Social Structure, Space, and the Dynamics of Income Inequality

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Abstract

This dissertation explores the consequences of rising income inequality for different aspects of social life in the United States. Across three disparate domains, it shows that some of the most pressing social problems are tightly intertwined with the stretching of the US income distribution. Chapter 1 shows that rising income inequality overall is a central reason that there has not been more progress towards reducing the racial income gap between African Americans and whites over the last five decades. Since the Civil Rights Movement, the ratio of median black to median white income has remained almost perfectly constant. But as I show, this seeming consistency in fact hides two opposing trends. During this time the gap in income rank between blacks and whites narrowed by about 30 percent. But that convergence was counteracted by rising inequality overall, which disproportionately benefitted the richest, and most disproportionately white, members of society. If the overall level of income inequality had remained as it was in the 1970s, the gap between blacks and whites would have shrunk by one-third.

Chapter 2 shows that rising income inequality nationally is a key driver of economic divergence between regions of the United States. Since 1980, a handful of metropolitan areas have pulled away from the rest of the country in terms of average income. Most previous attempts to explain this regional divergence attribute it to income sorting. But I show that rising

inequality at the national level has played a much larger role. Because people have always been unevenly distributed across regions with respect to income, the overall growth in inequality nationally has had different effects in different places. This effect, not increased sorting, in fact accounts for the majority of the overall divergence in regional incomes.

Chapter 3 considers the relationship between income inequality, especially at the top of the distribution, and social exclusion. Drawing on theories of relative poverty and social exclusion, it argues that people can be meaningfully excluded from full participation in their society if they have insufficient economic resources. It then argues that the standard absolute and relative measures of poverty used in the United States stop short of measuring the full amount of economic exclusion present in the US today because they do not account for the trickle down effects of rising top incomes on consumer markets and the variation in cost of living that derives from regional divergence.

Together, these three chapters demonstrate the pervasive and wide-ranging effects of rising income inequality, and specifically how the stretching of the income distribution interacts with existing patterns of stratification to exacerbate some of the most pressing social challenges facing the United States today.

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Introduction

Over the past four decades, the amount of economic inequality in the United States has increased dramatically. The richest 1% of the population in 2014 took home more than 16% of the total post-tax national income, up from about 8% in the 1970s (Piketty, Saez, and Zucman 2017). The statistics for wealth inequality are even more striking: the wealthiest 1% of the country now holds between 30% and 40% of the total wealth in the United States (Saez and Zucman 2016; Smith et al. 2019) while the poorest 60% of the population combined has less than 10% of national wealth (Leiserson, McGrew, and Kopparam 2019). Economic inequality has become one of the signature political issues of our time, underlying everything from the Occupy Wall Street movement to the rise of Bernie Sanders and Alexandria Ocasio-Cortez.

The reasons for the growth in inequality have been the subject of enormous debate, especially in the last 10 years. Throughout the 1990s and 2000s, the most commonly provided explanation was "skill-biased technological change:" it was believed that after several mid-century decades in which advances in technology on balance made lower-skilled workers more productive relative to higher-skilled ones, technology developed since the 1980s—most notably, the rise of the personal computer—tended to benefit higher-skilled workers, especially college-educated ones (Autor 2014; Goldin and Katz 2010). As demand for college-educated workers increased, the story goes, they were able to secure and the gap in wages by education level grew.

Even in the 1990s, the view that technology was the main driver of rising inequality was subject to considerable doubt (Morris and Western 1999). The technological change itself was typically inferred from the residuals in regression models, not observed directly. Further, considering that demand for college-educated workers was thought to be the primary avenue

through which new technology increased inequality, it was always anomalous that large numbers—going back to the 1990s, roughly 30% of college graduates have consistently worked in jobs that don't require a college degree (Abel, Deitz, and Su 2014; Hecker 1992; Horowitz 2018). If demand for college-educated workers is going up, why haven't these graduates been hired? The development of income tax records as a source of data to study inequality, meanwhile, showed that by far the largest increase was not between high-school and college-educated workers, but between the 1% and everyone else. When new data were brought to bear on the question of income inequality, it became clear that scholarship focused on wage differences by education had been missing the main story.

Today, the most promising explanations for the rise in economic inequality are political and institutional rather than technological in nature (Hacker and Pierson 2010). They point to specific changes in US politics—above all, the rise of the business lobby in the 1970s—and the policy changes they induced. Some of the specific policies that were adopted at the behest of organized interest groups include the lowering of top marginal tax rates (Piketty, Saez, and Stantcheva 2014); the relaxation of antitrust enforcement and resulting concentration in labor and supplier markets (Azar et al. 2018; Wilmers 2018); and the decline of the labor movement (Western and Rosenfeld 2011).

The institutional view helps explain why inequality has risen more dramatically in the US than in Western Europe (Alvaredo et al. 2017), and why the vast majority of the gains have gone to the top 1%—exactly the group represented by the business lobby. It also highlights that the rise of economic inequality was in large part an exogenous, policy-driven shift rather than an inevitable, endogenous consequence of economic growth or technological development. On the one hand, this is an optimistic view, because it implies that the right policies could put the genie

back in the bottle. On the other hand, it suggests that addressing the problems of economic inequality will require deeper political changes, a daunting prospect.

In addition to trying to understand the causes of rising inequality, many scholars over the years have attempted to determine the effects of inequality on various social and economic outcomes. Cross national studies have explored the relationship between the level of income inequality in a country and the average levels of relative income mobility (Corak 2013; Krueger 2012), crime (Elgar and Aitken 2011; Fajnzlber, Lederman, and Loayza 2002; Kennedy et al. 1998), and health outcomes (Bor, Cohen, and Galea 2017; Lynch et al. 2004; Truesdale and Jencks 2016), among other topics. Most of this research has centered on what Truesdale and Jencks term the "indirect" effects of inequality: changes in society resulting from rising inequality that are not simply the aggregate effects of changes in who has how much money.

In this dissertation, I take an alternative approach to identifying the effects of rising inequality on US society. Rather than focusing on the indirect effects of income inequality, I study the "direct" effects of income inequality: how changes to the income distribution directly change the amounts of money different people and groups have access to, and how these changes aggregate up to the societal level. Each of the three empirical chapters of this dissertation considers the direct effects of rising inequality in the United States on a different social outcome: racial income disparities, regional economic divergence, and economic exclusion.

In each of these three topics, previous research has primarily approached the question through the lens of stratification (Zhou and Wodtke 2019). That is, researchers have assumed that the primary driver of the disparities I study is that some groups of people consistently occupy higher positions in the economic ladder, while other groups occupy lower positions. In racial inequality, stratification manifests itself as whites occupying distinct and higher

occupational positions compared to African Americans, or getting paid more for the same work. In regional development, it manifests as income sorting across metropolitan areas. The question explored by stratification research is what processes—racial discrimination, educational inequality, network hiring, selective migration, agglomeration economies—result in the creation and maintenance of these hierarchies.

Here I focus on the role of inequality itself rather than stratification: changes to the shape of the income distribution instead of changes in who occupies what position. I show across these three domains that even if stratification were held constant, the concentration of income at the top of the distribution can itself produce adverse outcomes. Specifically, I show that the concentration of income among the very rich is a core contributor to the persistence of the black-white income gap and the growth of economic disparities between metropolitan areas. Even holding stratification constant—that is, if there had been no change in the amount of racial discrimination, educational inequality, or income sorting across metro areas—the rise of the 1% would have been sufficient in itself to induce many of the trends in these areas since 1980.

Chapter Outline

In each of the three empirical chapters that follow this introduction, I show how the stretching of the US income distribution has directly contributed to the worsening of a major social problem, independent of any changes in stratification.

Chapter 1, "Income Inequality and the Persistence of Racial Economic Disparities," shows how rising inequality at the national level has contributed to the persistent black-white income gap. The ratio of median black to median white income in the United States has remained essentially unchanged since 1968, despite substantial political, social, and cultural

efforts to reduce racial inequality. In this chapter I show that this overall stability is in fact the result of two opposing trends that have largely canceled each other out. On the one hand, racial stratification has in fact decreased over the last 50 years. Whites still occupy higher positions in the income distribution than blacks on average, but the gap in rank terms has shrunk by about 30%.

Chapter 2, "The Contribution of National Income Inequality to Regional Economic Divergence," shows that rising income inequality nationally is a major driver of economic divergence between regions of the country. For decades up until the 1970s, poorer parts of the United States grew faster economically than richer ones, with the result that geographical income gaps became smaller. Since 1980, though, it is richer parts of the country have grown faster on average. Most previous research exploring this reversal has attributed it to increasing sorting by income across cities. But I show that even if there had been no change in how people are sorted, the growth of income inequality at the national level would still have resulted in more than half as much divergence as actually occurred. Sorting alone would have resulted in only a quarter as much divergence as occurred in reality.

Finally, Chapter 3, "Income Inequality and Economic Exclusion," considers how rising inequality, specifically among the very rich, can generate social exclusion. In this chapter I argue that people can be excluded from full participation in their society because they have too little money. I then show how the concentration of income at the very top of the distribution has trickle-down effects on consumer markets that can exacerbate this exclusion, even if incomes among the middle class do not fall themselves.

1

Income Inequality and the Persistence of Racial Economic Disparities*

Abstract: More than 50 years after the Civil Rights Act, black–white family income disparities in the United States remain almost exactly the same as what they were in 1968. This chapter argues that a key and underappreciated driver of the racial income gap has been the national trend of rising income inequality. From 1968 to 2016, black–white disparities in family income rank narrowed by almost one-third. But this relative gain was negated by changes to the national income distribution that resulted in rapid income growth for the richest—and most disproportionately white—few percentiles of the country combined with income stagnation for the poor and middle class. But for the rise in income inequality, the median black–white family income gap would have decreased by about 30 percent. Conversely, without the partial closing of the rank gap, growing inequality alone would have increased the racial income gap by 30 percent.

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The stubborn persistence of racial income disparities has been a core frustration of American social policy for the past 50 years (Bloome 2014; Bound and Freeman 1992; Wilson and Rodgers 2016). In 1968, shortly after the passage of the Civil Rights Act, the median family income of African Americans was 57 percent that of whites. In 2016, after almost 50 years of anti-discrimination legislation, attempts to equalize access to education, and cultural change, it was 56 percent.

The persistence of the racial income gap is puzzling in light of efforts to equalize employment opportunity and progress toward racial equality in other areas. Following the civil rights movement, the federal government created agencies charged with reducing racial disparities across a variety of contexts (Pedriana and Stryker 2017). Companies across the country created well-staffed offices dedicated to countering discrimination in the workplace (Dobbin and Sutton 1998) and were often sued when they fell short (James and Wooten 2006). Racial gaps in educational attainment and cognitive test scores declined (Jencks and Phillips 2011; Neal 2006; Ryan and Bauman 2016), as did disparities in non-economic outcome measures, such as life expectancy (Kochanek, Arias, and Anderson 2013). During this period, white racial attitudes toward blacks improved across many domains: acceptance of integration and intermarriage increased and beliefs in the categorical inferiority of blacks and the legitimacy of racial discrimination declined (Bobo et al. 2012).

A massive academic and policy literature has sought to determine what drives the racial income gap and why it has remained so intransigent over the past 50 years. Sophisticated audit studies have shown that racial discrimination remains a key force at all levels of the labor market (Gaddis 2015; Pager 2003). Regression-based decomposition analyses suggest that observable characteristics, such as work experience and educational background, play some role, although

the magnitude of their contribution is debated (Blinder 1973; Neal and Johnson 1996; Wilson and Rodgers 2016). Some portion of the gap is explained by occupational segregation, itself influenced by discrimination and pre-market factors (Hamilton, Austin, and Darity 2011; Tomaskovic-Devey 1993).

This chapter argues that one underappreciated driver of the racial income gap has been the shape of the income distribution itself. Over the past 40 years, there has been a dramatic increase in the share of economic resources going to the very wealthy combined with income stagnation for everyone else. This shift has disproportionately harmed African Americans, who remain overrepresented in the less affluent portions of the income distribution (Bayer and Charles 2018; Juhn, Murphy, and Pierce 1991; Wilson and Rodgers 2016).

Here, I quantify the effect of changes in the income distribution on black–white family income disparities by decomposing overall trends into changes in rank and changes in the income earned at each rank. I show that the steady ratio between median black and median white family incomes conceals two large and diametrically opposed trends. From 1968 to 2016, African Americans made real albeit incomplete progress up the income distribution; racial disparities in income rank narrowed by about 30 percent. But that moderate progress in rank terms was negated by changes to the national income distribution that reduced earnings among the poor and middle class compared to the very rich. Because African Americans remained disproportionately concentrated in those lower portions of the distribution, they bore the brunt of economic changes that have hurt low-income workers of all races. These two forces almost perfectly balanced each other such that the overall ratio of median (or mean) black to white family income remained roughly constant.

These findings provide cause for both optimism and pessimism. On the one hand, they suggest that African Americans were more successful in advancing economically than previously believed. Blacks did make real strides up the income distribution despite continued disparities in parental wealth (Nam et al. 2015; Oliver and Shapiro 1995), access to high-quality education (Darling-Hammond 1998; Kozol 1991; Orfield and Lee 2005), family structure (Bloome 2014), and treatment in the labor market (Gaddis 2015; Pager 2003). But just as they were working their way up the income distribution, the distribution itself was collapsing down around them. This meant that they were denied the economic rewards that previous groups of Americans received upon mass entry into the middle class. Their upward relative mobility has amounted to a rearguard action that merely prevented the exacerbation of an already large racial income gap. Moving forward, today's high levels of income inequality further encumber the difficult struggle for racial economic equality. Because the income distribution has become so unequal, each hard-won increase in relative status (outside the very top) now translates into a smaller absolute rise in income.

These results reemphasize the importance of jointly studying economic inequality and racial stratification. These two topics stand at the core of sociology, yet they are often studied in isolation. Scholars of racial stratification have focused their attention on disparities and gaps (Leicht 2008; Morris and Western 1999), neglecting the impact of larger shifts in the economy and the income distribution—what William Julius Wilson has called "indirect structural forces" (Smelser, Wilson, and Mitchell 2001; Wilson 2009). As I document, a major cause of racial disparities is cross-racial income stagnation. The results presented here underscore the insight held by generations of civil rights activists: racial inequality and economic inequality are

fundamentally intertwined (Jackson 1984; King 1968; Randolph 1966). Indeed, they are arithmetically inseparable.

Previous Research

Racial Income and Earnings Disparities

Numerous studies over the past two decades have documented that income and earnings gaps between African Americans and whites have either persisted (Blank 2001; Bloome 2014:2; Bradbury 2002; Smith 1993) or increased (Bayer and Charles 2018; Bound and Freeman 1992; Cancio, Evans, and Maume Jr 1996; Wilson and Rodgers 2016) since the 1960s, depending on the exact income measure used. During this period, there was a substantial though incomplete narrowing of the gaps in college attendance rates (Ryan and Bauman 2016), test scores (Jencks and Phillips 2011), and life expectancy (Kochanek et al. 2013). There were also considerable efforts on the part of the government and many corporations to promote racial equality (Dobbin and Sutton 1998; Pedriana and Stryker 2017). Given these more promising trends in other areas, much research on racial inequality has attempted to identify the mechanisms behind persistent income disparities.

Studies looking at individual labor market outcomes have proposed a variety of explanations for the persistent earnings gap. A common tactic is to decompose the overall disparity in earnings into differences in observable characteristics, such as education level or work experience, and differences in the returns to those characteristics (Blinder 1973; Oaxaca 1973). For instance, if the returns to education are different for blacks than for whites, that is considered evidence of discrimination (Darity 1998). Studies in this vein have found that observed differences in “pre-market” characteristics, such as years of schooling, standardized

test scores, and "soft skills" (which are, of course, to a large extent socially determined), explain some of the gap in wages (Moss and Tilly 1996; Neal and Johnson 1996), but that discrimination remains a major contributor to the earnings gap (Wilson and Rodgers 2016).

A second approach to understanding labor market disparities has been to explicitly test for discrimination. Studies in this vein conduct audit studies by responding to real job advertisements. They have consistently documented that black applicants are substantially less likely than whites with identical qualifications to be offered interviews or callbacks across a wide variety of settings (Bendick, Jackson, and Reinoso 1994; Bertrand and Mullainathan 2004), including both low-wage (Pager 2003; Pager, Bonikowski, and Western 2009) and high-qualification (Gaddis 2015) labor markets.

A third perspective looks at occupational segregation by race. These studies have shown that for the most part, blacks and whites hold very different jobs, and the jobs held by whites tend to be better (Hamilton et al. 2011; Tomaskovic-Devey 1993). This means that some of the racial income gap is due to differences in who gets which jobs. There is evidence that occupational segregation is decreasing and that blacks are entering high-status occupations at greater rates than in the past (Farley 1998; King 1992). Even within jobs, however, blacks tend to earn less than observationally similar whites. This pattern is more pronounced in higher-status occupations (Grodsky and Pager 2001; Huffman 2004).

