gaps between children from families who had never experienced poverty and those who had experienced poverty across generations was the equivalent of missing three to four years of schooling. Children performed well above average on tests of cognitive skills when neither they nor any of their parents were raised in a high-poverty neighborhood. If the child or one of their parents (but not both the child and any of their parents) was raised in a high-poverty neighborhood, cognitive scores dropped considerably. Children's scores dropped considerably more—scoring well below average—if a child and at least one of their parents were raised in a high-poverty neighborhood (Sharkey 2013, p. 119).

Although there are a variety of neighborhood/community factors which impact cognitive skills, academic performance, and educational attainment, school quality is clearly important. Reardon (2016), for instance, found a strong association ($r = 0.78$) between school district socioeconomic status and average academic achievement across the U.S.: 'Students in many of the most advantaged school districts have test scores that are more than four grade levels above those of students in the most disadvantaged districts' (2016, p. 7). Schwartz (2010) tracked the longitudinal school performance of students who, despite living in public housing in the same county, had been randomly assigned to housing in different neighborhoods and thus attended different schools. Children in the school district's most-advantaged schools performed far better in math and reading than children assigned to the district's least-advantaged schools. Burdick-Will et. al. (2011) found that children experienced significant improvements on a variety of assessments of cognitive skills, reading, and math after they moved out of areas of concentrated disadvantage. And Chetty and his colleagues (2014, Online Appendix Table VIII) found strong correlations between upward mobility rates and both test score percentiles ($r = 0.59$) and high school dropout rates ($r = -0.57$) across U.S. commuting zones.

Disadvantaged residential conditions tend to have lower-quality institutions compared to more-advantaged areas (Small 2009; Schwartz 2010; Allard & Small 2013; Chetty et. al. 2014; Sharkey & Faber 2014; Putnam 2015; Future Ready PA Index 2021). In one such institution, schools, there is considerable variation in school environments and teacher quality across the U.S. In poor schools, students are more likely to interact with peers with a variety of characteristics which can negatively influence them, including lower expectations, fewer family resources to share, and less middle-class-approved behavior to model. Poor schools are also more likely to have to rely on less-experienced and/or less-effective teachers (Putnam 2015, pp. 172-173). Children raised amongst

¹⁰ Wodtke and his colleagues (2011) found that being raised in a disadvantaged neighborhood reduced the probability of high school graduation by 10 to 20 percentage points. They found that the probability of graduation for Black children raised in the most disadvantaged neighborhoods instead of the most advantaged fell from 96 to 76 percent. They explained their findings: 'Our results indicate that sustained exposure to disadvantaged neighborhoods—characterized by high poverty, unemployment, and welfare receipt; many female-headed households; and few well-educated adults—throughout the entire childhood life course has a devastating impact on the chances of graduating from high school' (Wodtke et. al. 2011, p. 731).

¹¹ As Sharkey and Faber note, 'Individuals' residential environments are not experienced at a single point in time and then erased from their lives. Rather, there is strong evidence that the influence of the residential environment persists and accumulates, with consequences that extend over long periods of time and generations of families' (2014, p. 572).

concentrated disadvantage are at greater risk for adverse physical and mental health outcomes,¹² teen pregnancy, substance abuse, and criminal involvement and victimization (Peeples & Loeber 1994; Wheaton & Clarke 2003; Brady et. al. 2008; Sharkey & Sampson 2010; Stoddard et. al. 2011; Eppard et. al. 2020b; CDPH 2021).

Environmental burdens are distributed along racial and socioeconomic lines in the U.S. (UCC 2007),¹³ and several researchers have demonstrated a link between these exposures and adverse outcomes. Some research, for instance, has established an association between exposure to environmental burdens like pollution, toxic waste, noise, and other burdens to inequalities in children's academic performance and educational attainment (Cohen et. al. 1973; Bronzaft & McCarthy 1975; Cohen et. al. 1980; Hambrick-Dixon 1985; Ransom & Pope 1992; Evans & Maxwell 1997; Lanphear et. al. 2005; Stansfeld et. al. 2005; Evans 2006; Currie et. al. 2009; Reyes 2012),¹⁴ while others have explored how such exposure impacts children's health (Evans & Kantrowitz 2002; Stansfeld et. al. 2005; Entwisle 2007; Currie et. al. 2011; Sampson 2019).¹⁵

Inequality of Place and Violence

One's likelihood of committing or being a victim of a violent crime is strongly influenced by their neighborhood/community. Violent crime tends to be geographically concentrated in neighborhoods/communities experiencing concentrated disadvantage. As Sampson notes, 'concentrated disadvantage remains a strong predictor of violent crime' (2019, p. 13). Sharkey and his colleagues similarly explain that, 'crime is clustered in space to a remarkable degree' (2016, p. 629). Sackett explains that, 'Concentrated disadvantage, crime, and imprisonment appear to interact in a continually destabilizing feedback loop' (2016).¹⁶

When Sharkey mapped homicides across Chicago, he found a 'strikingly visible' (2013, p. 30) overlap between concentrated disadvantage and homicide.¹⁷ Eppard and his colleagues (2020b) found a similar clustering of gun homicides in areas of concentrated disadvantage when mapping New York City, finding 'extraordinary overlap between clusters of gun homicides and areas of disproportionately high concentrations of Black residents,

¹² As Gourevitch explains, 'One's Zip code is as important to one's health as one's genetic code. . . Those lack of resources are the basic determinants of health' (Guarino 2021).

¹³ In a 2007 report from the United Church of Christ, researchers found that neighborhoods with commercial hazardous waste facilities in the U.S. had poverty rates that were 1.5 times greater than non-host areas, and 1.8 times greater in neighborhoods with multiple facilities. In addition, host neighborhoods were 56 percent non-White, compared to 30 percent in non-host neighborhoods. In areas with multiple facilities, the percentage non-White was 69 percent (UCC 2007, pp. 53-54, 73).

¹⁴ Bronzaft and McCarthy (1975), for instance, showed that at one NYC school, students in some of the classrooms closest to noise from a nearby elevated train were three to four months behind their peers on the quieter side of school.

¹⁵ Sampson explains the association between the racial composition of Chicago neighborhoods and exposure to lead: 'Drawing on comprehensive data from over one million blood tests administered to Chicago children from 1995 to 2013 and matched to over 2,300 geographic block groups, we found that black and Hispanic neighbourhoods exhibited extraordinarily high rates of lead toxicity compared with white neighbourhoods, in some cases with prevalence rates topping 90% of the child population' (2019, p. 14).

¹⁶ Sackett goes on to explain that, 'Neighborhoods with more concentrated disadvantage tend to experience higher levels of violent crime. Numerous studies, for instance, show that neighborhoods with higher poverty rates tend to have higher rates of violent crime. Greater overall income inequality within a neighborhood is associated with higher rates of crime, especially violent crime. Sampson notes that even though the city of Stockholm has far less violence, segregation, and inequality than the city of Chicago, in both cities a disproportionate number of homicides occur in a very small number of very disadvantaged neighborhoods' (2016).

¹⁷ He explains: 'the concentration of violence goes hand in hand with the concentration of poverty. There is a remarkable spatial clustering of homicides in and around neighborhoods with high levels of poverty. . . there are entire sections of this violent city where the most extreme form of violence, a local homicide, is an unknown occurrence. There are other neighborhoods where homicides are a common feature of life. . . these maps provide perhaps the most vivid portrait of what living in areas of concentrated poverty can mean in America's cities' (Sharkey 2013, p. 30).

poverty, and single parenthood, and low concentrations of college graduates, high-income earners, and upwardly-mobile residents' (2020b, pp. 25, 29).¹⁸

Even within crime-burdened neighborhoods/communities, violent crime is not evenly distributed but is instead concentrated within narrow social networks as well as geographic 'hot spots' or 'micro places.' In a study of Boston police records over an almost 30-year period, for instance, fewer than three percent of micro places accounted for a majority of all incidents of gun violence. In another study of Boston, researchers found that 85 percent of gunshot injuries occurred within a single network of people that represented less than six percent of the city's population (Sackett 2016).

Violence negatively impacts the fabric of a community, the health of its residents, and the development of its children and their future educational and economic performance. Research has shown a relationship between exposure to violence and children's cognitive development, academic performance, health, and adult economic performance (Harding 2009; Sharkey 2010; Cutsinger et. al. 2011; Sampson 2012; Sharkey et. al. 2013; Sharkey & Faber 2014; Sharkey & Sampson 2015; Sackett 2016; Sampson 2019).¹⁹ Children living in neighborhoods with high crime rates tend to have significantly worse economic performance later as adults (Sackett 2016). Disadvantaged residential conditions are more likely to foster conditions where females are coerced into sex, are harassed, and/or are more likely to be victims of sexual violence, with negative consequences for their sexual development, mental health, and likelihood of substance abuse (Sackett 2016). And a number of studies have shown that moving children out of disadvantaged and dangerous residential contexts and into more advantaged and less dangerous ones can improve their life chances (Sharkey & Faber 2014).