A smaller number of studies have examined racial disparities in family income, which are the focus of this chapter. Family income captures the economic status of individuals more fully than do labor market outcomes on their own (Harding et al. 2005). It is affected by labor market outcomes but also by family structure—how many members families have and how many of them work (Martin 2006; Western, Bloome, and Percheski 2008). Racial disparities in family

income have remained roughly constant since the 1960s (Blank 2001; Bloome 2014; Isaacs 2007). Differences in typical family structure between African Americans and whites—most notably, the higher prevalence of single-parent families among African Americans—are believed to be a major reason for the lack of improvement (Bloome 2014; Isaacs 2007). Here, I argue that another important reason for the lack of progress is rising income inequality at the national level.

Extent and Sources of Rising Income Inequality

Racial progress, or the lack thereof, is not the only major social change in the United States of the past 50 years. Perhaps the most widely felt change has been the systematic tilting of the U.S. economy toward the rich. Real pretax incomes for the richest 1 percent of society have risen by a factor of 3 since 1970 while incomes for the poorer half of society have hardly budged (Piketty et al. 2017).

Importantly, income inequality appears to have risen within most major sub-groups of society simultaneously. Inequality has gone up for blacks and whites (Bayer and Charles 2018), men and women, high school and college graduates, and people across many age ranges (Lemieux 2006). It has also grown within occupations (Kim and Sakamoto 2008) and within family types (Martin 2006; Western et al. 2008). Though the changes vary in size for different social groups, this broad footprint suggests that the growth of income inequality is truly one nationwide trend and not a series of separate stratification processes. The concentration of income is a major departure from trends during the prosperous middle of the twentieth century. Growth during that time was broad based, with family incomes for all quintiles growing by more than 2 percent per year from 1947 to 1973. Since 1973, only the highest quintile has seen growth

of more than 1 percent per year, and the poorest quintile has seen incomes decline (Wilson 2000).

The takeoff in income inequality was well documented by the early 1990s (Levy and Murnane 1992; Tilly, Bluestone, and Harrison 1986). There has been considerable debate as to its sources. Perhaps the most prominent explanation has been skill-biased technological change. As typically formulated, this theory argues that changes in technology over the past 40 years have increased the demand for college-educated workers, raising their value in the labor market and thus their earnings relative to workers with a high school degree (Autor 2014; Autor, Levy, and Murnane 2003; Goldin and Katz 2010).

Skill-biased technological change has been extremely influential in informing policy and scholarship, but the hypothesis faces several challenging facts. Throughout the time when demand for college-educated workers is hypothesized to have been increasing, there has been a consistent oversupply of college graduates relative to the number of jobs requiring a college degree (Abel et al. 2014; Hecker 1992). Further, the observed changes to the income distribution do not fit those predicted by skill-biased technological change, which emphasizes the increasing gap between college-educated and high school–educated workers. Income growth was concentrated among the richest 1 percent, which is a much more select group than that of all college graduates (Piketty et al. 2017). Moreover, most of the rising college premium was created by a decrease in the real wages of high school–educated workers rather than an increase in the real wages of college graduates (Gottschalk 1997).

Alternative explanations for the increase in income inequality have emphasized institutional changes to the labor market and the economy at large that have reduced the bargaining power of the less affluent and increased the bargaining power of the very rich (Jacobs

and Dirlam 2016; Levy and Temin 2007; Volscho and Kelly 2012). These include the decline of the labor movement (Western and Rosenfeld 2011), lower minimum wages (DiNardo, Fortin, and Lemieux 1996; Lee 1999), decreasing enforcement of antitrust laws (Comanor and Smiley 1975; Khan and Vaheesan 2016), the lowering of trade barriers (Alderson and Nielsen 2002; Autor, Dorn, and Hanson 2016), and reductions in top income tax rates (Piketty et al. 2014). Each of these policies was a departure from the institutional framework of the mid-twentieth century, and many were actively pursued by organized interest groups starting in the 1970s, which is exactly when income inequality began to rise (Hacker and Pierson 2010).

Understanding the causes of rising income inequality is important because to the extent that the income distribution is shaped by political action, the income that accrues to any particular person is a function of political choices made by society as well as a function of one's own background and skills. If that is true, it makes conceptual sense to separate the labor market position of an individual—here operationalized as his or her rank in the income distribution—from the specific monetary income he or she earns and to analyze trends in each independently. That is the approach I take in this chapter.

The Relationship between Economic Structure and Racial Disparities

The potential interactions between overall economic structure and racial disparities have not gone unnoticed within sociology or economics. The interaction between macroeconomic shifts, segregation, and racial disparities forms a core pillar of the scholarship of William Julius Wilson (1978, 1987, 1996, 2009). Throughout his work, Wilson has emphasized the importance of "indirect structural forces," such as changes in the types of jobs available or the spatial locations of those jobs, in shaping racial disparities (Smelser et al. 2001). Although these forces

appear orthogonal to questions of racial inequality and do not necessarily have their origins in any racialized process, they have disproportionately harmed African Americans and other groups that are concentrated among the less affluent parts of society. Economists have also noted that changes to the overall economy may have different effects on different racial groups. African Americans are particularly affected by the business cycle, with boom periods—most notably the full-employment economy of the late 1990s—being especially good for black incomes and bust periods being especially bad (Freeman and Rodgers 1999; Wilson 2015).

The most direct predecessors to this chapter are studies that have found the national rise in income inequality to be a major contributor to the black–white earnings gap. Bayer and Charles (2018) applied methods that are similar to those used here to Decennial Census data to show that the median black–white earnings gap among working-age men has increased since 1980 and that the median rank gap has stayed constant since 1940, although rank disparities at higher income percentiles have narrowed. Like this chapter, they concluded that overall macroeconomic trends have had a major influence on racial income disparities.

A more common method, developed by Juhn et al. (1991), is to first perform a Oaxaca-Blinder decomposition of the overall change in disparities into changes in observable characteristics and changes in the returns to those characteristics. The residuals are further decomposed into changes in the position of blacks within the white residual distribution and changes in the spread of that distribution. The proportion of the total change falling into the last category—changes in the spread of the residuals for whites—is interpreted as the portion of the change due to rising inequality. Juhn et al. found that rising inequality explained almost all of the lack of racial convergence in the 1980s. Couch and Daly (2002) suggested that continued dispersion kept convergence in the 1990s smaller than it would have been otherwise. Bringing

the analysis forward to the present day, Wilson and Rodgers (2016) found that rising income inequality and continued discrimination are the two primary reasons for the continued lack of earnings convergence. In an exercise that anticipated the counterfactual portion of this study, Smith (1993) employed a statistical adjustment to control for the rise in inequality during the 1980s and estimated that without that rise the racial wage gap would have continued to decline through that decade.

The studies referenced here provide evidence for Wilson's claim that indirect structural forces are extremely influential in determining the relative fortunes of blacks and whites. Because African Americans remain—despite improvements, as I will show below—disproportionately concentrated in the lower portions of the income distribution, structural changes that harm all low-income people will also increase the gap between blacks and whites. This is a specific instance of a general principle that follows from Peter Blau's macrosociological theory of social structure (Blau 1974, 1977a, 1977b). Blau noted that individuals can be differentiated into nominal groups, such as race, and via graduated parameters, such as income. If nominal and graduated parameters are correlated, a change that occurs solely along the graduated parameter, such the pulling away of the top of the income distribution, will alter the relative positions of the nominal groups. Put another way, once racial inequality exists, increases in economic inequality will exacerbate racial disparities even if they are not rooted in explicitly racialized processes. Economic inequality and racial inequality are arithmetically inseparable.

To illustrate this phenomenon, consider Figure 1.1. It shows a hypothetical society at two points in time. The society has 10 members, who are equally divided into two nominal groups. Members of each group are found throughout the income distribution, but members of Group A

are more heavily concentrated toward the bottom, whereas members of Group B are weighted toward the top. The median Period 1 income of Group A is $8, and that of Group B is $11.

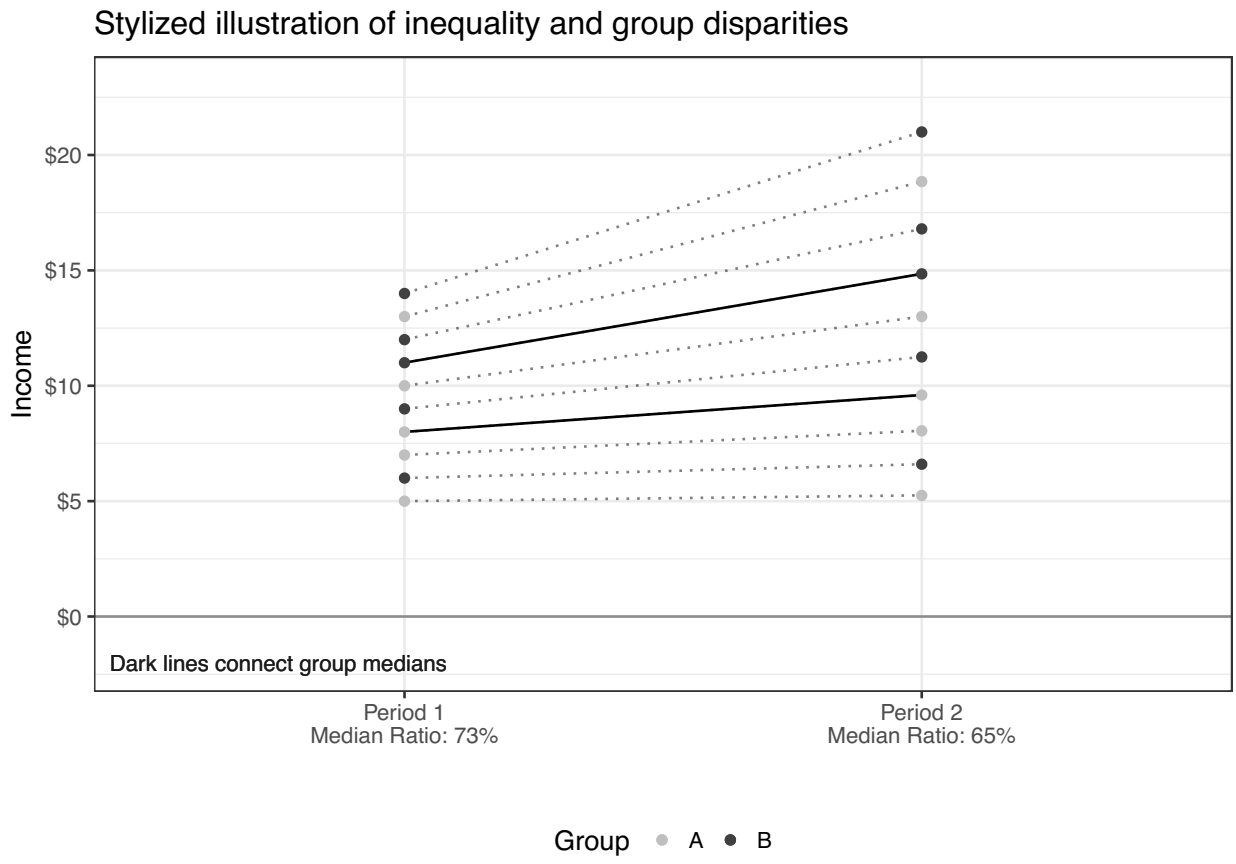

Figure 1.1. Rising income inequality can exacerbate cross-group disparities. As inequality rises from Period 1 to Period 2, the gap between the groups grows even though no further group-based stratification has occurred.

In Period 2, there has been a society-wide increase in inequality. Incomes have grown for everyone but by an amount that is proportional to rank. The income of the poorest person grew by 5 percent, whereas that of the richest grew by 50 percent. Note that the shift is rank preserving: everyone occupies the same position in the income distribution that they did before.

Nevertheless, the income disparity between groups has increased, with the ratio of group medians falling from 73 percent to 65 percent. The ratio of group means falls from 83 percent to 78 percent. Because group membership and income are correlated—even though that correlation is not perfect—shifts in the income distribution alone are enough to change the relative status of groups. No explicitly group-based process is required.

Data and Methods

This chapter studies black–white family income disparities for the years 1968 to 2016. Following a common practice in studies of stratification, I separately analyze the allocation of positions—here, ranks in the income distribution—and the assignment of rewards to those positions (Weeden 2002). This allows me to isolate changes in the income gap that are due to changes in the income ranks of blacks and whites from those that are due to changes in the shape of the income distribution.

I use microdata from the 1968–2016 Current Population Survey (CPS) March Supplement obtained from the Integrated Public Use Microdata Series (IPUMS) project (Flood et al. 2015). In my baseline specification, I analyze the annual pretax family incomes of all individuals. Families are defined as related individuals living together. This is distinct from households, which include all individuals living together even if they are unrelated. I also run specifications limiting to adults only and using household rather than family income. I do not normalize income by family size in the baseline, measuring the total economic resources that are available to each family. However, the results are robust to normalizing by the square root of family size, which is a common practice (Johnson, Smeeding, and Torrey 2005), and to normalizing by the total number of family members, which is extremely conservative.

In my baseline analysis, I identify as black all individuals who self-describe their race as black or African American only and do not identify their ethnicity as Hispanic.[1] Similarly, whites are defined as people who identify their race as white only and do not identify as Hispanic. In a supplementary analysis, I identify as black all individuals who report any African ancestry, including those who identify as mixed race and those who identify as Hispanic. I also perform a supplementary analysis limiting the sample to those born in the United States to two US-born parents.

I calculate income ranks by computing income percentiles for the entire national population, not just blacks and whites, although my results are robust to limiting the sample to blacks and whites only. Observations are weighted using the CPS survey weights. In cases in which a single income amount, such as $0, is held by more than 1 percent of people, I compute the median percentile falling in that range and assign it to all the individuals with that income. I exclude people reporting negative incomes from the analysis. All data used in this analysis are publicly available on the IPUMS website, and all the code used to conduct the analysis is publicly available on the author's website.

An advantage of the CPS is that income data are collected yearly, so it is possible to study trends in great temporal detail. However, the sample has a few major limitations. First, the CPS does not include individuals who are institutionalized— incarcerated, in mental institutions, or in homes for the elderly. Because a substantial proportion of black men in particular are in prison at any given moment and because the men likely to be incarcerated are also likely to have limited labor market success, the absence of the incarcerated population artificially reduces the estimated racial disparities (Western and Pettit 2005). This omission is problematic, although

[1] Data on Hispanic ethnicity is unavailable prior to 1971. For the years 1968 to 1970 I therefore include Hispanics who identify as black or white in those respective groups.

because my analysis considers family income for all individuals the bias should be smaller than it would be in a study of adult men. Further, the bias should affect ranks as well as income levels and thus not contribute greatly to the difference between the two measures, which is my primary interest. In an attempt to account for this possible bias, I conduct a supplementary analysis in which I calculate the institutionalization rate by race in the Decennial Census and add that population back into the CPS sample, assuming that all the people who are institutionalized earn less than the median for their race. This does not change the qualitative findings.

A second limitation of the sample arises because the CPS, like other surveys, has trouble gathering data on the lowest- and highest-income members of society (Bollinger et al. 2014). To the extent that the CPS misses rich individuals, who are disproportionately white, my estimates will understate the amount and thus the impact of income inequality. To the extent that it misses poor individuals, who are disproportionately black, it will overstate the amount of racial progress. Again, though, it should overstate progress in both rank and income terms, meaning that the discrepancy between the two should be affected less than either statistic on its own. Further, because I use median rather than mean incomes, the influence of outlying values is limited. This means that the top-coding of extremely high values does not bias the statistics I use. It also means that the effect of missing extremely high or low values is the same as that of missing any other observation above or below the median respectively.

Findings

The Remarkable Stability of the Racial Income Gap

I first replicate the previous finding that the racial income gap has remained remarkably stable over the past 50 years (Bloome 2014). Figure 1.2 plots the ratio of black to white mean

and median annual family and household income. The four lines are almost identical and perfectly flat: The median ratio for family income was 57 percent in 1968 and 56 percent in 2016. For household income, the median ratio dropped from 60 percent to 59 percent during this period. Mean ratios were similarly unchanging, and no statistic ever fluctuated more than a few percentage points from its average value. There has been very little change in the economic status gap between blacks and whites over the last 50 years.