The Economic Costs of Child Poverty

Social scientists have long documented the manner in which poverty experienced early in life stunts children's development. Recently researchers have examined other impacts of child poverty, including its economic impact on the larger society. What they have found is that if children's capabilities and future potential across the life course are constrained by economic disadvantage, this then negatively impacts their economic productivity, health, and criminality in ways that create associated costs for the larger society. The Children's Defense Fund (1994) estimated that the annual economic costs of child poverty ranged from \$36 billion to \$177 billion due to the manner in which living in poverty during childhood suppressed individuals' educational attainment, development of job skills, and future economic productivity.

Holzer and his colleagues (2007, 2008) estimated that child poverty in the U.S. reduced the nation's economic output by \$170 billion per year, increased crime costs by \$170 billion per year, and increased health expenditures by \$164 billion per year—for a combined cost of around \$500 billion per year, which represented 3.8% of GDP.

Garcia and his colleagues (2017) estimated that high-quality early childhood interventions yielded an annual return on investment of 13 percent over the life course of disadvantaged children, equaling a substantial societal profit over time. In a similar vein, McLaughlin and Rank (2018) estimated that for every dollar spent on reducing

¹⁸ The authors go on to note that, 'Our analyses reveal that such overlap is present not only in New York City, but is typical in a number of American cities. . . not only does violence overlap with all of these measures of disadvantage, but all of these measures of disadvantage overlap with each other. Research suggests that each individual dimension of disadvantage constrains people's agency in significant ways independently of other dimensions—so facing multiple dimensions, as these residents do, makes life significantly more difficult than facing any one dimension individually. Research suggests that it is areas like these, which are burdened with not just one but several disadvantages, where violence seems to crop up most' (Eppard et. al. 2020b, p. 29).

¹⁹ Sharkey (2010) found that children perform substantially worse on assessments of cognitive skills administered within a week following a local homicide—likely due to the stress, shock, trauma, and/or fear caused by such an event—and that the negative effect was worse the closer the homicide was to their home.

child poverty in the U.S., the country would save at least seven dollars with respect to the economic costs of poverty. They estimated the annual costs of childhood poverty in the U.S. to be over \$1 trillion, which represented 5.4 percent of GDP. These costs were the result of reduced adult earnings and the increased costs of crime, incarceration, healthcare, homelessness, and maltreatment associated with growing up poor. There has been little other research on the economic costs of child poverty, and none to our knowledge focusing on a specific U.S. state as in our analysis.

Methods

Inequality of Place and Low-Income Children's Adult Success

All quantitative data utilized in our analyses come from the publicly-accessible Opportunity Atlas database housed at Opportunity Insights (2021). This database contains U.S. Census Bureau data as well as anonymous federal tax return data for over 20 million Americans. It allows researchers to examine the association between community of origin characteristics²⁰ (such as household income, poverty, college completion, racial composition, single parenthood, and a variety of economic/labor market indicators) and adult outcomes like household income, college graduation, incarceration, marriage, and upward mobility. We downloaded this publicly-accessible data and analyzed it using SPSS statistical software, which allowed us to construct descriptive tables, calculate multiple linear regression models, and graph bivariate scatterplots.

One of the many virtues of this database is that its data are available by demographic subgroup. Therefore, one can try to isolate the impact of place as much as possible by controlling for other variables, such as gender and household income. Due to a variety of considerations,²¹ we focused on low-income men (born between 1978-1983, raised in households at the 25th income percentile, and tracked into their mid-thirties) in our analysis, exploring how the likelihood of success for an American from a low-income household can vary depending upon the neighborhoods and communities in which those households are situated.

First, we calculated multiple linear regression models determining which of the eleven origin county variables (college completion rate, share Black, employment rate, median household income, job density, job growth rate, math performance, poverty rate, single parenthood rate, wage growth, and social capital)²² were most strongly associated with each of the five adult outcome variables (college completion rate,²³ household income,²⁴ incarceration rate,²⁵ marriage rate,²⁶ and upward mobility rate²⁷) across all U.S. counties with available data. Then, we constructed scatterplots to illustrate some of the strongest associations (in bivariate form). Next, we constructed tables illustrating how all Virginia counties ranked on the five adult outcomes. Then, we included a

²⁰ Units of analysis available in the Opportunity Atlas database were Census tract, county, and commuting zone. Even though commuting zones are perfectly acceptable units of analysis used by Chetty and others, we wanted something smaller and closer to 'neighborhood' size. In order to include the desired variables for this analysis the smallest unit available was county.

²¹ One important consideration is that upward mobility processes may not be exactly the same for men and women, so combining them in the same analysis could be methodologically inappropriate. As one example, see the gender asymmetry demonstrated in Qian 2017. Another consideration is the impact of household income—by focusing on one income group, low-income men, instead of including all income levels, we control for household income's influence.

²² For the definition of the social capital variable, see Opportunity Insights (2021).

²³ Fraction of low-income (25th percentile) male children who grew up in these areas who hold a bachelor's degree or higher in their mid-30s.

²⁴ Average household income for low-income male children who grew up in these areas when they reach their mid-30s.

²⁵ Fraction of low-income male children who grew up in these areas who were in prison/jail in their mid-30s.

²⁶ Fraction of low-income male children who grew up in these areas who were married in their mid-30s.

²⁷ Fraction of low-income male children who grew up in these areas whose household income was in the top 20% of national income in their mid-30s (national income measure based on children born the same year).

heat map to illustrate variations in upward mobility across the state of Virginia. Finally, we constructed a table to illustrate the major inequalities in county characteristics present across the state of Virginia.

Estimating the Economic Costs of Child Poverty

Around 13% of Virginia's children lived in poverty in 2019 (Stebbins 2020; AECF 2021). To calculate the economic cost of this child poverty for the state we used figures from our previous work in McLaughlin & Rank (2018), which calculated the aggregate cost of child poverty for all fifty U.S. states in 2015. Using these figures as a starting point, we made adjustments for Virginia's share of each cost to derive Virginia's cost of child poverty for 2015. We then adjusted this figure for inflation to obtain Virginia's cost of child poverty for 2019.

Mapping Concentrated Disadvantage and Violence

Time and resource limitations did not allow us to analyze all major cities in the state of Virginia, so we focused on the state capital of Richmond. We obtained the Census tract characteristics (fraction Black residents, fraction college graduates, fraction poor, fraction single parents, and median income) and measures of low-income men's adult outcomes (fraction incarcerated, fraction married, and fraction upwardly mobile) for Richmond from the Opportunity Insights (2021) database. We divided each of these measures into equally-spaced quintiles to show the gradient of variation within each measure. We also obtained the locations of all homicides ($n = 89$) that occurred in the city between January 1, 2018 and November 30, 2020 (most current date at time of analysis) from the LexisNexis Community Crime Map (2020). Finally, we obtained Census tract boundaries (i.e., shapefiles) from the U.S. Census Bureau (2020) to visualize the data. More specifically, we created choropleth maps, as shown in Figure 6, to show the geographic variation in these measures in relationship to the homicide locations. All analyses were conducted using the ggplot2 package in R version 3.5.2.

RESULTS

Inequality of Place and Adult Outcomes

There was significant inequality between counties in social mobility. The percentage of low-income men who rose to the top 20% in adulthood was as high as 21% in Fairfax County and as low as less than 2% in Petersburg City (see Table 1). As a state, Virginia does not appear to fare well compared to the rest of the country on mobility for low-income men, given that 84% (112 out of 133) of the counties in the state had mobility rates below the national average. In a multiple linear regression model with all eleven origin county characteristics included, county single parenthood rate proved to be the strongest predictor of mobility (see Table 2). The scatterplot in Figure 1 illustrates the bivariate association between county single parenthood rate and upward mobility ($r = -0.50$). Figure 2 illustrates the wide geographic variation in mobility rates for low-income men across Virginia counties. Note how mobility rates are low in most of the state outside of the affluent Northern Virginia region.

Table 1. Virginia Counties Ranked by Upward Mobility Rates for Low-Income Men

VIRGINIA COUNTY	% UPWARDLY MOBILE	VA MOBILITY RANK
U.S. county average	9.92	-
Fairfax County, VA	21.12	1
Loudoun County, VA	20.29	2
Falls Church city, VA	20.13	3
Fairfax city, VA	20.00	4
Rappahannock County, VA	19.09	5
Norton city, VA	16.55	6
Clarke County, VA	15.50	7
Manassas city, VA	15.21	8
Arlington County, VA	14.00	9
Poquoson city, VA	13.89	10
Fauquier County, VA	13.44	11
Colonial Heights city, VA	13.37	12
Stafford County, VA	12.18	13
Warren County, VA	11.99	14
Prince William County, VA	11.98	15
Alexandria city, VA	11.63	16
Hanover County, VA	11.14	17
Albemarle County, VA	10.94	18
New Kent County, VA	10.55	19
Buchanan County, VA	10.40	20
Spotsylvania County, VA	10.11	21
Craig County, VA	9.87	22
York County, VA	9.83	23
Powhatan County, VA	9.77	24
Roanoke County, VA	9.69	25
King and Queen County, VA	9.61	26
Chesterfield County, VA	9.57	27
Charlottesville city, VA	9.44	28
Highland County, VA	9.25	29
Alleghany County, VA	9.14	30
Shenandoah County, VA	9.11	31
Frederick County, VA	8.88	32
Mathews County, VA	8.83	33
Charles City County, VA	8.79	34
Campbell County, VA	8.64	35
Amelia County, VA	8.62	36
James City County, VA	8.43	37
Montgomery County, VA	8.29	38
Westmoreland County, VA	8.22	39
Northampton County, VA	8.19	40
King George County, VA	8.07	41
King William County, VA	8.05	42
Page County, VA	8.04	43
Floyd County, VA	8.03	T-44
Henrico County, VA	8.03	T-44
Orange County, VA	7.99	46

Dickenson County, VA	7.92	47
Harrisonburg city, VA	7.87	48
Winchester city, VA	7.84	49
Tazewell County, VA	7.81	50
Accomack County, VA	7.77	51
Culpeper County, VA	7.76	52
Botetourt County, VA	7.60	53
Northumberland County, VA	7.48	54
Wise County, VA	7.38	55
Virginia Beach city, VA	7.34	56
Bedford County, VA	7.31	57
Russell County, VA	7.26	58
Lexington city, VA	7.24	59
Hopewell city, VA	7.22	60
Essex County, VA	7.17	61
Madison County, VA	7.15	62
Lancaster County, VA	7.12	63
Appomattox County, VA	7.09	64
Pittsylvania County, VA	6.98	65
Chesapeake city, VA	6.96	66
Williamsburg city, VA	6.93	67
Rockingham County, VA	6.83	T-68
Manassas Park city, VA	6.83	T-68
Bland County, VA	6.56	70
Bristol city, VA	6.49	71
Nelson County, VA	6.37	72
Cumberland County, VA	6.34	73
Amherst County, VA	6.27	74
Augusta County, VA	6.25	T-75
Fredericksburg city, VA	6.25	T-75
Isle of Wight County, VA	6.19	T-77
Washington County, VA	6.19	T-77
Gloucester County, VA	6.16	79
Prince George County, VA	6.13	80
Hampton city, VA	6.12	81
Bath County, VA	6.10	82
Franklin County, VA	6.03	83
Louisa County, VA	5.97	84
Prince Edward County, VA	5.79	85
Rockbridge County, VA	5.78	86
Buena Vista city, VA	5.74	87
Salem city, VA	5.67	88
Greene County, VA	5.63	89
Franklin city, VA	5.58	90
Patrick County, VA	5.50	91
Goochland County, VA	5.44	92
Staunton city, VA	5.41	93
Galax city, VA	5.40	94
Waynesboro city, VA	5.39	95
Pulaski County, VA	5.35	96
Lynchburg city, VA	5.33	97
Covington city, VA	5.31	98
Surry County, VA	5.27	99
Halifax County, VA	5.17	100
Newport News city, VA	4.97	101
Charlotte County, VA	4.90	T-102

Grayson County, VA	4.90	T-102
Mecklenburg County, VA	4.89	104
Suffolk city, VA	4.70	105
Brunswick County, VA	4.67	106
Southampton County, VA	4.64	107
Giles County, VA	4.56	108
Martinsville city, VA	4.49	109
Scott County, VA	4.42	110
Caroline County, VA	4.41	T-111
Smyth County, VA	4.41	T-111
Portsmouth city, VA	4.38	113
Radford city, VA	4.36	114
Henry County, VA	4.34	115
Buckingham County, VA	4.28	T-116
Greensville County, VA	4.28	T-116
Lee County, VA	4.28	T-116
Nottoway County, VA	4.19	119
Sussex County, VA	4.18	T-120
Norfolk city, VA	4.18	T-120
Danville city, VA	4.14	122
Wythe County, VA	4.05	T-123
Emporia city, VA	4.05	T-123
Roanoke city, VA	4.01	125
Lunenburg County, VA	3.94	126
Fluvanna County, VA	3.70	127
Carroll County, VA	3.56	128
Dinwiddie County, VA	3.29	129
Richmond County, VA	3.26	130
Richmond city, VA	3.12	131
Middlesex County, VA	2.93	132
Petersburg city, VA	1.65	133

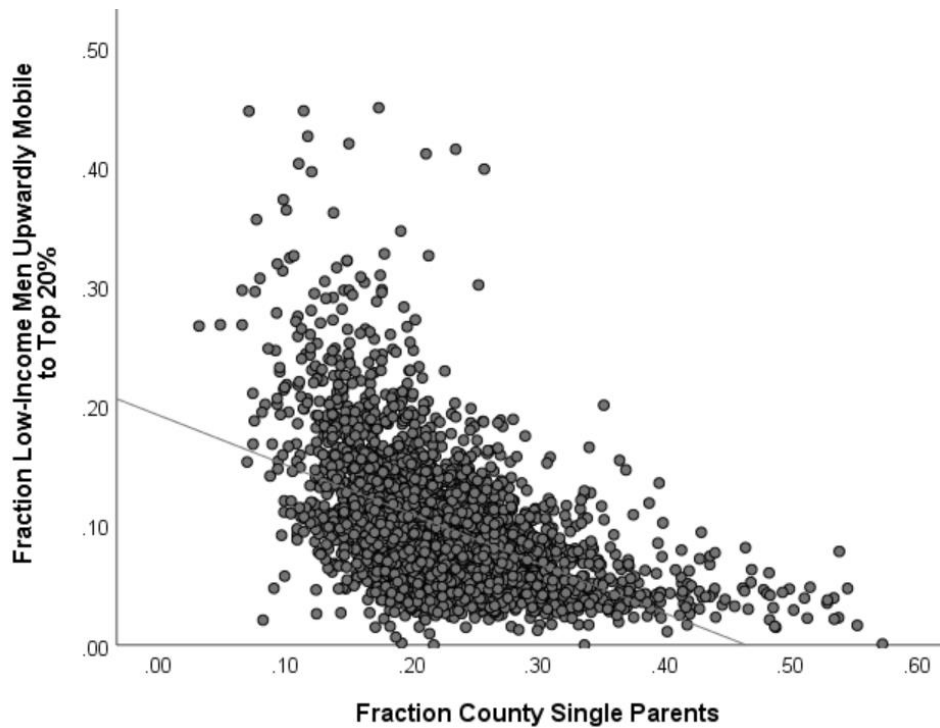
Note: The upward mobility measure used here is the percentage of low-income men who grew up in these counties who, in adulthood (their mid-30s), have a household income in the top 20% of the national income distribution for children born in the same year. Source: Authors' calculations using Opportunity Insights (2021) data.

Table 2. Betas for U.S. Regression Models.

Origin County Characteristic	Adult Outcomes for Low-Income Men				
	Mobility	Income	College	Prison	Marriage
Household Income	-0.168***	-0.453***	-0.265***	0.221***	-0.615***
College Completion Rate	0.306***	0.283***	0.644***	-0.161***	0.167***
Single Parenthood Rate	-0.515***	-0.612***	-0.231***	0.391***	-0.575***
Poverty Rate	0.019	-0.044	-0.064	-0.060	-0.048*
Share Black	-0.052*	-0.091***	0.014	0.313***	-0.253***
Math Scores	-0.057**	-0.032	-0.010	0.062**	0.016
Employment Rate	-0.052	0.078**	-0.086**	0.053	0.091***
Wage Growth	0.123***	0.122***	0.027	-0.046**	0.051***
Job Growth	0.134***	0.069***	-0.001	0.084***	-0.019
Job Density	0.060**	0.071***	0.069***	-0.063***	0.049***
Social Capital	0.059**	-0.006	-0.012	-0.036	0.058***
Model r-square	0.330	0.522	0.262	0.362	0.750
Model significance	0.000	0.000	0.000	0.000	0.000

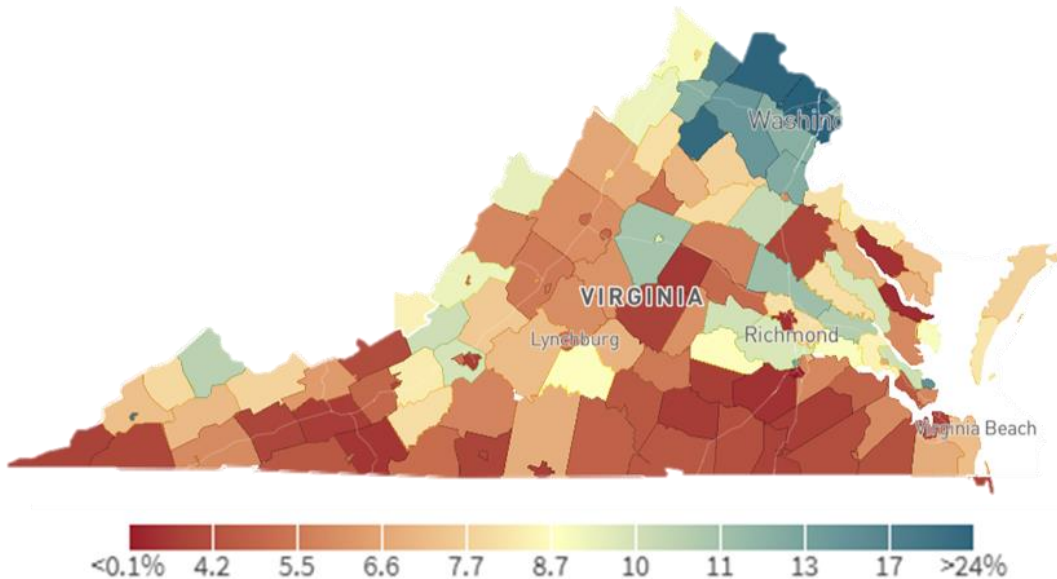
Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 1. Association between County Single Parenthood Rate and Mobility.