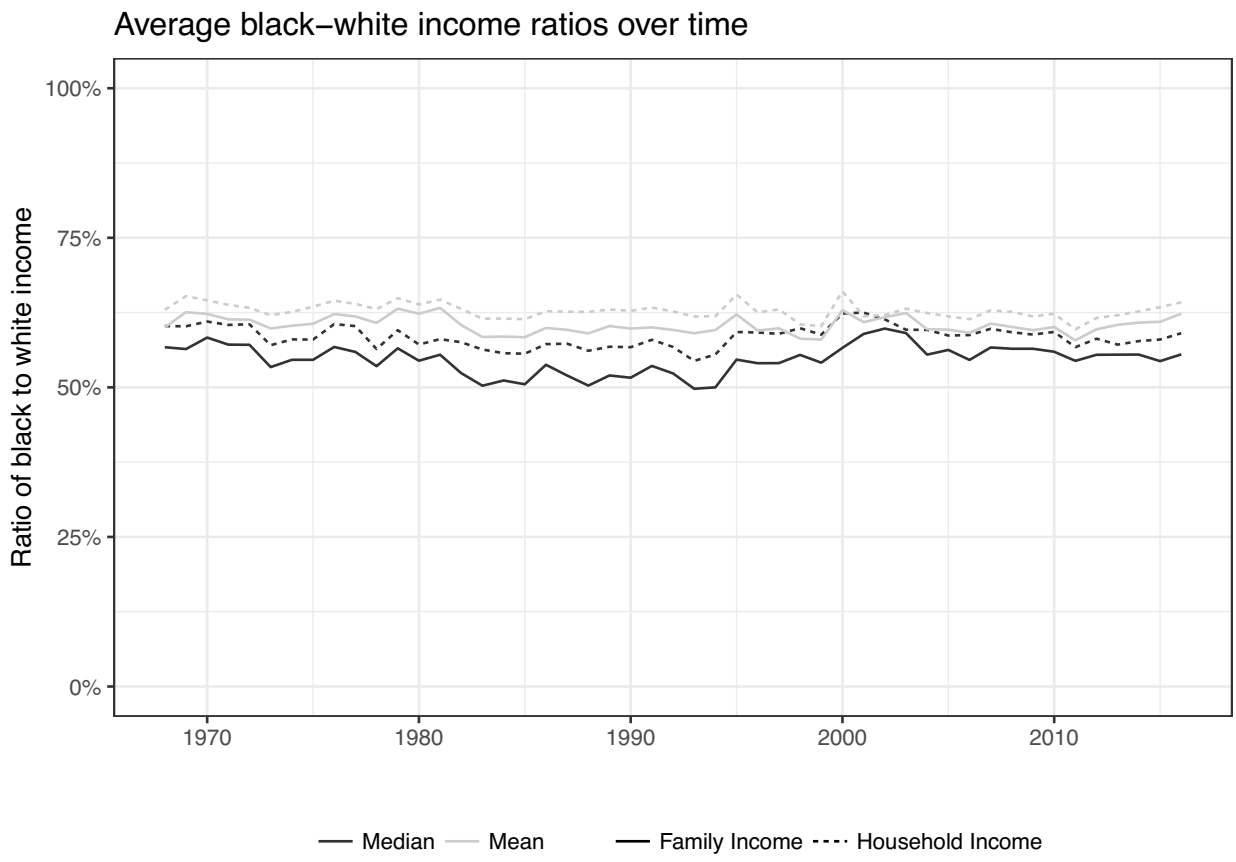

Figure 1.2. Median and mean black-white income ratios over time.

Rank Progress and Distributional Backsliding

The overall lack of change shown in Figure 1.2 is the product of two pronounced but diametrically opposed trends. African Americans have made progress in relative terms, occupying higher average ranks in the income distribution than they did in the 1960s (though the gap between whites and blacks remains quite large). But this progress has been counteracted by shifts in the overall income distribution that have disproportionately harmed the poor and middle class and thus African Americans.

These conflicting trends are illustrated in Figure 1.3. Focusing on total family income, Figure 1.3A first plots the overall black–white median income ratio from Figure 1.2. It is remarkably constant over the almost 50 years covered by these data. However, Figure 1.3B plots the median income rank of blacks over this time. Here, there is a marked increase: the median African American had a family income at the 25th percentile of the national distribution in 1968 but had climbed to the 35th percentile in 2016. In contrast, the median white family hardly shifted, going from the 54th percentile in 1968 to the 57th percentile in 2016 (not shown). As a result, the rank gap in family income between blacks and whites fell by 28 percent. This is not an overwhelming success, to be sure, but it is meaningful progress.

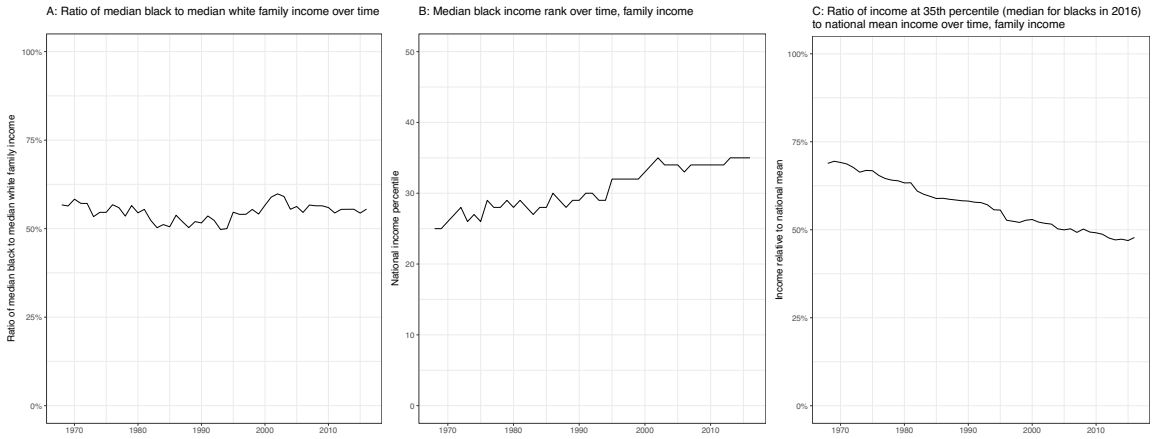

Figure 1.3. Median black-white family income ratio (A), median black rank (B), and income at the 35th percentile as a percentage of the national mean over time (C), 1968-2016.

Unfortunately, this moderate progress in relative terms was counteracted by changes to the income distribution that disproportionately harmed the less affluent. Figure 1.3C plots the ratio of family income at the 35th percentile of the national income distribution—the median rank of blacks in 2016—to the national mean family income from 1968 to 2016. It shows a dramatic decline. In 1968, an income at the 35th percentile meant a standard of living that was roughly 69 percent of the national average. In 2016, it meant one just 48 percent as large. Income at the 35th percentile fell by 31 percent relative to the country overall from 1968 to 2016, meaning that the reward that the median black family received for being at that position in 2016 was almost one-third lower than it would have been when the civil rights reforms were enacted. Perhaps most incredibly, family income at the 25th percentile in 1968 was 55 percent of the national mean in that year, meaning that despite being almost 50 percent higher in the national income distribution, the median black family earned a smaller percentage of the national mean income in 2016 than in 1968.

Importantly, income for the median white family also fell relative to the national mean during this time, but not by as much. Income at the 57th percentile—the median rank for whites in 2016—was about 99 percent of the national mean income in 1968. By 2016, it had fallen to 85 percent, which is a decline of 14 percent.

The qualitative result that the stagnant black–white median income ratio results from rank progress negated by distributional backsliding is robust to a wide range of income definitions and sample constructions. Alternate income definitions that I consider include household income, family income normalized by the square root of family size, and family income normalized by family size. Alternate sample constructions include limiting the sample to adults only to account for differences in fertility by race or class, limiting the sample to blacks and whites only, using an expanded definition of black that incorporates anyone claiming any African ancestry (including those who also identify as Latino or any other race), limiting the sample to only native-born U.S. citizens with two U.S.-born parents (in case immigrant blacks have higher incomes than native-born ones),[2] and adjusting for the institutionalized population.[3] These robustness checks are shown in Figure 1.4. In all cases, there was a marked increase in the median rank of African Americans in the national income distribution but a decline in the income associated with their final rank relative to the national mean.

[2] The CPS did not ask about nativity until 1994, so this analysis uses the baseline sample prior to that year.
[3] Because the CPS does not sample institutionalized populations, I use the Decennial Census and American Community Survey (ACS), which I also downloaded from the IPUMS project (Ruggles et al. 2015). I compute the overall institutionalization rate by race for each Census or ACS year and linearly interpolate between samples. I define as institutionalized those respondents who were in correctional facilities, mental institutions, or homes for the elderly. I then assume that the entire institutionalized population earns less than the median of their particular racial group and compute the overall statistics accordingly.

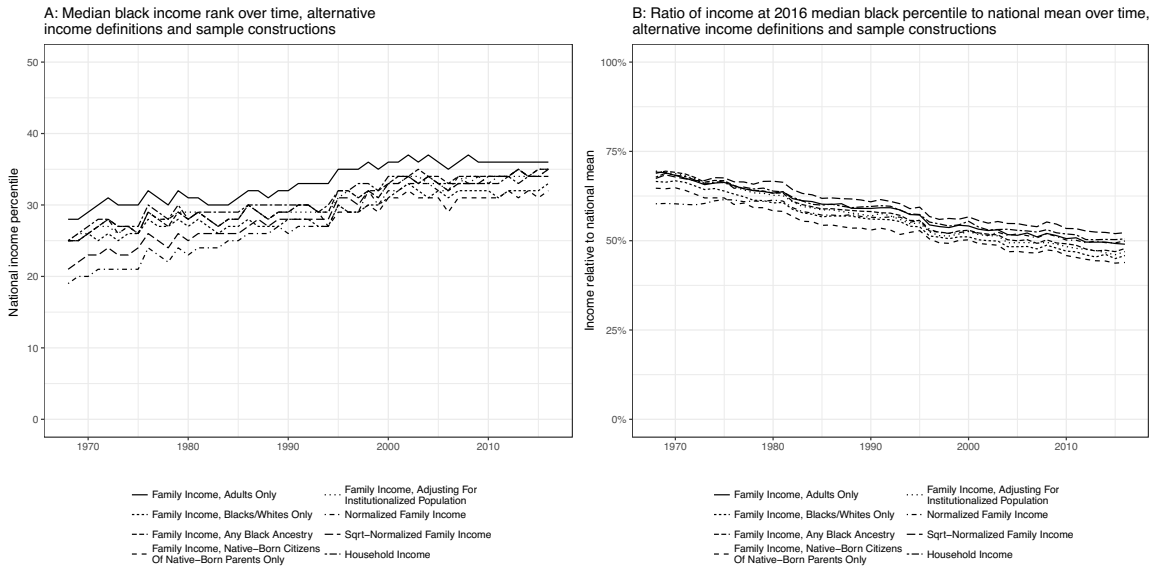

Figure 1.4. Alternative income definitions and sample constructions.

Trends across the Income Distribution

Broadening the scope from the median to the entire income distribution, Figure 1.5A shows changes in national family income rank at each decile of the black income distribution. Progress in rank terms was steepest in the middle of the distribution, with smaller progress at the very top and hardly any change for the 10th and 20th percentiles.

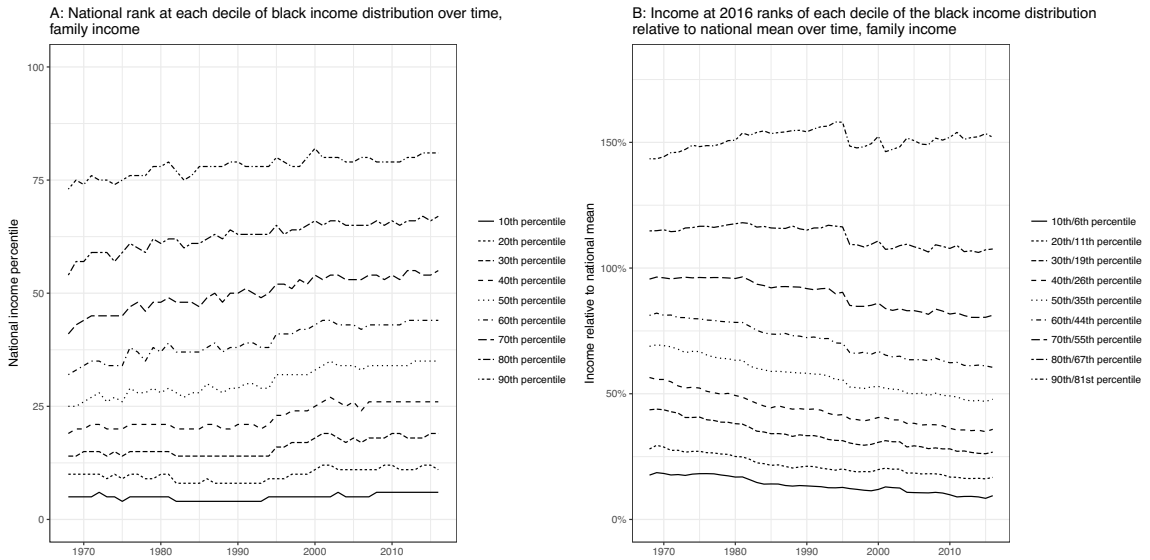

Figure 1.5. Trends in rank and incomes at each rank for each decile of the African American income distribution.

Figure 1.5B shows the incomes associated with the final ranks as a percentage of national mean income over time. For instance, the 90th percentile of the black income distribution was at the 81st percentile of the national income distribution in 2016. So the top line in Figure 1.5B shows income at the 81st percentile relative to the national mean over time. Figure 1.5B makes clear how much the changing income distribution has harmed African Americans. Only the richest 10 percent of African Americans ended up in the small portion of the distribution in which incomes rose relative to the national mean over the past 50 years. The poorest 70 percent were in portions of the distribution in which income shares contracted substantially. Because whites are richer than average (in 2016, 12.0 percent of whites but only 4.4 percent of blacks were in the richest income decile, meaning whites were 2.71 times more likely than blacks to belong to this select group), a decrease in income relative to the national mean also translated to a decrease relative to whites as a group.

Quantifying the Effect of the Changing Distribution

What would have happened to racial disparities if income inequality hadn't gone up? To determine this, I construct a counterfactual scenario in which I hold the income of each percentile relative to the national mean constant at its 1968 value. I then allow African Americans to progress up the income distribution as they did in reality and re-compute the black–white median income ratio for this hypothetical scenario. The results are shown in Figure 1.6A. If the income distribution had remained stable, the black–white median family income ratio would have risen from 57 percent to 70 percent, closing 30 percent of the gap. Black–white income disparities would still be present in a world without rising income inequality, but they would have narrowed meaningfully over the past 50 years.

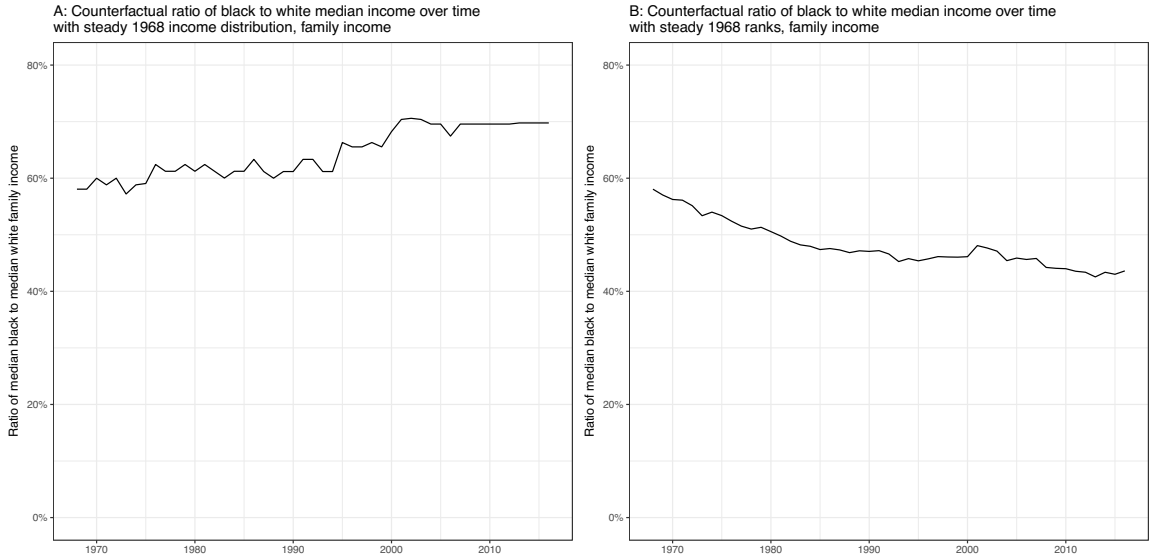

Figure 1.6. Counterfactual simulations.

Figure 1.6B explores the opposite scenario: what if the income distribution had changed, but blacks had not made the relative progress described above? Here, I plot the ratio of the 25th percentile of family income to the 54th percentile— the median black and white ranks in 1968, respectively—over time. If African Americans had not made relative progress, changes to the income distribution alone would have decreased the ratio of median black to white family income from 57 percent in 1968 to 44 percent in 2016. It is only because of relative progress that the racial income gap did not get much worse.

In sum, the remarkably steady black–white family income ratio of the past 50 years is the product of two opposing trends. Blacks made substantial though incomplete progress in rank terms, with the median African American moving from the 25th percentile of family income to the 35th percentile. But these gains were counteracted by the national trend of rising income inequality, which resulted in a much larger share of the national economic pie going to the richest few percent of the country, who remain disproportionately white. If the income distribution had remained constant, almost one-third of the racial income gap would have closed during this period. Without the progress in rank terms, the gap would have risen by 30 percent.

Discussion

Large racial gaps in living standards have persisted in the decades since the civil rights movement. In 1968, the median family income among African Americans was 57 percent as large as that among whites. In 2016, the ratio was 56 percent. This racial gap in living standards has hardly budged despite real if incomplete progress in reducing racial gaps in college attendance and high school achievement (Jencks and Phillips 2011; Ryan and Bauman 2016).

In this chapter, I have shown that the near-perfect stability in overall black–white income ratios is the result of two large but diametrically opposed trends. On the one hand, African Americans have made meaningful progress up the income distribution. The median African American had a family income at the 25th percentile of the national distribution in 1968 and had climbed to the 35th percentile in 2016. A similar upward trajectory in rank terms occurred throughout the African American income distribution. This improvement is limited, certainly, but it is not nothing.