Note: $r = -0.50***$

Figure 2. Heat Map of Upward Mobility Rates of Low-Income Men Raised in Virginia Counties.



Note: The upward mobility measure used here is the percentage of low-income men who grew up in these counties who, when they reached adulthood (mid-30s), had a household income in the top 20% of the national income distribution for children born in the same year.

Source: Opportunity Insights (2021). Map reprinted with permission.

Other measures of adult well-being showed similar inequalities. The percentage of low-income men who graduated college was as high as 48% in Falls Church City and as low as 0% in places like Manassas Park City (see Table 3). As a state, Virginia appears to be below average compared to the rest of the country on college graduation for low-income men, given that 60% (78 out of 129 with available data) of the counties in the state had college completion rates below the national average. In a multiple linear regression model with all origin county characteristics included, county college completion rate proved to be the strongest predictor of college completion for low-income men (see Table 2).

Table 3. Virginia Counties Ranked by College Graduation Rates for Low-Income Men

VIRGINIA COUNTY	% COLLEGE GRADS	VA COLLEGE RANK
U.S. County Average	13.74	-
Falls Church city, VA	48.16	1
Fairfax city, VA	42.46	2
Fairfax County, VA	37.11	3
Poquoson city, VA	34.51	4
Rappahannock County, VA	34.07	5
Lexington city, VA	28.90	6
Nelson County, VA	28.80	7
York County, VA	28.09	8
Alexandria city, VA	27.71	9
Loudoun County, VA	27.59	10
James City County, VA	27.25	11
Radford city, VA	26.14	12
Arlington County, VA	23.37	13
Salem city, VA	22.83	14
Franklin city, VA	22.79	15
Albemarle County, VA	21.60	16
Bland County, VA	21.10	17
Colonial Heights city, VA	20.88	18
Henrico County, VA	20.84	T-19
Roanoke County, VA	20.84	T-19
Buchanan County, VA	20.21	21
Northampton County, VA	19.57	22
Prince Edward County, VA	19.47	23
Chesterfield County, VA	19.43	24
Prince George County, VA	18.72	25
Westmoreland County, VA	17.99	26
Virginia Beach city, VA	17.65	27
Staunton city, VA	17.58	28
Charlottesville city, VA	17.57	29
New Kent County, VA	17.29	30
Bristol city, VA	17.18	31
Prince William County, VA	16.96	32
Accomack County, VA	16.83	33
Washington County, VA	16.59	34
Manassas city, VA	16.50	35
Williamsburg city, VA	16.41	36
Appomattox County, VA	16.34	37
Tazewell County, VA	15.74	38
Waynesboro city, VA	15.66	39
Wythe County, VA	15.65	40
Buckingham County, VA	15.59	41
Rockingham County, VA	15.22	42
Harrisonburg city, VA	14.96	43
Winchester city, VA	14.81	44
Hanover County, VA	14.31	45
Covington city, VA	14.27	46

Hampton city, VA	14.17	47
Campbell County, VA	14.16	48
Clarke County, VA	14.15	49
Buena Vista city, VA	14.13	50
Galax city, VA	14.09	51
Chesapeake city, VA	13.64	52
Middlesex County, VA	13.17	53
Warren County, VA	13.08	54
Lee County, VA	13.06	55
Lynchburg city, VA	12.93	56
Newport News city, VA	12.92	57
Mecklenburg County, VA	12.77	58
Madison County, VA	12.73	59
Patrick County, VA	12.70	60
Wise County, VA	12.21	61
Isle of Wight County, VA	12.08	62
Bedford County, VA	12.06	63
Pittsylvania County, VA	12.01	64
Orange County, VA	11.94	65
Southampton County, VA	11.87	66
Greensville County, VA	11.59	67
Richmond County, VA	11.51	68
Richmond city, VA	11.37	69
Dickenson County, VA	11.36	70
Bath County, VA	11.01	71
Roanoke city, VA	10.98	72
Lancaster County, VA	10.94	73
Montgomery County, VA	10.74	74
Fauquier County, VA	10.60	75
King George County, VA	10.57	76
Danville city, VA	9.59	77
Fluvanna County, VA	9.41	78
Suffolk city, VA	9.33	79
Culpeper County, VA	9.32	80
Stafford County, VA	9.27	81
Lunenburg County, VA	9.07	82
Portsmouth city, VA	8.96	83
Franklin County, VA	8.92	84
Brunswick County, VA	8.90	85
Fredericksburg city, VA	8.75	86
Norfolk city, VA	8.57	87
Smyth County, VA	8.54	88
Henry County, VA	8.53	89
Northumberland County, VA	8.00	T-90
Petersburg city, VA	8.00	T-90
Norton city, VA	7.67	92
Louisa County, VA	7.66	93
Frederick County, VA	7.63	T-94
Giles County, VA	7.63	T-94
Amherst County, VA	7.54	96
Spotsylvania County, VA	7.41	97
Caroline County, VA	7.38	98
Hopewell city, VA	7.31	99
Rockbridge County, VA	7.17	100
Grayson County, VA	7.11	101
Powhatan County, VA	7.04	102

Charles City County, VA	6.96	103
Augusta County, VA	6.87	104
Dinwiddie County, VA	6.75	105
Nottoway County, VA	6.11	106
Page County, VA	6.05	107
Shenandoah County, VA	5.93	108
Alleghany County, VA	5.43	109
Greene County, VA	5.35	110
Scott County, VA	5.19	111
Amelia County, VA	5.17	112
Botetourt County, VA	4.81	113
Carroll County, VA	4.56	114
Charlotte County, VA	4.01	115
Halifax County, VA	3.95	116
Floyd County, VA	3.74	117
Emporia city, VA	3.71	118
Gloucester County, VA	2.71	119
Surry County, VA	2.65	120
Goochland County, VA	2.64	121
Cumberland County, VA	2.23	122
Martinsville city, VA	1.69	123
Sussex County, VA	1.24	124
Essex County, VA	0.00	T-125
King William County, VA	0.00	T-125
Pulaski County, VA	0.00	T-125
Russell County, VA	0.00	T-125
Manassas Park city, VA	0.00	T-125
Craig County, VA	n/a	-
Highland County, VA	n/a	-
King and Queen County, VA	n/a	-
Mathews County, VA	n/a	-

Note: Counties with “n/a” entry did not have data available. The college graduation measure used here is the percentage of low-income men raised in these counties who had a bachelor’s degree or higher by their mid-30s.
Source: Authors’ calculations using Opportunity Insights (2021) data.

The percentage of low-income men incarcerated in adulthood is as low as 0% in Highland County and as high as almost 14% in Williamsburg City (see Table 4). As a state, Virginia does not appear to fare well compared to the rest of the country on incarceration rates for low-income men, given that 80% (107 out of 133) of the counties in the state had incarceration rates above the national average. In a multiple linear regression model with all origin county characteristics included, county single parenthood rate proved to be the strongest predictor of low-income men’s incarceration rate (see Table 2). Figure 3 illustrates the bivariate association between county single parenthood rate and low-income men’s incarceration rate ($r = 0.52$).

Table 4. Virginia Counties Ranked by Incarceration Rates for Low-Income Men

VIRGINIA COUNTY	% INCARCERATED	VA INCARCERATION RANK
U.S. County Average	3.93	-
Highland County, VA	0.00	1
Bath County, VA	0.64	2
Floyd County, VA	1.76	3
Falls Church city, VA	1.78	4
Fairfax city, VA	2.02	5
Rappahannock County, VA	2.09	6
Scott County, VA	2.16	7
Fairfax County, VA	2.32	8
Dickenson County, VA	2.40	9
Poquoson city, VA	2.49	10
Shenandoah County, VA	2.63	11
Buchanan County, VA	2.78	12
Goochland County, VA	2.84	13
Nelson County, VA	2.99	14
Buena Vista city, VA	3.02	15
Warren County, VA	3.10	16
Carroll County, VA	3.32	17
Rockbridge County, VA	3.35	18
Botetourt County, VA	3.42	19
Lancaster County, VA	3.48	20
Patrick County, VA	3.55	21
Charlotte County, VA	3.66	22
Amelia County, VA	3.69	23
Rockingham County, VA	3.72	24
Essex County, VA	3.81	25
Lee County, VA	3.90	26
Salem city, VA	3.96	27
Bland County, VA	4.07	28
Appomattox County, VA	4.16	29
Roanoke County, VA	4.23	30
Mathews County, VA	4.25	31
Colonial Heights city, VA	4.30	32
Cumberland County, VA	4.32	33
Montgomery County, VA	4.40	34
Grayson County, VA	4.41	35
Alleghany County, VA	4.46	T-36
Tazewell County, VA	4.46	T-36
Washington County, VA	4.50	38
Arlington County, VA	4.52	39
Gloucester County, VA	4.53	40
Albemarle County, VA	4.60	41
Manassas Park city, VA	4.61	42
Loudoun County, VA	4.68	43
Hanover County, VA	4.70	44
Smyth County, VA	4.73	45
Bedford County, VA	4.75	46
Bristol city, VA	4.78	47