However, these relative gains were offset by changes to the income distribution that allocated a much smaller share of the national income to the poor and middle class, in which African Americans were and continue to be disproportionately concentrated, and a much larger share to the top 10 percent and especially the top 1 percent—the portions of the distribution that remain the most disproportionately white. As the very rich absorbed larger and larger shares of the economy, the middle class slid back, reducing the payoff in dollars that was associated with progress in rank. These two forces almost perfectly balanced each other, resulting in hardly any net change in black–white income ratios.

It is important to note that the mechanism I have described based on rising inequality at the national level operates distinctly from racial differences in family structure, which also contribute to racial disparities in family income. Previous research has documented that differences in family structure between whites and blacks are a major reason for the continued presence of racial disparities in family income (Bloome 2014; Isaacs 2007). But this trend cannot explain the phenomenon described here. Racial differences in family structure contribute to the rank gap between blacks and whites because they result in African Americans clustering in family structures, such as single-parent families, with systematically lower incomes than the

family structures that are more common among whites. Despite these differences in family structure, I have shown that there was a net decrease in the black–white rank gap in family income from 1968 to 2016. Because of rising inequality, however, that progress in rank terms did not translate into similar progress in dollars.

These findings for family incomes based on the Current Population Survey largely corroborate recent work using Decennial Census data to show the importance of structural changes to the economy for black–white earnings disparities among working-age men (Bayer and Charles 2018). In contrast to the trends for working-age men, for whom the median gap in ranks remained roughly stable during my sample period while the gap in dollars increased, my analysis of family income shows a narrowing of the rank gap combined with stability in the dollar gap. This difference may indicate that trends in racial income disparities among women are more positive than those among men. My results also align with previous research suggesting that overall rises in inequality have played a large role in maintaining black–white wage gaps (Couch and Daly 2002; Juhn et al. 1991; Wilson and Rodgers 2016) and that wage rank stratification between blacks and whites has declined since 1980 (Zhou 2012).

My results present reasons for both optimism and pessimism. On the one hand, they document small but real progress toward racial economic equality. This progress, insufficient as it is, has been underappreciated by commentators on all sides who have observed the stubborn persistence of racial income disparities. There was meaningful, if limited, convergence in the economic experiences of blacks and whites over the past 50 years. This suggests that some combination of equal-opportunity legislation, school desegregation, cultural changes, and sheer persistence on the part of African Americans resulted in real progress up the income distribution (albeit not yet to parity with whites).

On the other hand, this relative economic progress has meant little in terms of actual dollars. Because middle-class incomes have stagnated while upper-class and especially elite incomes continue to skyrocket, the movement of unprecedented numbers of blacks into the middle class occurred just as the fortunes of that group were fading. The result was that the black–white income gap stayed constant when it would have fallen by almost one-third if the income distribution had remained stable.

In addition to essentially negating the last five decades of slow racial progress, the skewed income distribution will reduce the benefits of any future relative gains. Any increase in the relative economic rank of blacks compared to whites will translate into a smaller increase in their relative incomes except to the extent that they are able to penetrate the most elite strata of U.S. society. The uphill climb toward racial parity is now steeper than it was when the Civil Rights Act was passed.

For sociologists, these results lend renewed urgency to previous calls to give greater attention to the effects of structural changes in the economy on racial economic outcomes (Leicht 2008; Morris and Western 1999; Wilson 2009). Much sociological research on racial inequality has focused, with good reason, on the extent and consequences of prejudice and discrimination (see the reviews in Pager and Shepherd 2008; Quillian 2006; Reskin 2012). Often, these studies have focused on the allocation processes that create and reproduce racial stratification. Here, I have documented a situation in which racial groups are becoming less stratified— there is more overlap in the family income distributions of blacks and whites today than there was in 1968— and yet macroeconomic changes to the income distribution have negated these gains.

Beyond studies of racial inequality, work in sociology has been critiqued for focusing on individual actions at the expense of broader social structures in ways that lead to incomplete

understanding of social phenomena (Mayhew 1980; Watts 2014). The theoretical mechanism explored here—that once groups are stratified, their relative positions can be altered by facially neutral processes, as suggested by Blau's macrosociological theory of social structure (1974, 1977a, 1977b)—is relevant in many social contexts. For example, such a process is a primary reason why the U.S. gender pay gap remains larger than those in other developed countries (Blau and Kahn 1996; Mandel and Semyonov 2005).

For citizens and policymakers, my results emphasize the importance of the second front in the battle for racial equality that many political leaders (Randolph 1966; Jackson 1984; King 1968) and academics (Darity and Hamilton 2012; Henderson 1976; Wilson 1999) have advocated over the years. To be sure, efforts to reduce discrimination and ensure that blacks and whites are equally prepared for the labor market should continue at full speed. They appear to have had some effect but can be nowhere near complete because blacks at every level of the skill and occupational hierarchy have economic outcomes similar to whites who are one or several notches below them (Grodsky and Pager 2001; Hamilton et al. 2015; Oliver and Shapiro 1995). But such efforts should be paired with universal efforts to unskew the income distribution and reverse the "winner-take-all" nature of the current U.S. economy (Hacker and Pierson 2010). A reorientation of the economy back to the needs of ordinary Americans will help the poor and middle class of all races while reducing economic disparities between blacks and whites.[4]

In addition to reducing current racial disparities, unskewing the income distribution will multiply the effect of any further relative racial progress because the monetary returns to each incremental increase in rank will rise dramatically. It should also lay the groundwork for a

[4] This is true unless such a reorientation is done in a white supremacist way. Successful reorientations of the economy toward the middle class in the past were deliberately targeted to avoid helping African Americans even as they lifted up the rest of the country (Katznelson 2005).

further narrowing of the rank gap: parental and community economic resources are major drivers of child success (Duncan and Brooks-Gunn 1999; Sharkey 2013), and interactions across racial groups as relative equals are one of the best-known ways to reduce prejudice (Allport 1979; Pettigrew and Tropp 2000).

Equally important, an agenda of reversing income stagnation and ending the winner-take-all economy presents ample opportunity for political coalitions (Wilson 1999). Many people of all races have been harmed by the economic shifts of the last 40 years. These changes have created a generation of children who are no better off on average than their parents were (Chetty et al. 2017), undermined the institution of marriage (Autor, Dorn, and Hanson 2017; Wilson 1996), and likely contributed to an epidemic of "deaths of despair" among those left behind (Case and Deaton 2015, 2017). In this chapter, I have shown that progress toward racial equality also numbers among the casualties.

2

The Contribution of National Income Inequality to Regional Economic Divergence*

Abstract: After more than a century of convergence, the economic fortunes of rich and poor regions of the United States have diverged dramatically over the last 40 years. Roughly a third of the US population now lives in metropolitan areas that are substantially richer or poorer than the nation as a whole, almost three times the proportion that did in 1980. In this chapter I use counterfactual simulations based on Census microdata to understand the dynamics of regional divergence. I first show that regional divergence has primarily resulted from the richest people and places pulling away from the rest of the country. I then estimate the relative contributions to regional divergence of two major socioeconomic trends of recent decades: the sorting of people across metro areas by income level and the national rise in income inequality. I show that the national rise in income inequality is sufficient on its own to account for more than half of the observed divergence across regions, while income sorting on its own accounts for less than a quarter. The major driver of regional economic divergence is national-level income dispersion that has exacerbated preexisting spatial inequalities.

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Regions of the United States are pulling apart. In 1980, almost 90 percent of the US population lived in metropolitan areas whose mean family incomes were within 20 percent of the nation as a whole. By 2013, that share had fallen below 70 percent. The fraction of Americans living in metros that were exceptionally rich or exceptionally poor had almost tripled in 30 years. This divergence is a reversal after more than a century during which the poorest parts of the country caught up economically to the rest (Amos 2014; Ganong and Shoag 2017a). As cities like San Francisco, New York City, and Washington, DC pull away from the rest of the country, it becomes increasingly difficult to speak of one American standard of living.

Regional income divergence is a major economic and social challenge for the United States. It makes formulating federal economic policy difficult, since one federal budget and interest rate must meet the needs of rich and poor regions simultaneously (Schleicher 2017). It may also contribute to the country's large regional variation in upward mobility rates (Chetty et al. 2014), since the economic conditions of children's communities strongly affect their prospects in life (Sharkey 2013; Sharkey and Faber 2014). More fundamentally, divergence contributes to a lack of social and political cohesion, as the material interests of different parts of the country diverge and their residents come to see themselves as having less and less in common (Beramendi 2007, 2012).

The aim of this chapter is to determine the nature of the processes driving regional income divergence. Most scholarship on regional divergence, rooted in the traditions of economic geography and urban economics, has emphasized the ability of some places to outperform others in a global economic competition, one exacerbated by federal policy changes in the late twentieth century (Harvey 1989; Rodríguez-Pose and Gill 2004). Some accounts stress the ability of certain places to attract talented individuals based on lifestyle or economic

opportunity (Florida 2002, 2005; Moretti 2012), while others describe how some communities are better able to come together to solve their collective problems, resulting in not just more consistent but also more equitable growth (Benner and Pastor 2012, 2015; Storper et al. 2015). In both accounts, the result is the stratification of metro areas by income, as the thriving and struggling portions of the modern economy are sorted into increasingly disjoint sets of cities.

In this chapter I draw on insights from urban and rural sociology to explore an alternative explanation: that regional divergence largely results from the spatially disparate effects of a single national-level trend. As cities were becoming more stratified by education and income after 1980, the distribution of economic resources was also becoming much more skewed. The share of national pre-tax income going to the richest 1 percent of Americans has almost doubled since 1975, while the incomes of the poorer half of the population have hardly budged in real terms (Piketty et al. 2017).

Prevailing explanations for rising inequality attribute it to national or global changes in technology (e.g., Goldin and Katz 2010) and institutions (e.g., Hacker and Pierson 2010). These changes are typically described in aspatial terms. But regions of the United States have long been stratified economically (Lobao 2016; Tickamyer and Patel-Campillo 2016; Weber and Miller 2017). Because different income groups are unevenly distributed across the country, national changes will have spatially uneven effects. Like a wave that washes over an uneven landscape, leaving behind deep pools in some areas and shallow puddles in others, the same macro-level social trend can have very different impacts on different areas depending on how people are distributed across space.

Previous research has documented this general phenomenon in settings including the concentration of poverty (Massey 1990), incarceration (Sampson and Loeffler 2010), and

deindustrialization (Autor, Dorn, and Hanson 2013). The intuition behind it was perhaps best captured by Massey (1990), who used simulations to show that the combination of racial and class segregation would concentrate the effects of a national economic downturn into specific neighborhoods. He showed that in a hypothetical city completely segregated by race and class, a 2.5 percentage point increase in the overall poverty rate would coincide with a 20 percentage point increase in the poverty rate of poor black neighborhoods. When places are highly stratified, small macro shifts can have immense local consequences.

In the spirit of Massey, this chapter uses simulations to investigate the relative importance of income sorting and income inequality as drivers of regional economic divergence. After documenting the extent to which regional disparities have widened over the past 40 years, I use counterfactual simulations to show that this divergence is almost entirely driven by the richest people and places: there has been very little regional divergence, at least as typically measured, among the poorest 90 percent of the population. Further simulations show that regional divergence is primarily attributable to the national rise in income inequality. If income inequality had remained constant at 1980 levels, the observed income sorting would have resulted in just 23 percent as much divergence as actually occurred. In contrast, even if there had been no income sorting whatsoever, growth in income inequality would have produced 53 percent of the observed divergence on its own. Income sorting has played a role in driving regional divergence, but income inequality has played a larger one.

More broadly, this chapter highlights how spatial inequality of any type can exacerbate itself. The presence of some initial amount of inequality across geographic areas will make those areas differentially susceptible to macro trends in ways that will often cause their fortunes to further diverge. This dynamic is not unique to space: it can occur in any instance where people

are sorted unevenly across units—that is, in any social structure with a strong correlation between graduated and nominal parameters (Blau 1974, 1977a, 1977b). Once that correlation is established, the exacerbation of inequality along the graduated parameter will further increase the distance between nominal groups. The spatial implications of this are particularly counterintuitive, because it means that changes in spatial patterns do not have to be driven by an explicitly geographical process. Since all social processes are spatially situated, even seemingly aspatial developments will often have distinct spatial profiles.

Previous Research

Regional Divergence: Theory and US Empirical Trends

Theorists are divided about whether regions will tend to converge or diverge economically over time (Chakravorty 2014). Neoclassical economic theory predicts that the free movement of people and capital will lead to economic convergence across regions over time (Barro and Sala-i-Martin 1992). In the absence of barriers to movement, workers and investors are expected to flock to prosperous areas, competing down wages and investment returns there while lessening competition in the places they leave. This migration is predicted to continue until income or utility is even across space (Glaeser and Gottlieb 2009).

Other theorists argue that regions will economically diverge over time unless this tendency is explicitly countered, as initial advantages of location and happenstance build on themselves and create economies of agglomeration and scale that let a few lucky regions pull further and further away from the rest (Hirschman 1958; Myrdal 1957). Initially dominant regions may also use their political and economic power to exploit more peripheral regions, entrenching uneven development (Chakravorty 2014; Lipton 1977).

The history of the United States has encompassed prolonged periods of both convergence and divergence. From the late 1800s until the 1980s, there was substantial economic convergence between regions of the country, with initially poor states growing on average about two percentage points per year faster than initially rich ones (Barro and Sala-i-Martin 1990, 1992). Since the 1980s regional convergence has stalled, with little correlation between initial income and subsequent growth (Ganong and Shoag 2017a). The total amount of cross-sectional variation across states began increasing in the late 1970s (Amos 1989; Fan and Casetti 1994).

Given that both convergence and divergence have occurred in the historical experience of the United States, the question for researchers is what forces explain the reversal from convergence to divergence over the last 40 years.

Previous Explanations for the Current Round of Regional Divergence: Individual Sorting, Community Efficacy, and Federal Policy Devolution

The regional divergence of the last 40 years has attracted renewed scholarly interest since the 2016 presidential election, particularly from scholars in regional science, urban economics, and economic geography (Storper 2018). Although they differ in their specifics, most of these accounts fundamentally portray regional divergence as a stratification process in which high- and low-income residents are increasingly found in different cities from one another. Some accounts focus on the location decisions of individuals, arguing that increased sorting of people across regions by human capital or income is the primary reason certain cities have pulled away from the pack (Ganong and Shoag 2017; Moretti 2012). Other accounts stress community-level factors, arguing that some regions have been able to succeed because they have strong social ties and the capacity to solve collective problems (Benner and Pastor 2015; Storper et al. 2015).

Finally, a number of accounts have pointed out that the consequences of regional stratification have increased, because changes to national economic policy have raised the stakes of economic competition between regions (Harvey 1989; Rodríguez-Pose and Gill 2004).

Explanations at the individual level have emphasized the increasing geographical concentration of college-educated workers. Beginning around 1980, cities began to polarize in their educational profiles. In this "Great Divergence" (Moretti 2012), cities that already had large numbers of highly educated workers attracted or trained still more, while those that had fewer to start with failed to keep up (Berry and Glaeser 2005; Giannone 2017). Many rural towns experienced a brain drain as their brightest students left, rarely to return (Carr and Kefalas 2009).

One set of explanations for this concentration focuses on the attraction of skilled workers to certain places. Some researchers argue that the concentration is driven by labor demand (Diamond 2016; Storper and Scott 2009), while others emphasize the role of lifestyle considerations, particularly for the most well-compensated individuals (Clark et al. 2002; Dahl and Sorenson 2010; Florida 2002). Further accounts highlight the role of networks and social norms that funnel elite graduates specifically to certain jobs and cities (Binder, Davis, and Bloom 2015; R. Manduca 2019).

Other explanations for increased sorting emphasize barriers that limit the ability of people to leave economically struggling areas and enter thriving ones. Limitations on housing supply, whether natural impediments like oceans and mountains or policy choices like zoning regulations, drive up the cost of living in desirable areas and make it difficult for the less affluent to live there (Ganong and Shoag 2017a; Gyourko, Mayer, and Sinai 2013). There are also numerous legal barriers to interstate migration, including state occupational licensing schemes, public benefit systems, and property laws (Schleicher 2017).

The common thread of these individual-level explanations for regional divergence is the geographic sorting of people by skill or income. These accounts argue that regional fortunes are diverging because high-income people increasingly live in one set of cities while low income people live in another. As this stratification has increased over time the economic prospects of these two types of cities have drifted apart.

A second thread of research emphasizes processes at the metropolitan or community level that determine whether regions succeed or fail economically. These studies focus less on the question of overall divergence explored in this chapter and more on the related question of what regional characteristics predict economic success. Their overarching finding is that successful regions are those where diverse local actors are connected to each other in the same "epistemic community" and can collectively solve problems (Benner and Pastor 2015; Duncan 1999; Storper et al. 2015). One important finding is that at the regional level there is very little tradeoff between growth and equity: regions that grow more consistently often have more equitable outcomes (Benner and Pastor 2012, 2015).

Both individual sorting and community effectiveness are compelling as descriptions of why some regions have outperformed others economically. But they are less successful as explanations for why economic variation across regions has increased on the whole. In focusing on the process of economic competition between regions and the regional stratification it produces, they tend to downplay the historical and political processes that determine the consequences of regional stratification and create the playing field upon which regions compete.

Research in the political economy tradition describes how the conditions for the current wave of regional divergence were fostered by national policy changes in the late 20th century. Starting in the 1970s, the US and other developed countries shifted from more centralized

economic policies that saw uneven development as a problem to be solved towards decentralized policies that encouraged entrepreneurial governance at the local and regional levels (Agnew 2000; Brenner 2004; Harvey 1989). In the United States, where policy was already more decentralized than in most European countries, this took the form of the "New Federalism" (Nixon 1969). It involved sharp reductions in funding for regional development agencies (Glasmeier and Wood 2005), declining federal fiscal transfers to local governments (Pacewicz 2016), and the increasing use of block grants to states rather than the national administration of welfare programs (Powers 2000; Schram and Soss 1998). At the same time, financial deregulation and declining antitrust enforcement created a wave of corporate mergers that dramatically reshaped the employment landscape in many cities (Longman 2015; Pacewicz 2015, 2016).

This federal retreat left regions on their own to compete for investment and spur economic growth. As a result, local governments became much more entrepreneurial in promoting economic development, fundamentally altering local politics (Harvey 1989; Pacewicz 2015, 2016). But a likely consequence of this increased competition is a divergence in the fortunes of winning and losing regions (Rodríguez-Pose and Gill 2004).

Changes in federal policy since the 1970s created room for regional fortunes to diverge from one another to a greater extent than in the mid-20th century. They coincided with another national trend with regional implications: rising income inequality.

Rising National Income Inequality and its Implications for Regional Disparities

The rise in income inequality is perhaps the most momentous social and economic change of the past 40 years. Since 1975 the vast majority of US economic growth has been

captured by the richest people in the country, while incomes for the poorer half have stagnated. The richest 0.1 percent of Americans now make roughly as much each year as the poorest 50 percent (Piketty et al. 2017). Importantly, inequality has risen simultaneously within race, age, gender, occupation, and education groups (Bayer and Charles 2018; Kim and Sakamoto 2008; Lemieux 2006), suggesting that it is best understood as a macro trend rather than a combination of various stratification processes.

Theories abound as to why the United States has become so unequal. The canonical explanation in the economics literature is skill-biased technological change, which in its most common form posits that technologies developed in recent decades have increased the demand for college-educated workers (Autor 2014; Goldin and Katz 2010). However, this explanation has difficulty accounting for empirical trends in earnings at different income and skill levels (Gottschalk 1997) and the demand for college-educated workers (Abel, Deitz, and Su 2014; Hecker 1992). Other explanations argue instead that rising income inequality stems from institutional changes—perhaps driven by the rise of the business lobby in the 1970s (Hacker and Pierson 2010)—that have eroded protections for workers at the bottom of the income distribution while maintaining or increasing protections for those at the top (Stiglitz 2015; Weeden and Grusky 2014). These changes include declines in the minimum wage (Lee 1999), decreasing levels of unionization (Western and Rosenfeld 2011), reductions in trade barriers (Autor, Dorn, and Hanson 2016), more widespread occupational licensing (Weeden 2002), and lower top marginal tax rates (Piketty, Saez, and Stantcheva 2014).

Most proposed explanations for the rise in income inequality operate at the national or global scale. Nonetheless, there is reason to expect that the effects will be felt differently in different places. Because people live in places, and because people are distributed unevenly

across places with respect to income or any other social characteristic, changes in the distribution of income among people will necessarily change the distribution of income across places.

The phenomenon that macro-level shifts have spatially concentrated effects has been documented across a wide range of social domains. Possibly the most famous demonstration is Massey's simulation showing how segregation by race and class will magnify the effects of economic downturns, creating large increases in the poverty rates of specific neighborhoods from even relatively small national fluctuations (Massey 1990). The rise in mass incarceration since the 1970s has similarly fallen disproportionately on a few specific neighborhoods of concentrated disadvantage (Sampson and Loeffler 2010), and even on a small number of "Million Dollar Blocks"—single city blocks where more than $1 million is spent incarcerating residents each year (Kurgan et al. 2012). Although the policy choices leading to rising incarceration rates were made at the national, state, or city level, the effects have been concentrated in particular neighborhoods.

At the regional level, increasing automation and trade with China are not inherently spatial processes, but their effects have been felt unevenly across the United States (Autor, Dorn, and Hanson 2013, 2016). Changes in industry market concentration have also been hypothesized to have effects that vary across regions (Longman 2015; Urzúa 2013).

There are reasons to expect that the national trend of rising income inequality has a similarly varied spatial profile. The United States has always had substantial geographic variation in income levels, even during periods of regional convergence (Lobao 2016; Tickamyer and Patel-Campillo 2016). These patterns have been extremely durable, particularly in rural areas: the US Department of Agriculture has identified more than 300 "persistently poor" rural counties, many of which have been persistently poor since at least the 1950s (Glasmeier 2002;

USDA Economic Research Service 2017; Weber and Miller 2017). The US also has considerable subnational variation in the amount of local income inequality, driven by both economic structure and institutions (Lobao and Hooks 2003; Moller, Alderson, and Nielsen 2009; Peters 2013).

It would not be surprising if rising inequality at the national level interacted with this persistent economic unevenness to exacerbate regional disparities. This chapter seeks to determine the relative importance of this process compared to the income sorting processes described above.

Conceptual Separation of Income Sorting and Income Inequality

Scholars of stratification often find it helpful to analytically separate the allocation of people into jobs or positions from the assignment of reward packages to those positions (Weeden 2002). A similar distinction can be made between the allocation of ranks in the national income distribution to cities and the assignment of rewards to those ranks—that is, the level of income inequality. To illustrate how both sorting—here defined as the extent to which people at the same percentile of the national income distribution are found in the same cities as one another—and inequality can contribute to regional divergence, consider the hypothetical country shown in Figure 2.1. The country has two cities and a mean national income of $10. At start, in panel A, incomes in City A are symmetrically distributed around a mean of $8, while incomes in City B are similarly distributed around a mean of $12.

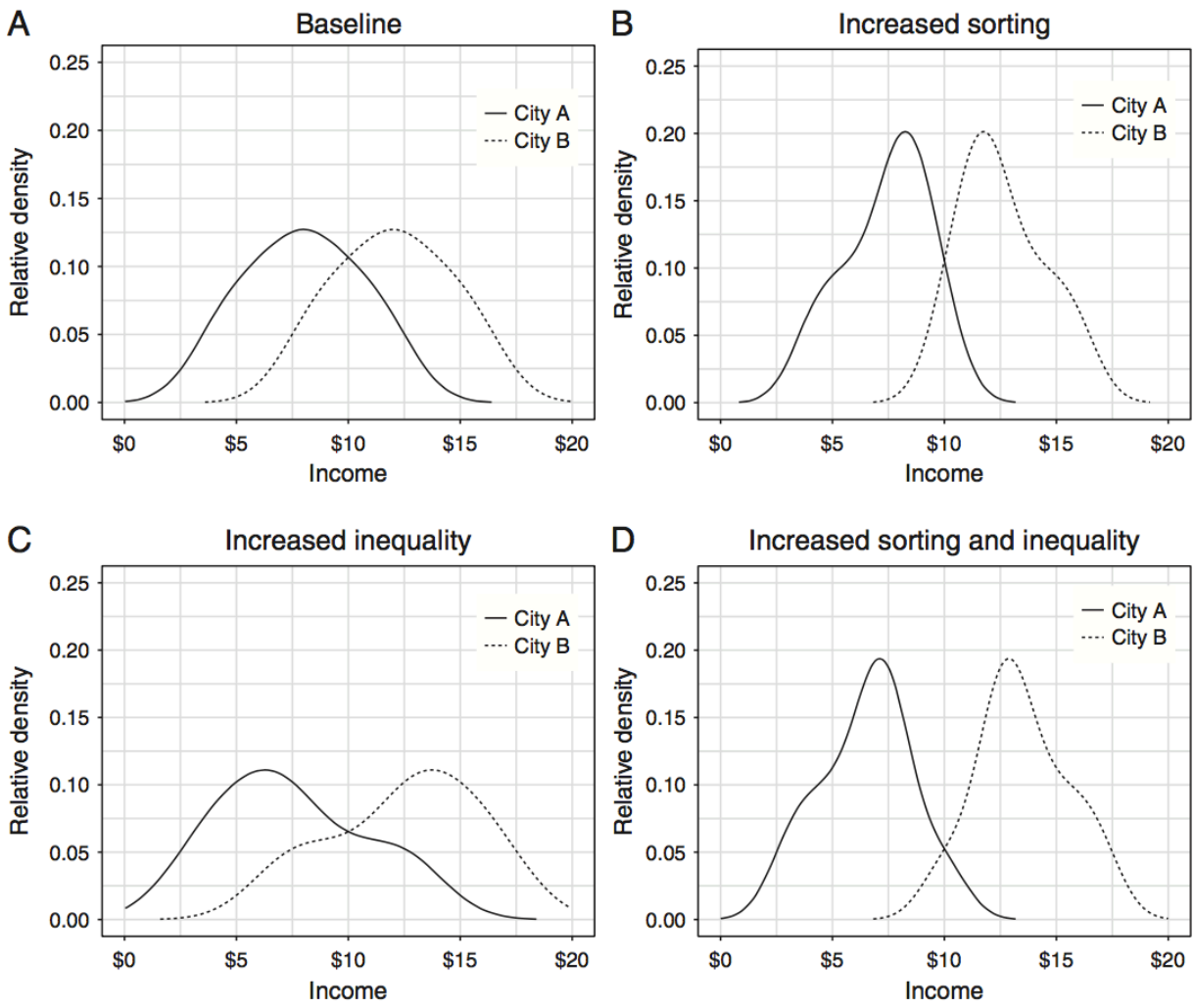


Figure 2.1. Hypothetical regional divergence scenarios.

Panel B shows the income distributions of the two cities after an episode of income sorting. The overall distribution for the country has stayed the same, but people have moved such that high-income residents overwhelmingly live in City B while low-income residents now live in City A. In the language of Weeden, the allocation of positions—here ranks in the national income distribution—across cities has changed, but the income associated with each position has not. This sorting could be a result of high-income people moving from City A to City B, as documented in the United States by Moretti (2012). Or it could result if City B proves

increasingly superior to City A at creating and sustaining good jobs, along the lines described by Benner and Pastor (2012, 2015). As is clear in the graph, this sorting substantially reduces the amount of overlap in the two distributions, and decreases the amount of income inequality within each city. It also leads to divergence in the mean incomes of the two cities, with the mean income in City A falling to $7.40 and the mean income in City B rising to $12.60.

Panel C shows what would happen to the two cities with no sorting but an increase in income inequality at the national level—if the set of positions in each city does not change but the rewards at each position do. This stretching of the national income distribution is implemented by subtracting $1 from the income of everyone in the country making less than $10 and adding $1 to the income of everyone earning more than $10. The mean national income stays at $10, but incomes are now more polarized. Here the two distributions show more overlap than in panel B, and there is more inequality within each city, but the peaks are further apart than in either of the previous two panels. Mean incomes diverge by an amount comparable to panel B, with the mean income of City A falling to $7.50 and that of City B rising to $12.50. Importantly, a study that looked only at mean incomes would have difficulty distinguishing the sorting process in panel B from the stretching process in panel C, even though the mechanisms underlying the two cases and the resulting city income distributions are quite different.

Of course, income sorting and income inequality can increase at the same time, with even greater effects on regional income disparities. This is shown in panel D, which implements the changes from panels B and C simultaneously. In this case, interaction between sorting and inequality creates divergence greater than in the previous two scenarios combined. Because the rich are both richer and more geographically concentrated, they pull the incomes of City B up

much more than in either previous scenario. The same process happens in City A with the poor, with the result that the mean income of City A falls to $6.50 while that of City B rises to $13.50.

The relative importance of these two mechanisms is an empirical question that depends on the initial distribution of positions across cities and the amount of change in both the location and rewards of each position. That is the question I seek to answer here.

Data and Methods

In this chapter I combine descriptive analysis of trends in various measures of regional economic divergence within the United States from 1980 to 2013 with counterfactual simulations to estimate the relative importance of income sorting and income inequality in driving this divergence.

Unit of Analysis

The proper unit of analysis for this study is the metropolitan area, consisting of a core city or cities and the surrounding suburbs. A metro area forms one cohesive unit with its own regional economy. An analysis conducted at the county level would be too fine-grained, since many counties consist primarily of wealthy suburbs whose incomes are generated in nearby cities. An analysis at the state level would be too coarse since it would lump together cities with very little in common, economic or otherwise (New York City and Buffalo share little except for a state government, for example). In my primary analysis I define metro areas using the 1990 Commuting Zones created by the US Department of Agriculture (Tolbert and Sizer 1996). Commuting Zones are defined as collections of counties linked by substantial flows of commuters. I use Commuting Zones rather than Metropolitan Statistical Areas because they

cover rural areas in addition to urban ones, and I apply the 1990 Commuting Zones for all years of data so that the boundaries are consistent over time. My results are robust to the use of MSA definitions instead.

Data

I use Census microdata for the 1980, 1990, and 2000 Decennial Censuses and the 2006–2010 and 2011–2015 American Community Surveys (which I will refer to using the middle years 2008 and 2013 respectively), provided by IPUMS (Ruggles et al. 2015). Because of non-response bias the Census, like other surveys, tends to underreport income among the very rich and very poor (Bollinger et al. 2014).[5] However, the Census data breaks out income by person, which is necessary for my counterfactual analysis.

Construction of Regional Income Distributions

I construct Commuting Zone income distributions using Census microdata. Publicly available microdata are not identified with the county or metro area of residence but are instead matched to County Groups in the 1980 Census and Public Use Microdata Areas (PUMAs) from the 1990 Census forward. To match these to metro areas I adopt the methodology of Dorn (2009), weighting individual Census records by the proportion of their PUMA's population that falls into a given Commuting Zone as calculated using the Missouri Census Data Center's Geographic Correspondence Engine (Missouri Census Data Center 2012). Unless otherwise stated all calculations using Commuting Zones are weighted by population in the year observed.

[5] The total proportion of GDP accounted for in the Census during my sample period ranges from 77.9 percent in 1980 to 62.0 percent in 2013.

In my primary analysis I use family income, which reports the total before-tax income from all sources of spouses and children living under the same roof. The results are similar when using household income or adult male income. Results for adult women (and for all adults) are less consistent, likely because their labor force participation rate rose substantially but spatially unevenly over this time period.

Measure of Income Divergence

There are two types of metric commonly used to measure the convergence and divergence of regional incomes: "sigma divergence" and "beta divergence" (Barro and Sala-i-Martin 1990). Both metrics are constructed at the national level to measure whether average incomes across regions are converging or diverging over time. The more straightforward is sigma divergence, which measures cross-sectional dispersion among regions. A typical measure of sigma divergence is the population-weighted coefficient of variation of per capita income, which divides the standard deviation of per capita income across states or metros by the mean level (Amos 1989; Williamson 1965). Alternative, non-parametric measures include the inter-quartile range or the 10–90 range, both of which measure the difference between high and low percentiles as a percentage of the mean value.

While sigma divergence looks at the difference across regions at one point in time, beta divergence measures the extent to which poor regions catch up to rich ones over a period of years or decades. This compensates for the possibility of fluidity in the relative position of different regions, where rich regions as a category might be pulling away even as the specific regions who qualify as "rich" change over time. Because beta divergence controls for possible changes in rank, it is the most common divergence metric used in economics (Barro and Sala-i-

Martin 1992; Baumol 1986; Ganong and Shoag 2017a). I show below (Figure 2.4) that regional income ranks were reasonably stable during this period, so here I use sigma divergence as my primary measure because of its greater temporal resolution. My results are robust to the choice of divergence measure.

In the following sections I first replicate previous work showing the marked divergence in regional incomes since 1980. I then show that most of this divergence was driven by changes affecting the richest families and the richest metro areas. Finally I estimate the contributions of sorting and rising income inequality using counterfactual simulations.

Regional Income Divergence, 1980–2013

Metropolitan economic fortunes have diverged substantially since 1980. Figure 2.2 plots sigma divergence across Commuting Zones over time in mean and median family income for a variety of parametric and non-parametric measures (coefficient of variation, standard deviation of log income, inter-quartile range, and 90–10 range). All measures show a substantial increase in dispersion since 1980. The coefficient of variation of mean family income across Commuting Zones increased by more than 50 percent during this time, while that of median family income increased by 33 percent.