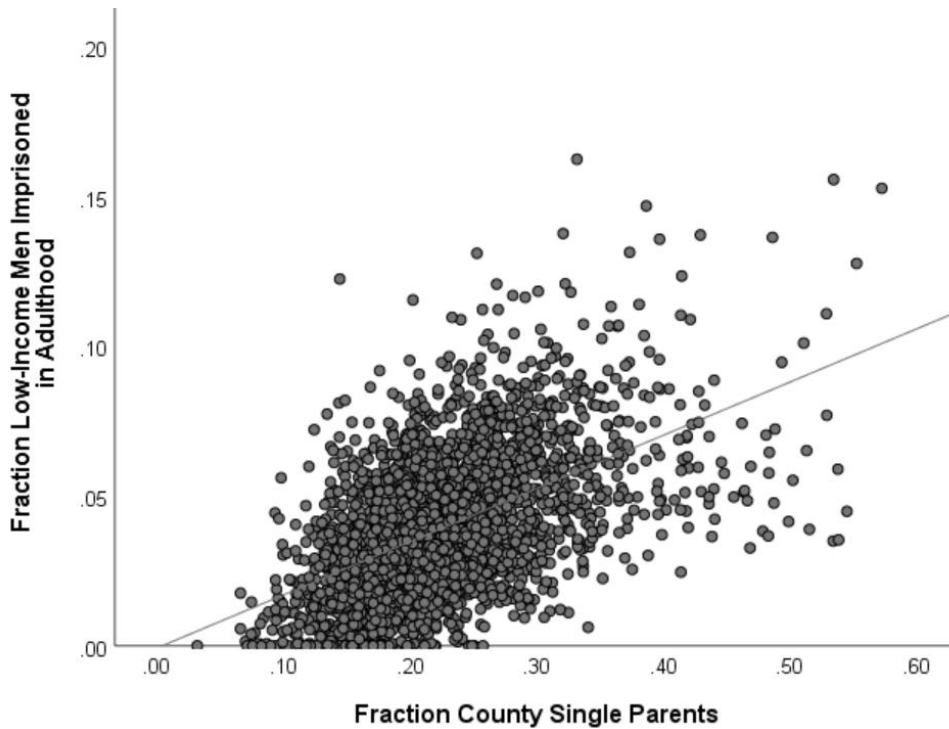
Russell County, VA	4.85	48
Harrisonburg city, VA	4.89	49
Accomack County, VA	4.95	50
Galax city, VA	4.97	51
Alexandria city, VA	4.99	52
Powhatan County, VA	5.15	53
Northumberland County, VA	5.25	54
Amherst County, VA	5.27	T-55
Virginia Beach city, VA	5.27	T-55
Wise County, VA	5.31	T-57
Covington city, VA	5.31	T-57
King William County, VA	5.37	59
Prince William County, VA	5.51	60
Buckingham County, VA	5.59	61
Wythe County, VA	5.70	62
Augusta County, VA	5.74	63
Pulaski County, VA	5.80	64
New Kent County, VA	5.82	65
Campbell County, VA	5.83	66
Manassas city, VA	5.96	67
Spotsylvania County, VA	5.99	68
Lunenburg County, VA	6.05	69
Pittsylvania County, VA	6.06	70
Northampton County, VA	6.07	71
Dinwiddie County, VA	6.13	72
Nottoway County, VA	6.15	73
York County, VA	6.24	74
Norton city, VA	6.26	75
Winchester city, VA	6.29	76
Isle of Wight County, VA	6.32	77
Caroline County, VA	6.34	T-78
Middlesex County, VA	6.34	T-78
Madison County, VA	6.36	80
Chesterfield County, VA	6.39	T-81
Franklin County, VA	6.39	T-81
Page County, VA	6.39	T-81
Giles County, VA	6.40	84
Louisa County, VA	6.48	85
Frederick County, VA	6.50	86
Fauquier County, VA	6.53	87
Culpeper County, VA	6.67	88
Orange County, VA	6.68	89
Surry County, VA	6.78	90
Fluvanna County, VA	6.82	91
Clarke County, VA	6.91	92
Brunswick County, VA	6.93	93
Southampton County, VA	7.05	94
Prince George County, VA	7.06	95
Henrico County, VA	7.22	96
Waynesboro city, VA	7.31	97
Staunton city, VA	7.39	98
Stafford County, VA	7.47	99
Westmoreland County, VA	7.50	100
Craig County, VA	7.74	101
Halifax County, VA	7.86	102
Charles City County, VA	7.98	103

Hampton city, VA	7.99	104
Sussex County, VA	8.01	105
Mecklenburg County, VA	8.03	106
Emporia city, VA	8.04	107
James City County, VA	8.13	108
Henry County, VA	8.16	109
Prince Edward County, VA	8.29	110
Radford city, VA	8.36	111
Hopewell city, VA	8.50	112
Roanoke city, VA	8.63	113
Greensville County, VA	8.77	114
Newport News city, VA	9.03	115
Greene County, VA	9.07	116
Richmond County, VA	9.46	117
Chesapeake city, VA	9.66	118
King and Queen County, VA	9.96	119
Fredericksburg city, VA	10.36	120
Danville city, VA	11.04	121
Lynchburg city, VA	11.33	122
Norfolk city, VA	11.40	123
King George County, VA	11.55	124
Suffolk city, VA	12.08	125
Martinsville city, VA	12.35	126
Petersburg city, VA	12.77	127
Lexington city, VA	13.11	128
Franklin city, VA	13.14	129
Portsmouth city, VA	13.58	130
Richmond city, VA	13.64	131
Charlottesville city, VA	13.72	132
Williamsburg city, VA	13.77	133

Note: The incarceration measure used here is the percentage of low-income men raised in these counties who were incarcerated in their mid-30s.

Source: Authors' calculations using Opportunity Insights (2021) data.

Figure 3. Association between County Single Parenthood Rate and Incarceration.



Note: $r = 0.52***$

The average total household income of low-income men in adulthood is as high as \$42,142 in Falls Church City and as low as \$18,317 in Petersburg City (see Table 5). As a state, Virginia does not appear to fare well compared to the rest of the country on household income for low-income men, given that 89% (119 out of 133) of the counties in the state were below the national average on this measure. In a multiple linear regression model with all origin county characteristics included, county single parenthood rate proved to be the strongest predictor of low-income men's adult household income (see Table 2). Figure 4 illustrates the bivariate association between county single parenthood rate and low-income men's adult household income ($r = -0.65$).

Table 5. Virginia Counties Ranked by Household Income for Low-Income Men

VIRGINIA COUNTY	AVERAGE INCOME (\$)	VA INCOME RANK
U.S. County Average	33,567	-
Falls Church city, VA	42,142	1
Rappahannock County, VA	41,517	2
Fairfax County, VA	40,664	3
Fairfax city, VA	39,835	4
Loudoun County, VA	38,828	5
Poquoson city, VA	36,574	6
Buchanan County, VA	35,766	7
New Kent County, VA	35,279	8
Arlington County, VA	35,104	9
Highland County, VA	35,018	10
Manassas city, VA	34,645	11
Clarke County, VA	34,274	12
Essex County, VA	33,927	13
King and Queen County, VA	33,620	14
Bath County, VA	33,503	15
Warren County, VA	33,446	16
Botetourt County, VA	33,389	17
Rockingham County, VA	33,256	18
Dickenson County, VA	33,255	19
Augusta County, VA	33,146	20
Hanover County, VA	33,053	21
Rockbridge County, VA	32,763	T-22
Stafford County, VA	32,763	T-22
Prince William County, VA	32,756	24
Shenandoah County, VA	32,739	25
Bland County, VA	32,674	26
Roanoke County, VA	32,577	27
King William County, VA	32,338	28
York County, VA	32,173	29
Russell County, VA	32,163	30
Albemarle County, VA	32,100	31
Manassas Park city, VA	32,098	32
Northumberland County, VA	31,910	33
Alexandria city, VA	31,621	34
Powhatan County, VA	31,543	35
Harrisonburg city, VA	31,532	36
Frederick County, VA	31,389	37
Middlesex County, VA	31,305	38
Winchester city, VA	31,205	39
Fauquier County, VA	31,168	40
Tazewell County, VA	31,154	41
Lexington city, VA	30,935	42
Floyd County, VA	30,931	43
Amherst County, VA	30,839	44
Patrick County, VA	30,775	45
Alleghany County, VA	30,681	46
Bedford County, VA	30,666	47