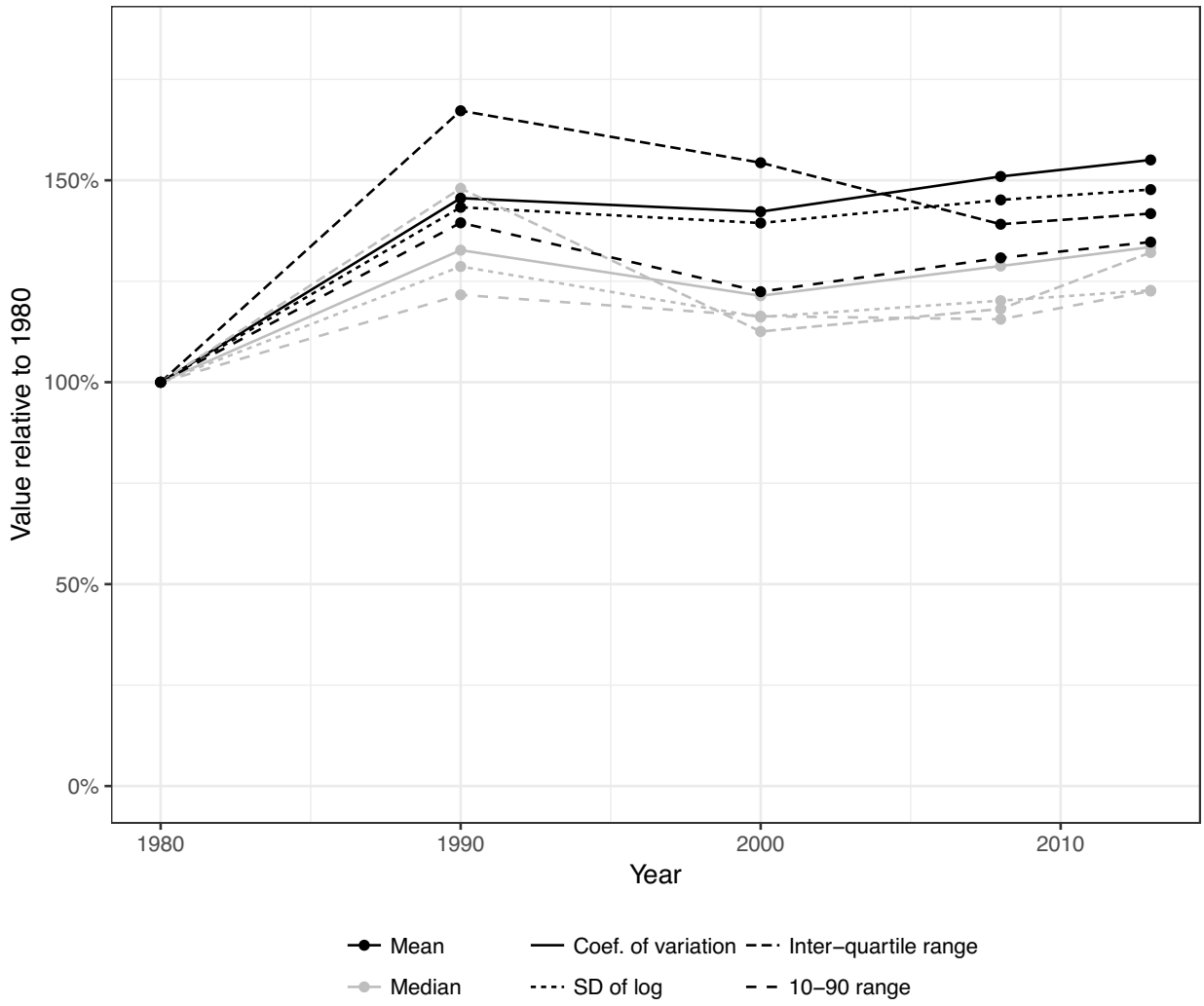


Figure 2.2. Sigma divergence in mean and median family income across Commuting Zones over time.

The Geography of Income Growth

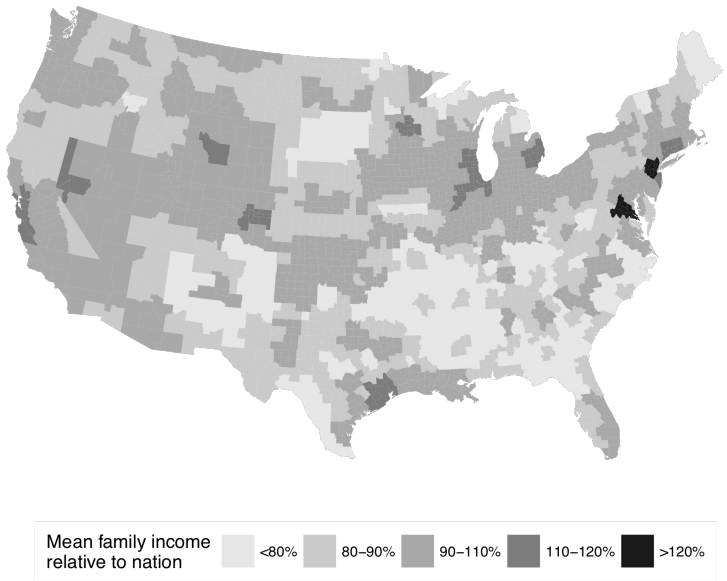
As shown in Figure 2, the gap between the richest and poorest parts of the country is now larger than it has been in at least 40 years. But where are these fortunate and left-behind places? Figure 2.3 maps Commuting Zone mean family income relative to the nation in 1980 (panel A) and 2013 (panel B). In 1980, the only Commuting Zones in the top income category were

Washington DC and the New Jersey suburbs of New York City. A huge swath of the country, including both cities and rural areas, had mean family incomes within 10 percent of the national mean, while rural areas in the South and Southwest had the lowest incomes. Some of these poor rural areas—in Appalachia, the Deep South, the Rio Grande Valley, and American Indian reservations in the interior West—contain areas of persistent poverty that have been long noted and studied (Tickamyer and Duncan 1990; Weber and Miller 2017).

By 2013 the situation had changed dramatically. Northern California, Minneapolis, and most of the eastern seaboard had moved into the top income category, with mean family incomes 20 percent greater than average. Parts of the interior West managed to keep pace with national income growth, but most other rural areas had fallen into the bottom income category.

A consequence of this divergence has been the economic polarization of the country. In 1980, just 7.4 percent of the US population lived in Commuting Zones with mean family incomes below 80 percent of the national average. By 2013 that share had increased to 15.7 percent, more than doubling. On the other extreme, the share of the population living in metros more than 20 percent richer than average rose from 4.3 percent to 15.6 percent. In total, the fraction of Americans living in especially rich or especially poor metros almost tripled, from 11.7 percent to 31.3 percent. This divergence is comparable to the concurrent polarization of residents into rich and poor neighborhoods within metro areas (Reardon and Bischoff 2016).

A: 1980



B: 2013

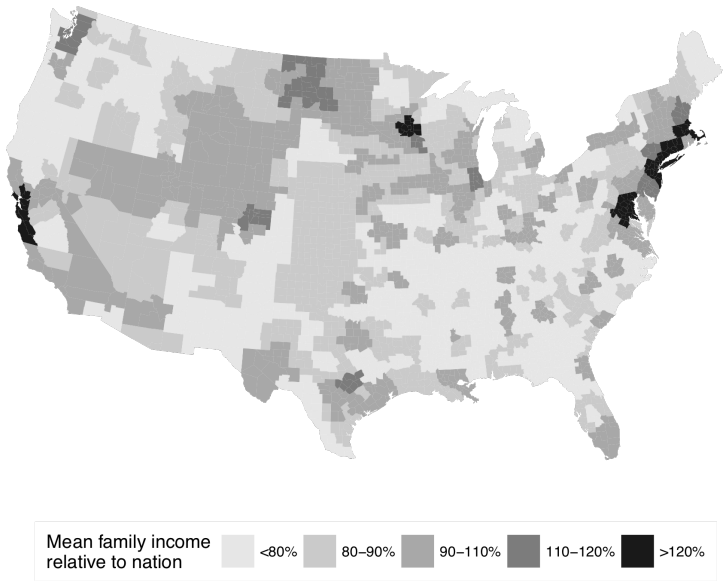


Figure 2.3. Maps of Commuting Zone mean family income, 1980 (A) and 2013 (B).

Regional Divergence and the Top of the Income Distribution

Regional divergence could be caused by rich parts of the country pulling ahead over the last 40 years, leaving the rest of the country behind. Alternatively, poor places could have gotten poorer relative to the rest of the nation than they already were. Or the entire distribution could be stretching out without a disproportionate effect in any one part. At the individual level, divergence could result from changes in the geographic distribution and earnings of the rich, those of the poor, or some combination.

Rich Regions Drive Divergence

Figure 2.4 shows that rich metro areas are the primary drivers of divergence. It plots mean family income as a percentage of the national mean for each Commuting Zone in 1980 and 2013. The Commuting Zones above the dotted line got richer relative to the nation during this period while those below the dotted line got poorer. Across most of the income distribution the dots are clustered near the line. This strong positive relationship between income in 1980 and 2013 suggests that regions have been fairly stable in income rank on the whole, although individual Commuting Zones have moved up (e.g., Philadelphia) or down (Detroit or Miami). But the relationship breaks down for the richest Commuting Zones: probably the most striking feature of the graph is the cluster of large metro areas well above the dotted line in the top-right portion of the graph. These places—Boston, New York, San Francisco, and Washington DC—were already richer than average in 1980, but since then they have surged further ahead.

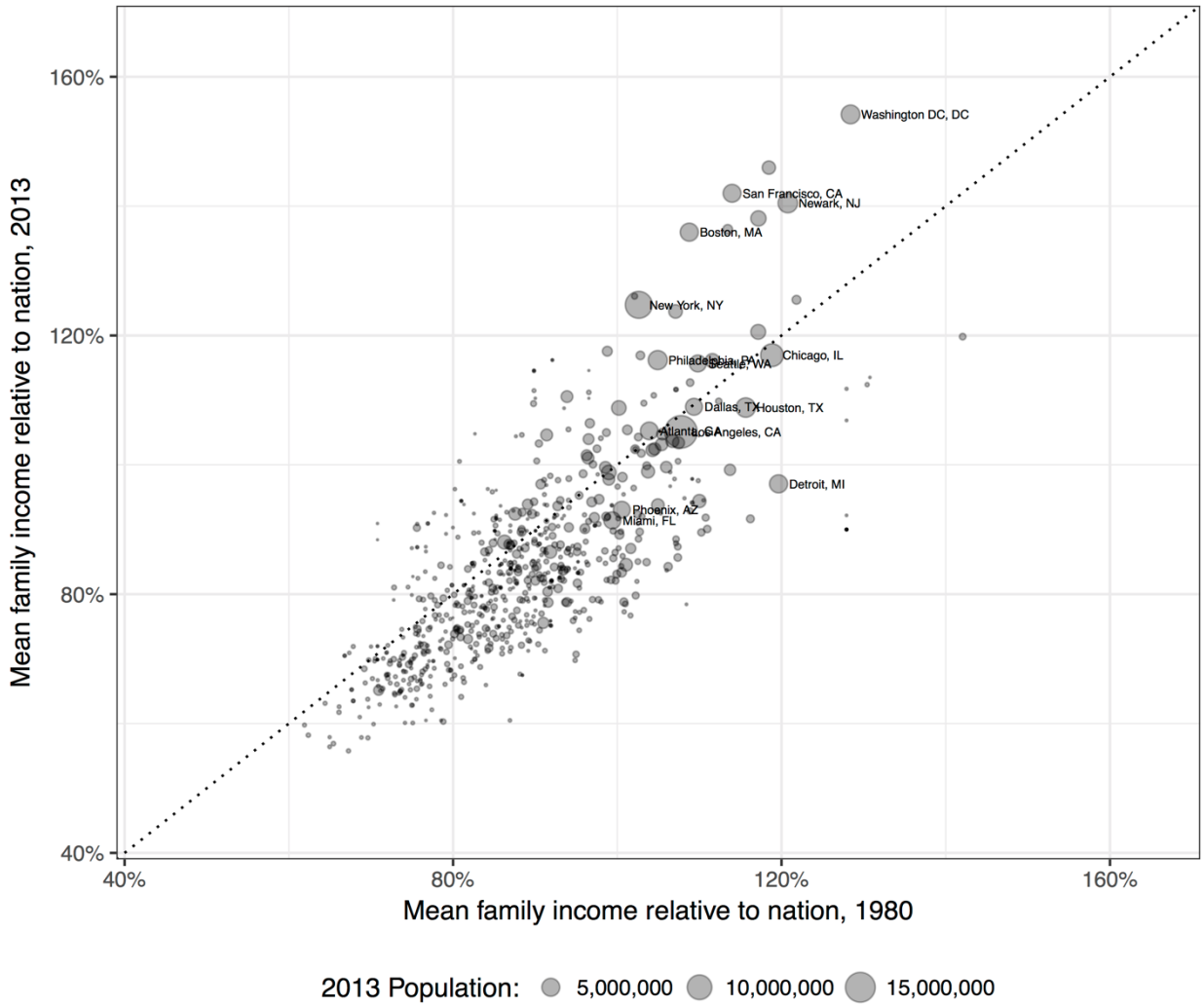


Figure 2.4. Changes in Commuting Zone mean family income relative to the nation, 1980–2013

Rich People Drive Divergence

In addition to the question of which metro areas are driving divergence, there is the question of which types of people are doing so. Rising average incomes in rich regions could be due to changes among their high-income populations— either increasing incomes among those who already live there or a net movement of high-income people into the region. Alternately, they could be due to changes among poor and middle class residents, again either changes to the

incomes of those who continue living in the area or a net movement of lower income people out of the region.

To estimate the extent to which regional divergence is being driven by individuals at the top of the income distribution, as opposed to the poor or middle class, I re-compute divergence measures in the Census data after removing the highest income families in the country. Trends in the coefficient of variation of mean family income are shown in Figure 2.5. Top earners drive a huge portion of the overall variation in regional mean incomes: the increase in dispersion among the bottom 90 percent of families is just a quarter as large as the increase across the entire distribution. Even just removing the top 1 percent shrinks the amount of divergence since 1980 by about half.

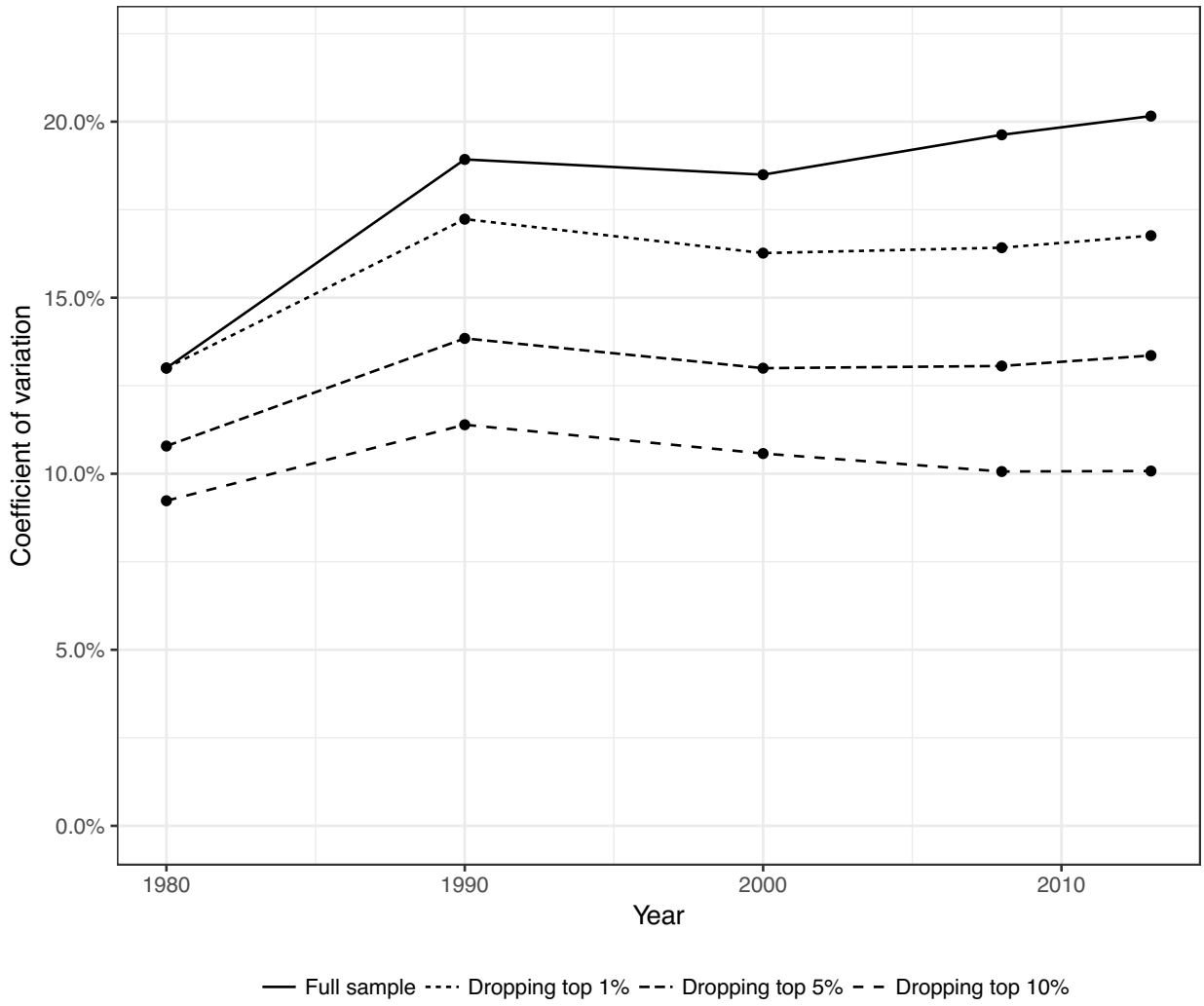


Figure 2.5. Counterfactual coefficient of variation of mean family income across Commuting Zones over time with various high-income groups removed.