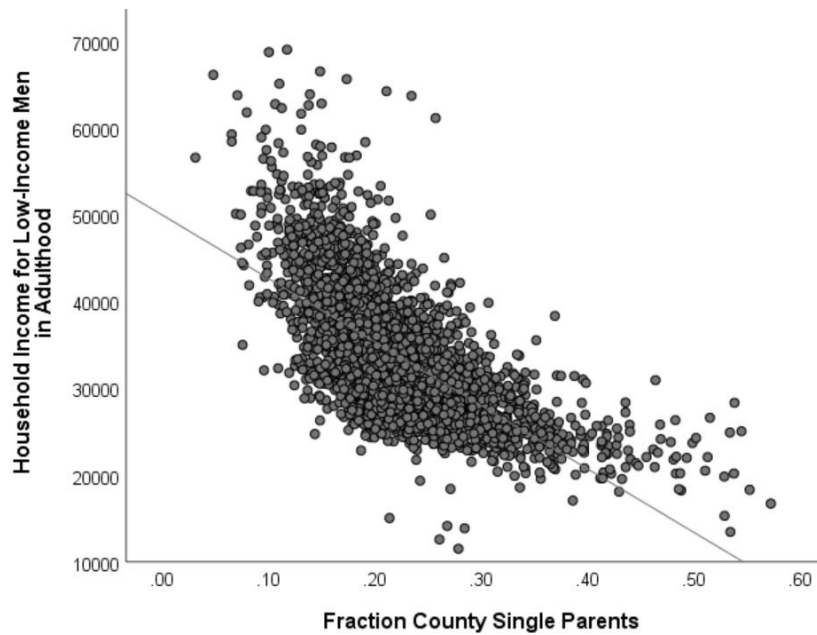
Mathews County, VA	30,587	48
Nelson County, VA	30,538	49
Colonial Heights city, VA	30,395	50
Campbell County, VA	30,081	51
Chesterfield County, VA	30,058	52
Norton city, VA	29,978	53
Scott County, VA	29,928	54
Montgomery County, VA	29,800	55
Buena Vista city, VA	29,784	56
Salem city, VA	29,726	57
Page County, VA	29,620	58
Amelia County, VA	29,583	59
Appomattox County, VA	29,488	60
Covington city, VA	29,387	61
Franklin County, VA	29,281	62
Waynesboro city, VA	29,162	63
Spotsylvania County, VA	29,063	64
Virginia Beach city, VA	28,980	65
Craig County, VA	28,872	66
Accomack County, VA	28,871	67
Madison County, VA	28,865	68
Staunton city, VA	28,730	69
Wythe County, VA	28,727	70
Lancaster County, VA	28,698	71
Prince George County, VA	28,459	72
Charles City County, VA	28,360	73
Gloucester County, VA	28,285	74
Culpeper County, VA	28,192	75
Wise County, VA	28,124	76
Richmond County, VA	28,015	77
Giles County, VA	27,964	78
James City County, VA	27,898	79
Fluvanna County, VA	27,868	80
Pittsylvania County, VA	27,858	81
Grayson County, VA	27,806	82
Westmoreland County, VA	27,780	83
Lee County, VA	27,755	84
King George County, VA	27,705	85
Surry County, VA	27,699	86
Orange County, VA	27,644	87
Isle of Wight County, VA	27,617	88
Washington County, VA	27,512	89
Bristol city, VA	27,495	90
Henrico County, VA	27,493	91
Greene County, VA	27,154	92
Carroll County, VA	26,997	93
Southampton County, VA	26,889	94
Smyth County, VA	26,747	95
Sussex County, VA	26,689	96
Chesapeake city, VA	26,663	97
Fredericksburg city, VA	26,626	98
Hampton city, VA	26,477	99
Nottoway County, VA	26,438	100
Galax city, VA	26,358	101
Goochland County, VA	26,312	102
Henry County, VA	26,251	103

Franklin city, VA	26,127	104
Charlotte County, VA	26,096	T-105
Pulaski County, VA	26,096	T-105
Northampton County, VA	26,094	107
Buckingham County, VA	26,069	108
Caroline County, VA	25,956	109
Prince Edward County, VA	25,886	110
Lunenburg County, VA	25,803	111
Louisa County, VA	25,645	112
Hopewell city, VA	25,387	113
Brunswick County, VA	25,377	114
Cumberland County, VA	25,282	115
Newport News city, VA	25,047	116
Halifax County, VA	25,038	117
Mecklenburg County, VA	24,843	118
Lynchburg city, VA	24,479	119
Charlottesville city, VA	24,368	120
Williamsburg city, VA	24,293	121
Dinwiddie County, VA	24,239	122
Suffolk city, VA	24,162	123
Norfolk city, VA	22,980	124
Roanoke city, VA	22,907	125
Portsmouth city, VA	22,604	126
Radford city, VA	22,311	127
Danville city, VA	22,071	128
Greensville County, VA	21,543	129
Martinsville city, VA	19,642	130
Emporia city, VA	19,559	131
Richmond city, VA	18,381	132
Petersburg city, VA	18,317	133

Note: The income measure used here is the average annual total household income of low-income men raised in these counties when they reach their mid-30s.

Source: Authors' calculations using Opportunity Insights (2021) data.

Figure 4. Association between County Single Parenthood Rate and Income.



Note: $r = -0.65^{***}$

The average marriage rate of low-income men in adulthood is as high as 55% in Bath County and as low as less than 15% in Petersburg City (see Table 6). As a state, Virginia does not appear to fare well compared to the rest of the country on marriage rates for low-income men, given that 77% (102 out of 133) of the counties in the state had marriage rates below the national average. In a multiple linear regression model with all origin county characteristics included, county household income and single parenthood rate proved to be the strongest predictors of low-income men's adult marriage rate (see Table 2). Figure 5 illustrates the bivariate association between county single parenthood rate and low-income men's adult marriage rate ($r = -0.72$).

Table 6. Virginia Counties Ranked by Marriage Rates for Low-Income Men

VIRGINIA COUNTY	% MARRIED	VA MARRIAGE RANK
U.S. County Average	39.87	-
Bath County, VA	55.32	1
Dickenson County, VA	52.02	2
Highland County, VA	51.40	3
Buchanan County, VA	51.09	4
Russell County, VA	47.78	5
Tazewell County, VA	47.21	6
Bland County, VA	47.09	7
Craig County, VA	46.74	8
Augusta County, VA	46.37	9
Rappahannock County, VA	45.43	10
Buena Vista city, VA	44.00	11
Lee County, VA	43.75	12
Grayson County, VA	43.60	13
Scott County, VA	43.47	14
Rockbridge County, VA	43.25	15
Wythe County, VA	43.18	16
Wise County, VA	42.92	17
Botetourt County, VA	42.90	18
Bristol city, VA	42.14	19
Patrick County, VA	41.91	20
Rockingham County, VA	41.82	21
Carroll County, VA	41.73	22
Warren County, VA	41.37	23
Norton city, VA	41.16	24
Franklin County, VA	41.15	25
Roanoke County, VA	40.97	26
Powhatan County, VA	40.85	27
Madison County, VA	40.49	28
Covington city, VA	40.28	29
Alleghany County, VA	39.97	30
Page County, VA	39.88	31
Bedford County, VA	39.66	32
Washington County, VA	39.00	33
Shenandoah County, VA	38.97	34
Nelson County, VA	38.95	35
Appomattox County, VA	38.94	36
Northumberland County, VA	38.89	37
Campbell County, VA	38.78	38
Poquoson city, VA	38.48	39
Harrisonburg city, VA	38.11	40
Salem city, VA	37.90	41
Montgomery County, VA	37.83	42
Smyth County, VA	37.56	43
Amherst County, VA	37.54	44
Floyd County, VA	37.38	T-45
Staunton city, VA	37.38	T-45
Giles County, VA	37.27	47