Regional Income Divergence as a Function of Income

Sorting and Macro-Level Income Inequality

I now turn to identifying the relative importance of income sorting and income inequality in driving regional divergence. I first use several direct measures of income sorting to show that the amount of income sorting across metro areas has not grown nearly as much as regional

incomes have diverged. I then conduct simulations to isolate and quantify the independent contributions of increased sorting and increased inequality to regional divergence.

Direct Measures of Income Sorting

I consider three direct measures of income sorting. The first is the proportion of total national variation in family incomes that is across Commuting Zones. If income sorting had gone up, we would expect this proportion to increase. The second measure I consider is the income segregation across Commuting Zones as calculated by Reardon and Bischoff's rank order information theory measure H (Reardon and Bischoff 2011). Finally, I calculate Zhou's S, a measure of the extent to which categorical groups such as races, genders, or occupations are stratified along a continuous spectrum such as income (Zhou 2012). Because S is too computationally intensive to calculate for the entire sample at once, I take the mean of its value computed on 10 random draws of 100,000 observations in each year, producing an estimate of Commuting Zone income stratification.

Trends in all three measures are consistent: income sorting across Commuting Zones increased substantially in the 1980s, but declined after that. None of the three measures increased by more than 7 percent during the period 1980–2013, while the coefficient of variation of mean family income across Commuting Zones rose by more than half during this time.[6] This discrepancy in growth rates suggests that income sorting has played a relatively modest role in driving regional divergence (Figure 2.6).

[6] Even this small increase in sorting may be inflated by bias due to the lower sampling rate of the ACS after 2000 compared to the Census long form in earlier years (Reardon et al. 2018). However, applying the bias estimation method proposed by Reardon et al. suggests that the bias in H at the Commuting Zone level is only about 2 percent as large as the bias for tracts, due to larger sample sizes.

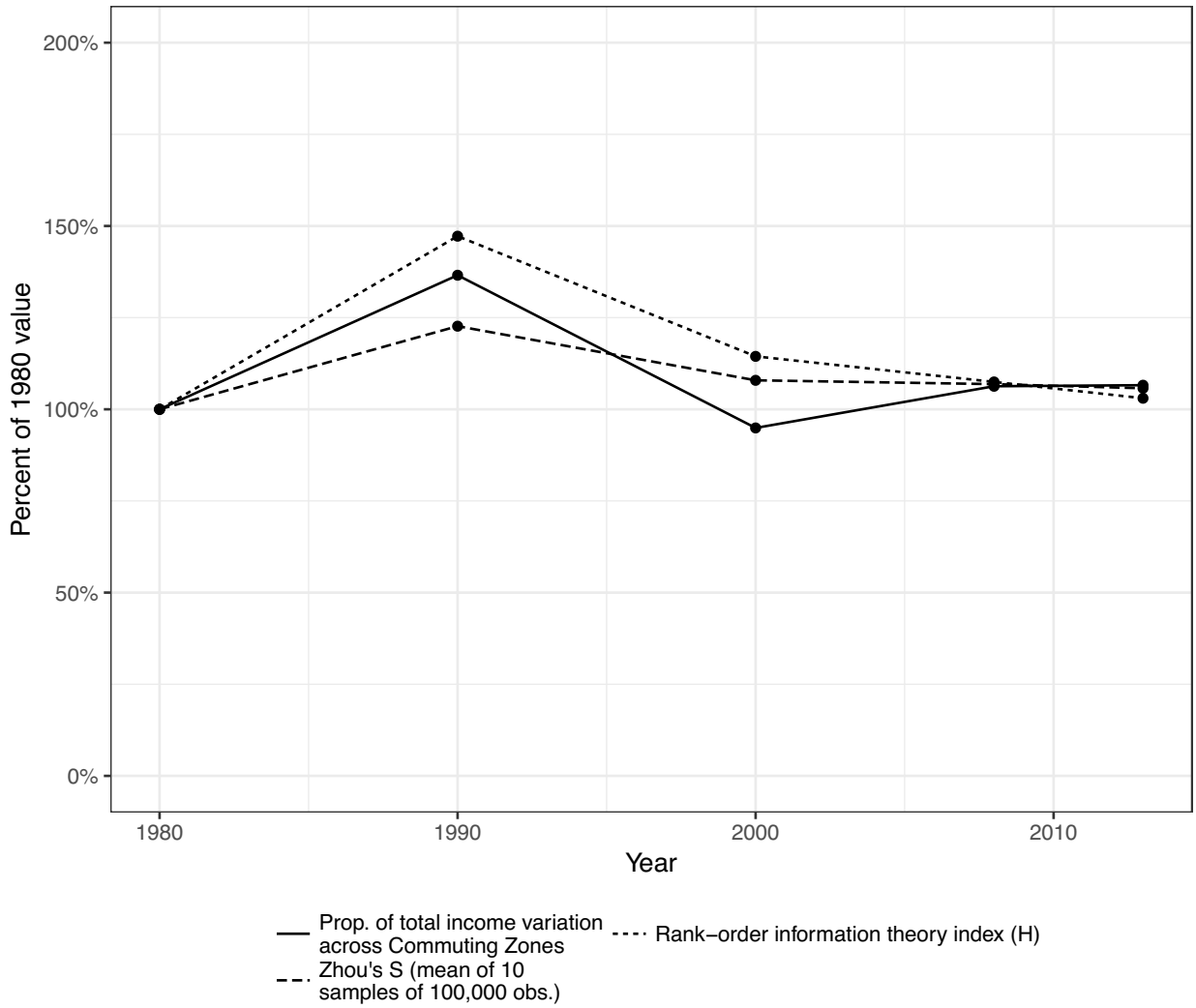


Figure 2.6. Change over time in alternative income sorting measures.

Counterfactual Simulations of Sorting and Inequality

To directly calculate the relative importance of income sorting and income inequality in driving divergence I conduct a series of simulations where I independently vary each factor on its own. I operationalize income sorting by calculating the percentage of each Commuting Zone's families in each quantile of the national income distribution for each Census year from

1980–2013.[7] The shape of the national income distribution is tracked by computing the ratio of mean income within each national quantile to the overall national mean.

To isolate the impact of each factor I allow either the extent of income sorting or the shape of the national income distribution to evolve as it did from 1980–2013 while holding the other factor constant at 1980 levels. I then re-compute the mean income for each Commuting Zone under the hypothetical scenario. With this information I can calculate divergence measures under counterfactual scenarios where only the geographic distribution of earners or only the earnings associated with each income percentile changed. Comparing these measures to the observed trends allows me to determine the independent contributions of sorting and inequality.

Figure 2.7 plots the coefficient of variation of Commuting Zone mean family income over time for the various hypothetical scenarios. The dotted line verifies that if both the geographic distribution and the income levels relative to national mean income had remained constant at 1980 levels there would have been no further regional income dispersion (the slight decrease over time results from changes in weights due to Commuting Zone population change). The solid line shows the regional divergence in family incomes that actually happened. From 1980–2013 the coefficient of variation of mean family income across Commuting Zones grew from 13.0 percent to 20.2 percent, an increase of 55 percent.

[7] In the primary analysis I use 50 quantile buckets of two percentiles each, but the results are robust to sizes ranging from 1 to 10 percentiles. I also include the ratio of mean income for a given quantile in each Commuting Zone to mean income in that quantile for the nation as a component of income sorting.

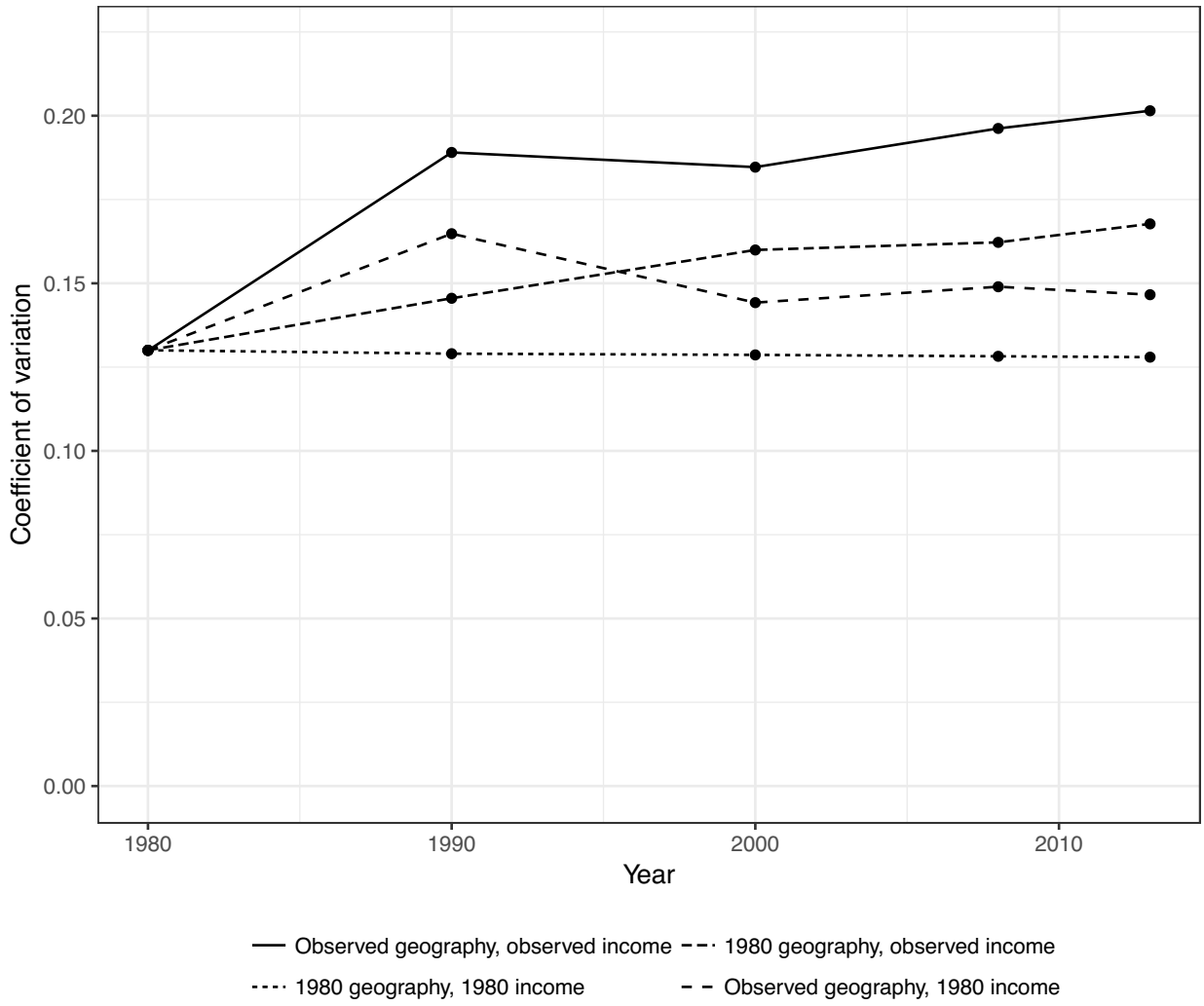


Figure 2.7. Counterfactual coefficient of variation of mean family income across Commuting Zones over time holding sorting and/or inequality constant at 1980 levels.

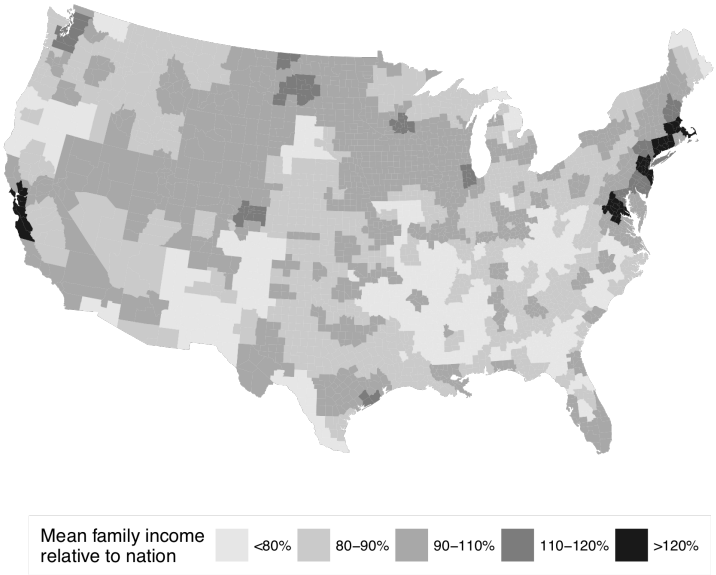
The dashed lines show the dispersion that would have happened under the two counterfactual scenarios. Much of the divergence in the 1980s appears to have been due to geographical sorting: keeping the 1980 income distribution but sorting people across geography as they were in 1990 results in more than half as much dispersion from 1980 to 1990 as occurred in reality. But after 1990 the importance of geographical sorting declined substantially and the

role of income inequality increased. In total, about 53 percent of the increase in the coefficient of variation of Commuting Zone mean family income from 1980–2013 was due solely to increasing national inequality, about 23 percent was due solely to increased geographical concentration, and the remaining 24 percent was due to interactions between the two (specifically, the effect of rising incomes for rich families was magnified by their increased geographic concentration, as in panel D of Figure 2.1).

The overall finding from Figure 2.7—that the rise in macro-level income inequality would have resulted in substantial regional divergence without any increase in sorting, and that the reverse is less true—is robust to a variety of income measurements (household income, family income, and individual income for adult men) and measures of sigma divergence (coefficient of variation, inter-quartile range, and 10–90 range). It is also robust to controlling for changing populations by weighting observations in all years by population in 1980 or 2013 only, and to normalizing income by family or household size (which effectively counts each dollar exactly once) or square root of size (a common way to equivalize standards of living).

The maps in Figure 2.8 visualize the independent geographic effects of income inequality and income sorting. Panel A shows the mean family income of each Commuting Zone under the scenario where inequality is held constant, while panel B maps family income when sorting is held constant. Both scenarios fall in between the 1980 and 2013 maps from Figure 2.2, but panel A clearly shows less polarization than panel B, which has more Commuting Zones in both the highest and lowest income categories.

A: 2013 sorting, 1980 inequality



B: 1980 sorting, 2013 inequality

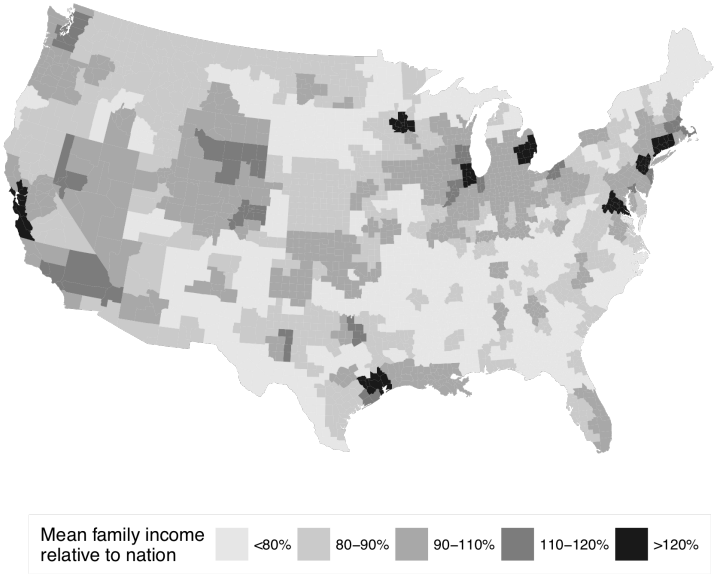


Figure 2.8. Maps of counterfactual divergence scenarios. (A) Counterfactual mean family income with 2013 geographic distribution and 1980 level of income inequality. (B) Counterfactual mean family income with 1980 geographic distribution and 2013 level of income inequality.

Discussion and Limitations

In this chapter I have made two major contributions to knowledge of regional income divergence. First, I have shown that the observed divergence over the last 40 years has been almost entirely due to changes at the top of the metropolitan and individual income distributions. Regional variation in incomes has not changed much outside the richest 10 percent of families. Second, I have estimated how much divergence can be attributed to income sorting and how much to rising national income inequality. Roughly a quarter of the regional divergence of the past four decades is strictly attributable to increased income sorting of people across regions, while just over half is due to rising income inequality. The primary driver of regional divergence over the past 40 years is thus not changes in who lives where or which regions are thriving, but a national trend of increased inequality that has interacted with preexisting regional income distributions in geographically textured ways.

These findings carry important implications for studies of regional economic outcomes. First, while many previous accounts of divergence have focused on sorting by education or skill level (e.g., Giannone 2017; Moretti 2012), the outsize importance of very high-income families suggests that divergence is more likely a function of people's incomes. Most of the observed divergence across regions is driven by changes among the highest-earning 10 percent of the population, a much more select group than all college graduates.

Second, these results suggest that the income sorting- and stratification-based explanations for regional divergence prominent in the literature may be missing a major part of the story. Figuring out what attracts high-income people to one city over another, or whether a particular region will be able to organize itself to address its collective challenges, may be important for understanding the rise and fall of individual cities, but those processes do not fully

explain why rich places as a whole are now so much wealthier than the rest of the country. That development appears to result more from changes in the amount of money high-income people make than changes in where they live. Notably, many of the policy remedies that have been proposed to address regional divergence tackle the processes that I have labeled income sorting: reducing regulatory barriers to house construction and migration (Avent 2011; Yglesias 2012), or subsidizing employment in struggling regions (Austin, Glaeser, and Summers 2018). While these policies may be beneficial, my findings suggest that they are unlikely to close the economic gap between regions on their own.