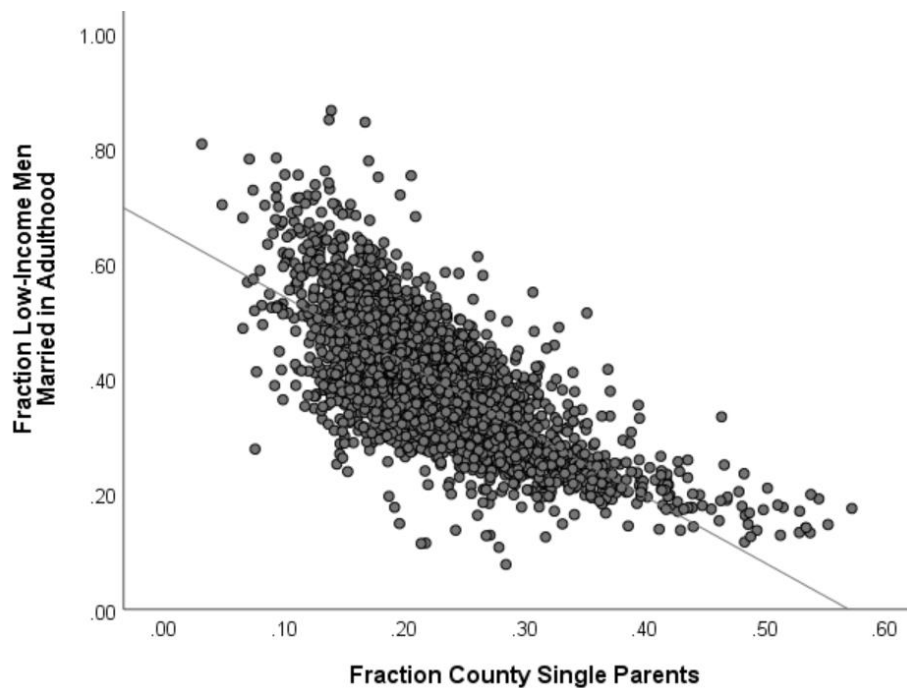
Charlotte County, VA	36.76	48
Fairfax city, VA	36.65	49
New Kent County, VA	36.38	50
Mathews County, VA	36.35	51
Pulaski County, VA	36.08	52
Fairfax County, VA	36.07	53
Gloucester County, VA	35.99	54
Fauquier County, VA	35.92	55
Frederick County, VA	35.90	56
Clarke County, VA	35.30	57
Loudoun County, VA	35.29	58
Albemarle County, VA	34.83	59
Galax city, VA	34.82	60
Greene County, VA	34.36	T-61
Middlesex County, VA	34.36	T-61
Cumberland County, VA	34.27	63
Stafford County, VA	33.86	64
Manassas city, VA	33.65	65
King George County, VA	33.62	T-66
Winchester city, VA	33.62	T-66
Henry County, VA	33.59	68
Culpeper County, VA	33.37	69
Pittsylvania County, VA	33.05	70
Hanover County, VA	33.04	71
Colonial Heights city, VA	33.01	72
Lexington city, VA	32.98	73
Waynesboro city, VA	32.67	74
King William County, VA	32.43	75
Arlington County, VA	31.98	76
Louisa County, VA	31.88	77
Orange County, VA	31.77	78
York County, VA	31.68	79
Accomack County, VA	31.61	80
Falls Church city, VA	31.60	81
Fluvanna County, VA	31.48	82
Lunenburg County, VA	31.37	83
King and Queen County, VA	31.28	84
Spotsylvania County, VA	30.91	85
Prince William County, VA	30.61	86
Radford city, VA	30.39	87
Chesterfield County, VA	30.13	88
Prince George County, VA	30.07	89
Prince Edward County, VA	29.96	90
Buckingham County, VA	29.94	91
Manassas Park city, VA	29.70	92
Amelia County, VA	29.51	93
Virginia Beach city, VA	29.23	94
Westmoreland County, VA	28.99	95
Nottoway County, VA	28.84	T-96
Lynchburg city, VA	28.84	T-96
Northampton County, VA	28.48	98
Lancaster County, VA	28.38	99
James City County, VA	28.10	100
Surry County, VA	28.01	101
Richmond County, VA	27.69	102
Halifax County, VA	27.62	103

Mecklenburg County, VA	27.39	104
Isle of Wight County, VA	27.36	105
Alexandria city, VA	27.01	106
Brunswick County, VA	26.64	107
Essex County, VA	26.51	108
Goochland County, VA	26.30	109
Roanoke city, VA	25.97	110
Hopewell city, VA	25.65	111
Fredericksburg city, VA	25.52	112
Chesapeake city, VA	25.51	113
Sussex County, VA	24.91	114
Hampton city, VA	24.90	115
Henrico County, VA	24.67	116
Caroline County, VA	24.61	117
Charlottesville city, VA	23.96	118
Newport News city, VA	23.60	119
Franklin city, VA	23.51	120
Danville city, VA	23.33	121
Southampton County, VA	22.99	122
Charles City County, VA	22.98	123
Williamsburg city, VA	22.15	124
Norfolk city, VA	21.10	125
Suffolk city, VA	20.80	126
Martinsville city, VA	20.70	127
Portsmouth city, VA	20.38	128
Greensville County, VA	19.91	129
Dinwiddie County, VA	18.55	130
Emporia city, VA	17.41	131
Richmond city, VA	14.79	132
Petersburg city, VA	14.73	133

Note: The marriage measure used here is the percentage of low-income men raised in these counties who were married in their mid-30s.

Source: Authors' calculations using Opportunity Insights (2021) data.

Figure 5. Association between County Single Parenthood Rate and Marriage.



Note: $r = -0.72^{***}$

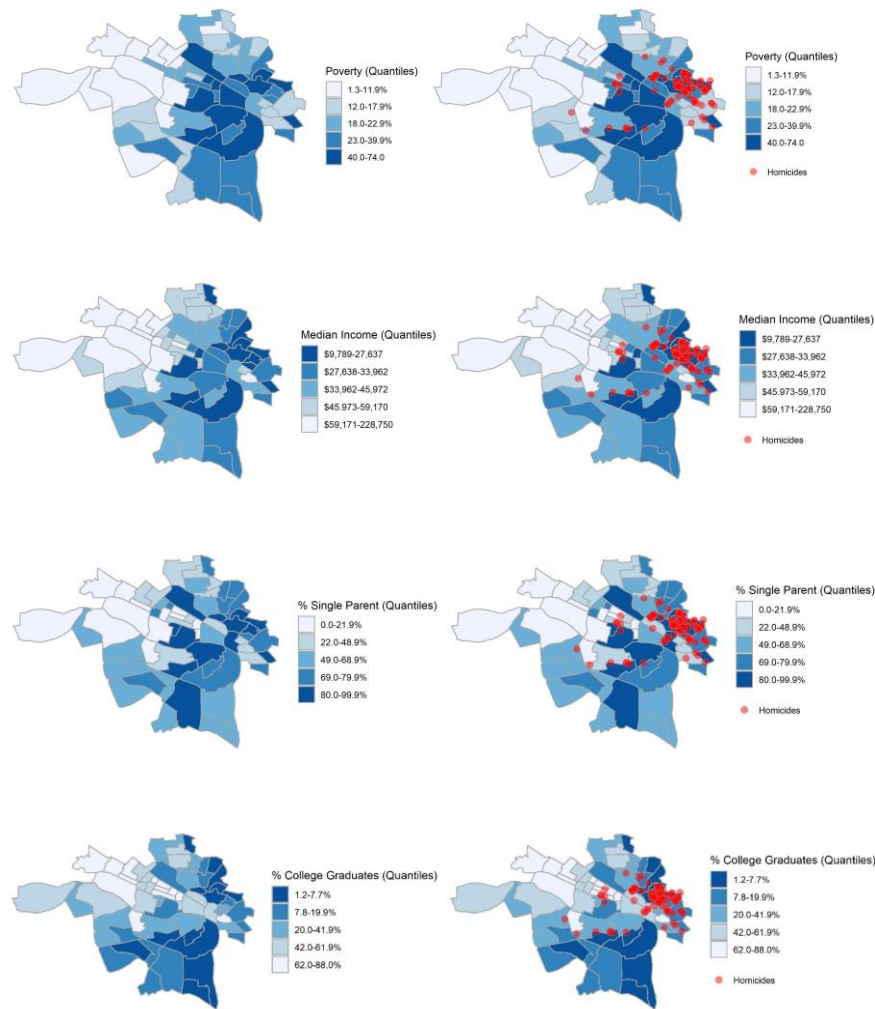
There was also significant inequality between counties in county characteristics. Table 8, for instance, demonstrates wide gaps across the state in county-level college completion (72 percentage point gap), poverty

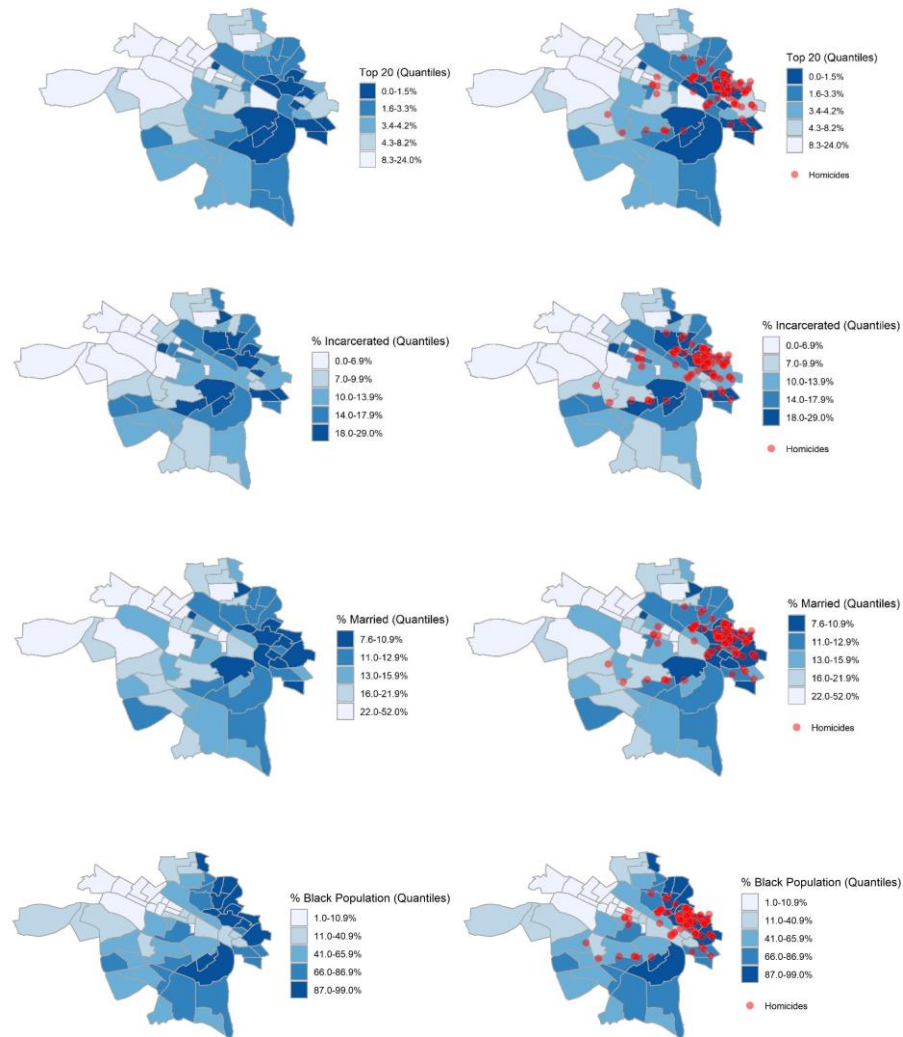
(41 percentage point gap), single parenthood (53 percentage point gap), household income (\$101,865 gap), and racial segregation (79 percentage point gap).

Inequality of Place and Violence

Figure 6 demonstrates the visible association between clusters of homicides and concentrated disadvantage across the city of Richmond, VA. The largest homicide clusters are in the easternmost portion of the city. This area also has high levels of poverty and single parenthood, low household income and college completion, and poor adult outcomes for low-income men (in terms of upward mobility, incarceration, and marriage). Additionally, this area has high concentrations of Black residents, reflecting racial segregation. In the much more advantaged westernmost portions of the city, there are notably no gun homicides.

Figure 6. Mapping Concentrated Disadvantage and Homicides in Richmond, Virginia





Source: Authors' calculations using LexisNexis (2020) and Opportunity Insights (2021) data.

Economic Cost of Child Poverty

Growing up poor reduces a person's earnings as an adult. Since Virginia's share of total GDP was 2.66% in 2015, we assigned 2.66% of the cost of reduced earnings from McLaughlin & Rank (2018) to find Virginia's share of this cost, which is \$7.81 billion (see Table 7). Child poverty also leads to increased street crime when poor children become adults. The state of Virginia was responsible for 1.32% of U.S. violent crime in 2015, so we assigned 1.32% of the cost of increased street crime from McLaughlin & Rank (2018) to find Virginia's share of this cost, which is \$2.65 billion.

Virginia was also responsible for 2.08% of U.S. health expenditures, 2.61% of the U.S. homeless population, and 2.06% of U.S. child maltreatment referrals in 2015, so we use those percentages to adjust the figures from McLaughlin & Rank (2018) to obtain costs of \$3.99, \$1.20, and \$0.83 billion for increased healthcare costs, homelessness, and child maltreatment, respectively. Finally, Virginia held 2.89% of state prisoners in the U.S. during 2015, so we assign 2.89% of the corrections costs and social costs related to incarceration from McLaughlin & Rank (2018), which yields corrections costs of \$3.54 billion and social incarceration costs of \$2.40 billion for Virginia.

Summing these costs yielded an aggregate cost of child poverty of \$22.43 billion for Virginia in 2015. When we adjusted this figure to 2019 dollars using the inflation calculator provided by the U.S. Bureau of Labor Statistics (2020), the resulting cost was \$24.37 billion, or about 42% of Virginia's operating expenses in 2019 (see Virginia Department of Planning and Budget 2020).

Table 7. Estimating the Economic Costs of Child Poverty in the State of Virginia.

U.S. cost description	U.S. cost (in billions)	Virginia's share	Virginia cost (in billions)
Reduced earnings	\$294.0	2.66%	\$7.81
Increased victimization costs of street crime	\$200.6	1.32%	\$2.65
Increased health costs	\$192.1	2.08%	\$3.99
Increased corrections and crime deterrence costs	\$122.5	2.89%	\$3.54
Increased child homelessness costs	\$96.9	1.24%	\$1.20
Increased social costs of incarceration	\$83.2	2.89%	\$2.40
Increased child maltreatment costs	\$40.5	2.06%	\$0.83
Total cost of child poverty in 2015	\$1029.8	-	\$22.43
Total cost of child poverty in 2019 (inflation adjusted)	\$1118.8	-	\$24.37

Source: Authors' calculations based using data from McLaughlin & Rank (2018).

Table 8. Summary of Inequalities in Virginia County Characteristics

	VA Average	Smallest	Largest
% college graduates	25.5%	8.5%	80.2%
Poverty rate	14.9%	2.7%	43.8%
Single parenthood rate	33.7%	14.7%	67.2%
Median household income	\$54,579	\$25,676	\$127,541
Fraction Black	19.6%	<1%	79.7%

Source: Authors' calculations using Opportunity Insights (2021) data.

Discussion & Conclusion

Previous research suggests that there is significant inequality of place in the U.S., and our results align with these previous findings. There were large gaps between counties in their characteristics, such as college completion (72 percentage point gap), poverty (41 percentage point gap), single parenthood (53 percentage point gap), household income (\$101,865 gap), and racial segregation (79 percentage point gap) (refer back to Table 8). In terms of low-income men's adult outcomes, there were major inequalities between counties in upward mobility (high of 21% and low of less than 2%), college completion (48% versus 0%), incarceration (0% versus 14%), household income (\$42,142 versus \$18,317), and marriage (55% versus less than 15%) (refer back to Tables 1 and 3-6).

Previous research suggests that neighborhood- and community-level characteristics are strongly associated with these outcomes, and our results align with these previous findings. Single parenthood was particularly impactful—despite the presence of several control variables in the multiple linear regression models, single parenthood still had the largest Beta value in the upward mobility, household income, and incarceration models,

and was almost as impactful as household income in predicting marriage.²⁸ This is consistent with the seminal work of Chetty and his colleagues (2014), which found single parenthood to be the variable most strongly associated with mobility across U.S. commuting zones. Other county level characteristics that were particularly impactful in our regression models were college completion (predicting upward mobility and college completion), household income (household income and marriage), and racial segregation (incarceration) (refer back to Table 2).

Previous research suggests that violence tends to erupt in areas of concentrated disadvantage in the U.S., findings which align with our mapping of homicides and concentrated disadvantage in Virginia's capital city of Richmond. There was visible overlap between clusters of homicides and high levels of poverty, single parenthood, and racial segregation, low household income and college completion, and poor adult outcomes for low-income men (upward mobility, incarceration, and marriage). There were no homicides in the much more advantaged westernmost portions of the city (refer back to Figure 6).

As previous research also suggests, the cost of childhood poverty in Virginia is significant. According to our analysis, allowing child poverty to persist costs the state billions of dollars in the resulting decrease in potential adult earnings and increase in costs related to crime/incarceration, health, homelessness, and maltreatment (refer back to Table 7).

In summary, (a) major inequalities of place are apparent in the state of Virginia, (b) these inequalities likely have a significant influence on the unequal life chances of children raised in the state, (c) these inequalities are likely associated with one's likelihood of violent crime involvement and victimization, and (d) economic deprivation is economically costly to the larger society, not just disadvantaged individuals themselves.

Author Bios

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²⁸ There are a variety of reasonable responses one might have to our findings concerning single parenthood, including (a) whether this blames single parents for their children's outcomes, or (b) whether this could be a spurious relationship. On the first question, our research does not offer much clarity. We can speculate based on previous research, however, that while single parenthood is in part a personal decision within the control of those involved, it is also in part a result of forces outside of one's control. The difficulties of forming and maintaining relationships amidst concentrated disadvantage (economic insecurity, unemployment, failing institutions, crime, mass incarceration, etc.), for instance, are well-documented—for just a few examples, see McLanahan & Sandefur 1994, Hays 2003, Edin & Kefalas 2005, and Hertz 2006. On the second question, there are a variety of unmeasured dimensions of disadvantage that could be confounding variables. The ones we did include in our models (such as poverty), however, did not change the fact that single parenthood was an important factor. If poverty was simply 'lurking in the background' and boosting the perceived impact of single parenthood on children's outcomes when measured in a bivariate manner, then the impact of single parenthood should have dropped considerably or been statistically insignificant in the multivariate models, but that did not happen. Furthermore, previous research supports the notion that single parenthood is disadvantaging independent of other variables that might be related, such as income and education (Hymowitz 2006; Chetty et. al. 2014; Kearney & Levine 2017). Kearney and Levine (2017), for instance, found a marriage premium at various ages and educational attainment levels. And Chetty and his colleagues (2014) found that not only were community single parenthood rates strongly correlated with upward mobility for all low-income children, but they were also strongly correlated with upward mobility for low-income children who themselves grew up in married-parent households.

Theresa Ward is an undergraduate student at [Shippensburg University](#).

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