It is important to note the limitations of this analysis. First, I am not directly commenting on the economic fortunes of any particular place. Individual cities have moved up and down the income ladder a great deal since 1980. Boston, for instance, grew from being about 9 percent to 36 percent richer than average during my period of study, while Detroit fell from being 20 percent richer to 3 percent poorer. Other scholars have investigated what specific factors promote regional growth in both large-n analyses (e.g. Kemeny and Storper 2012; Partridge 2010) and case studies (e.g. Saxenian 1996; Storper et al. 2015). Successfully attracting and retaining skilled workers almost certainly plays a role in securing the prosperity of any one city. My results speak instead to the overall level of dispersion across metro areas—why it is that the richest cities were less than 30 percent richer than the country as a whole in 1980, but are more than 50 percent richer today.

Second, sorting and inequality are not entirely separable as causal economic processes. Agglomeration economies, for instance, may mean that wages at the top are rising because workers are sorting by education or industry. Barriers to migration may increase overall inequality by preventing people from moving in search of higher wages (Ganong and Shoag

2017), just as rising inequality may induce sorting by pricing people out of wealthy areas (Gyourko et al. 2013). Even if sorting and inequality were fully indistinguishable causally, though, the exercise conducted here would be informative as an investigation of geographic scale: is the total set of economic changes driving divergence felt more through changes in the distribution of people across space or income across people? I have shown that it is the latter.

Conclusion

With any spatially patterned social outcome, a core question for social scientists is the scale of the driving process. Does a changing map reflect the myriad idiosyncratic decisions of individual people and organizations? Or is it a consequence of one national trend interacting with existing spatial structures? In this chapter I have demonstrated that the regional income divergence the US has experienced over the last four decades largely falls into the second category. By applying insights on the interaction between spatial structure and macro-level trends developed in the study of neighborhood poverty, I have shown that the past 40 years of regional income divergence are primarily a case of national-level income dispersion exacerbating previously existing spatial inequalities. The major change in the economic geography of the US during this time was not in who lives where but in how much money they make.

A corollary to this finding is that the various potential downsides to regional divergence—macroeconomic policy challenges, political dysfunction, reduced social mobility, etc.—are perhaps best understood as yet more malign consequences of the concentration of economic resources. The doubling of the income share going to the richest 1 percent is mathematically inseparable from the income stagnation that has occurred in regions where they don't happen to live. Hollowed-out towns in middle America are inextricably tied to the same

institutional structures, technological changes, and rent-seeking behaviors that have enriched a small slice of the population primarily residing in a handful of major cities.

Although my investigation has focused on space, the mechanism driving it is not inherently spatial. It generalizes to any social structure with strong correlations between graduated and nominal parameters (Blau 1974, 1977a, 1977b). Once nominal groups—races, genders, occupations, Commuting Zones—are sorted by income or by any other graduated parameter, changes along that parameter are sufficient to affect inter-group inequality. No further group-based stratification is necessary. This dynamic appears to be important in explaining the persistence of race and gender wage gaps in the United States over the past five decades (Bayer and Charles 2018; Blau and Kahn 1996; Mandel and Semyonov 2005; Manduca 2018). Here I have demonstrated that it applies to inequalities between regions of the country as well. Like inequalities between races or genders, disparities between regions are in large part determined by the level of inequality in the nation as a whole.

On some level, the message of this study is a core claim of human geography: every social process is spatially situated. Because people are distributed unevenly across places, any process that affects some types of people more than others will have varied effects on places as well. As social scientists of all stripes increasingly recognize the importance of context and place in the phenomena they study (e.g. Logan 2012; Voss 2007), internalizing this truth will be critical.

3

Income Inequality and Economic Exclusion

Abstract: Income inequality has risen dramatically in the United States over the last 40 years. This has been accompanied by a growing concern that many people are being economically "left behind." Yet standard measures of the proportion of people who left out of the economy, such as the absolute and relative poverty rates, have not increased during this time. I argue that this discrepancy arises because standard poverty measures are poorly equipped to identify the full extent of economic exclusion generated by today's economy. In particular, they are not able to identify the economic exclusion generated by two major economic trends of recent decades: the concentration of purchasing power among the very rich and the growth of geographic income disparities. I propose a measure of economic exclusion, benchmarked to the income at which the median dollar is earned rather than that of the median person, that is sensitive to these developments. Trends in economic exclusion as defined by this measure diverge sharply from trends in poverty over the last 40 years, showing much larger increases in economic exclusion over time and higher rates of exclusion in high income regions.

Since the 1970s the United States has undergone a wrenching economic transformation. The combination of economic deregulation, deindustrialization, automation, and other institutional and technological shifts has dramatically reshaped the US economic and social landscape. The result, proclaimed by everyone from Chase Bank CEO Jamie Dimon (Son 2019) to the Brookings Institution (Hendrickson, Muro, and Galston 2018) to sociologist Robert Wuthnow (Wuthnow 2019), is that millions of Americans and hundreds of communities have been "left behind" economically. This perception coincides with rising levels of income inequality (Piketty et al. 2017) and declining levels of trust, both in other people and in institutions (Twenge, Campbell, and Carter 2014).

Perhaps surprisingly, one metric that does not show a marked worsening in recent years is the primary measure policymakers and researchers use to identify those who have been left behind economically: the poverty rate. Despite rising inequality and stagnant wages (Mishel, Gould, and Bivens 2015), both the relative and absolute poverty rates have remained almost perfectly constant since the early 1980s (Fox et al. 2015; Joyce and Ziliak 2019).

In this chapter I argue that this seeming discrepancy arises because standard poverty measures are not well equipped to measure the true amount of economic exclusion in the United States today. After revisiting the theoretical motivation behind poverty measurement to show how the concept of social exclusion due to insufficient economic resources has become more and more central to the idea of poverty over time, I document two economic trends of recent decades that create a disconnect between commonly used poverty measures and this goal. These are the concentration of purchasing power among the very rich, with its accompanying changes in consumer markets, and the growing geographic disparities between regions of the country (R. A. Manduca 2019).

I then introduce a new measure designed specifically to measure economic exclusion, which is sensitive to these two economic trends. This economic exclusion rate shows a marked increase over the past four decades, as well as growing distinctions between regions of the country. It is also more predictive of geographic variation in several outcomes popularly associated with economic exclusion in politics, public health, and social capital.

Goals and methods of poverty measurement

Social scientists and policymakers have devised a number of ways over the decades to theorize and identify the people who are economically left out or left behind by their society. The earliest approaches to poverty measurement tended to identify an absolute standard set by the income deemed necessary for basic subsistence. For example, in his study of poverty in 19th Century York, England, Rowntree defined as poor those people whose "total earnings are insufficient to obtain the minimum necessaries for the maintenance of merely physical efficiency" (Rowntree 1901). A similar logic is used in the US Official Poverty Measure, which was developed by Mollie Orshansky based on the cost of the US Department of Agriculture "economy food plan" – the cheapest of the plans devised by the USDA that would still provide sufficient nutrition (Orshansky 1963, 1965).

Starting in the 1960s and 1970s, many scholars of poverty began to argue that absolute measures were not sufficient, especially in high income countries. This shift was driven in large part by the experience of the postwar decades. During that time, standards of living increased rapidly, including for the most disadvantaged. But a widespread perception that substantial numbers of people were living in poverty remained (Harrington 1962; Johnson 1964). This left

researchers with a conundrum: if standards of living were going up, how could poverty remain pervasive?

There are at least three reasons that a perception of poverty can persist even as incomes rise. First, standards and expectations of income are highly context dependent. While in an absolute sense people considered poor in the 1960s might have been better off than even people considered middle class in the 1930s, relative to what society had come to expect they were not. This meant that they still experienced themselves as being short of money, and were seen as impoverished by others. Surveys that asked how much money a family needs to "get by" in the United States during this period show that this amount increased roughly one for one with average income (Jencks 1972; Rainwater 1990).

This concept of changing conceptions of what is indispensable goes back at least as far as Adam Smith, who defined necessary goods as "not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without." (Smith 1827:368). He goes on to note how the commodities that are necessary may vary across time and place:

> A linen shirt, for example, is, strictly speaking, not a necessary of life. The Greeks and Romans lived, I suppose, very comfortably though they had no linen. But in the present times, through the greater part of Europe, a creditable day-labourer would be ashamed to appear in public without a linen shirt, the want of which would be supposed to denote that disgraceful degree of poverty which, it is presumed, nobody can well fall into without extreme bad conduct…Under necessaries, therefore, I comprehend not only those things which nature, but those things which the established rules of decency have rendered necessary to the lowest rank of people. (p368)

Smith's conception of which goods are necessary to life is socially constructed and context dependent. His emphasis on the feeling of shame, in particular, shows how sensitive he

was to the need of people to fit in with society and be accepted as upstanding citizens by their peers.

A related reason that perceived poverty could remain in the presence of rising incomes is that many social comparisons are conducted in relative terms. People compare themselves to their peers, and if they have substantially less than the others they encounter on a daily basis they may feel or be identified as poor even if their absolute standard of living is high by historical or world standards. As economist Victor Fuchs put it, "When most Americans have a great deal, those that have much less are poor, regardless of their absolute level of income" (1967:88). This "relative deprivation" is extremely important in shaping behavior (Davis 1966; Runciman 1966) and in driving perceptions of injustice and envy (Runciman 1966). Comparisons to others are also thought to drive much of consumer behavior (Duesenberry 1949).

The third reason that perceptions of poverty did not diminish over the postwar decades is that as incomes rise, the set of goods and services produced by the economy will shift to meet new needs, and many of the cheaper products that made it possible to live on smaller budgets in previous decades may no longer be produced. Thus the same "real" income may no longer be sufficient to acquire the same real standard of living. As Jencks (1972) notes, this type of transformation occurred between the 1930s and 1960s:

> These political changes in the definition of poverty were not just a matter of "rising expectations" or of people's needing to "keep up with the Joneses." The goods and services that made it possible to live on $15 a week in the Depression were no longer available to a family with the same "real" income in 1964. Eating habits had changed, and many cheap foods had disappeared from the shelves. Most people had enough money to buy an automobile, so public transportation had atrophied, and families without automobiles were much worse off than during the Depression." (page 5)

Additionally, even for products that don't change, if the supply is less than perfectly elastic, then if some people's incomes rise they will bid up the cost of products. Today, this is

argued to be a core driver of housing unaffordability in supply-constrained cities (Gyourko et al. 2013; Rodríguez-Pose and Storper 2019). Such changes can be a literal matter of life and death: Sen argues that an uneven income shock was a core driver of the Great Bengal Famine of 1943, in which more than 1 million people died (Sen 1982). He notes that the 1943 rice harvest was small but not unprecedented—in fact, the crop had been even smaller in 1941, with no famine. What was different in 1943 was that wages in industries connected with the WWII effort had risen substantially, while those in unrelated industries had not. So when the rice shortage came, workers employed by war industries bid up the price of rice, and many rural laborers found themselves unable to afford food.

The processes Jencks describes mean that even if someone were entirely insulated from social pressure or current ideas of what is fashionable, the income they need to survive could *still* rise with national income, as the cheap products that make it possible to live on less money stop being produced. This means that exclusion is partially defined by social beliefs but also partially determined by economic conditions—what products it is profitable to make. While social beliefs can perhaps be argued to stem from majority opinion, the economic conditions are much more susceptible to the influence of economic elites.

To address the limitations of absolute poverty metrics in periods of economic growth, scholars began defining poverty in relative terms. Whereas the absolute conception of poverty defines it with respect to a certain, fixed basket of products, the relative conception considers someone to be poor if their standard of living is sufficiently lower than what is typical for their society, whatever that may be. As Townsend (Townsend 1979:31) says:

> "Poverty can be defined objectively and applied consistently only in terms of the concept of relative deprivation…Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the

> activities and have the living conditions and amenities which are customary, or are at least widely encouraged or approved, in the societies to which they belong."

The most common way to calculate the relative poverty rate is that introduced by Fuchs (1965, 1967), who defined as poor any family earning less than half the median income for its society. The European Union uses a relative definition for its official poverty statistics, defining people as being "at risk of poverty" if their equivalized household income is less than 60% of their country's median (Eurostat 2018).

Since the 1970s the relative conception of poverty has become the preferred conceptualization among most scholars (Atkinson 1998; Brady 2003). Indeed, one researcher went so far as to claim that, "[t]he more experience countries have with absolute poverty definitions, the more obvious is the absurdity of their rationale." (Rainwater 1992, page 5).

Social exclusion and multidimensional approaches to poverty

Starting in the 1970s, many European countries began to center their social policies around the idea of reducing social exclusion in general rather than monetary poverty alone (Silver 1994; Silver and Miller 2003). Originally introduced by French Secretary of State for Social Action René Lenoir (Lenoir 1974), social exclusion was conceptualized as a "rupturing of the bonds" between society and the individual. Lenoir highlighted the experiences of the aged, the handicapped, the unemployed, and others who were unable to participate in the formal labor market that was a central nexus of French society at the time. A key distinction from both absolute and relative poverty is that social exclusion can be experienced along multiple dimensions. If a person's income is too low to afford a typical standard of living, they might be socially excluded. But even if social transfer programs keep their money income relatively high,

if discrimination prevents someone from securing work, or a physical disability keeps them from entering a public space, they can still face social exclusion. In its official definition of social exclusion, the European Union uses a combination of the relative poverty rate, long-term unemployment, and an index of material deprivation (Eurostat 2019).

In its multidimensional and relational nature, social exclusion has similarities to some of the most recent conceptions of poverty. Sen (1985, 1999) approaches poverty through what he calls the "capabilities approach." This approach, which has antecedents going back to Aristotle, treats poverty as the inability to lead a full life, which Sen defines in terms of various capabilities. The capability to eat a sufficient diet might be one such capability, but so might the capability to learn, or the capability to go outside. The capabilities approach differs from previous conceptions of poverty in its multidimensional nature but also in its recognition that the material requirements for accessing a given capability may differ from person to person. The capabilities approach bridges the gap between absolute and relative definitions of poverty: Sen argues that poverty is an absolute condition, but that relative deprivation can create an absolute loss of one or more capabilities, such as the capability to interact with one's peers as a rough equal (Sen 1983, 2000).

More recently, Desmond and Western (2018) have argued that poverty should be conceptualized explicitly in multidimensional terms, as the compounding of material want with exposure to violence and abandonment by social institutions. They also highlight its relational aspect: that poverty is maintained through exploitation of the poor by the rich, and cannot be captured by the individual attributes of one alone.

These multidimensional approaches to poverty and social exclusion are extremely compelling. However, the focus of this chapter will be on the income component of social

exclusion. Income remains a key component of most conceptions of poverty and social exclusion. But, as I will argue, the amount of exclusion generated by low incomes is commonly underestimated.

How low incomes contribute to social exclusion

Although social exclusion is an explicitly multidimensional concept, a lack of economic resources plays a central role in most conceptions of it (Eurostat 2019; Silver 1994). Independent of whatever other sources of exclusion may apply, if someone has too few resources to afford the typical goods and services that people use in their community, they are likely to face serious social barriers. This exclusion can be manifested through direct moral condemnation of the kind that Smith (1827) envisioned when he worried about the feeling of shame that would envelop someone unable to afford a linen shirt. Lamont (2009) highlights the boundary work that working class men do to distinguish themselves from the poor, who in the US context especially are often seen as undeserving (Katz 1989). This direct moral boundary defined by income level is also what Duncan finds in her studies of rural communities in Mississippi and Kentucky (Duncan 1999).

Even if people are not explicitly labeled as morally degenerate due to their low incomes, they can still be socially excluded if they are not able to purchase the goods and services that are expected of them. As more aspects of American life have become commodified, access to high incomes has become a condition for many services that were once considered universal, such as a high quality education (Goldstein and Hastings 2019; Owens 2016) and even opportunity itself (Grusky, Hall, and Markus 2019).

In sum, researchers of poverty over the last 50 years have shifted from a basic absolute concept based on a particular basket of goods to a multidimensional, relational concept that is inherently relative. The income component of this social exclusion—what I will now term economic exclusion—is typically defined in reference to the income of the median person in a society. I next show how two recent trends in the US economy, rising inequality in purchasing power and the geographic concentration of prosperity, suggest that the median person may no longer be a proper benchmark.

Empirical trend 1: The concentration of purchasing power among the rich

The first economic trend that calls the usefulness of the median person as a benchmark into question is the concentration of purchasing power among the richest members of society, and the consequent changes to consumer markets. Rising inequality over the past 20 years has dramatically altered the distribution of consumer dollars. In the mid-20th century, the vast majority of national income went to middle class households. Figure 1 plots the share of income going to people with normalized household incomes between 50% and 200% of the national median from 1967-2015. It uses the Historical SPM dataset (Wimer et al. 2017), which supplements the Current Population Survey with cash and near cash transfer programs to estimate the final, post-tax and transfer income of each household. I normalize household income by the square root of household size, a common way to account for economies of scale in household consumption.

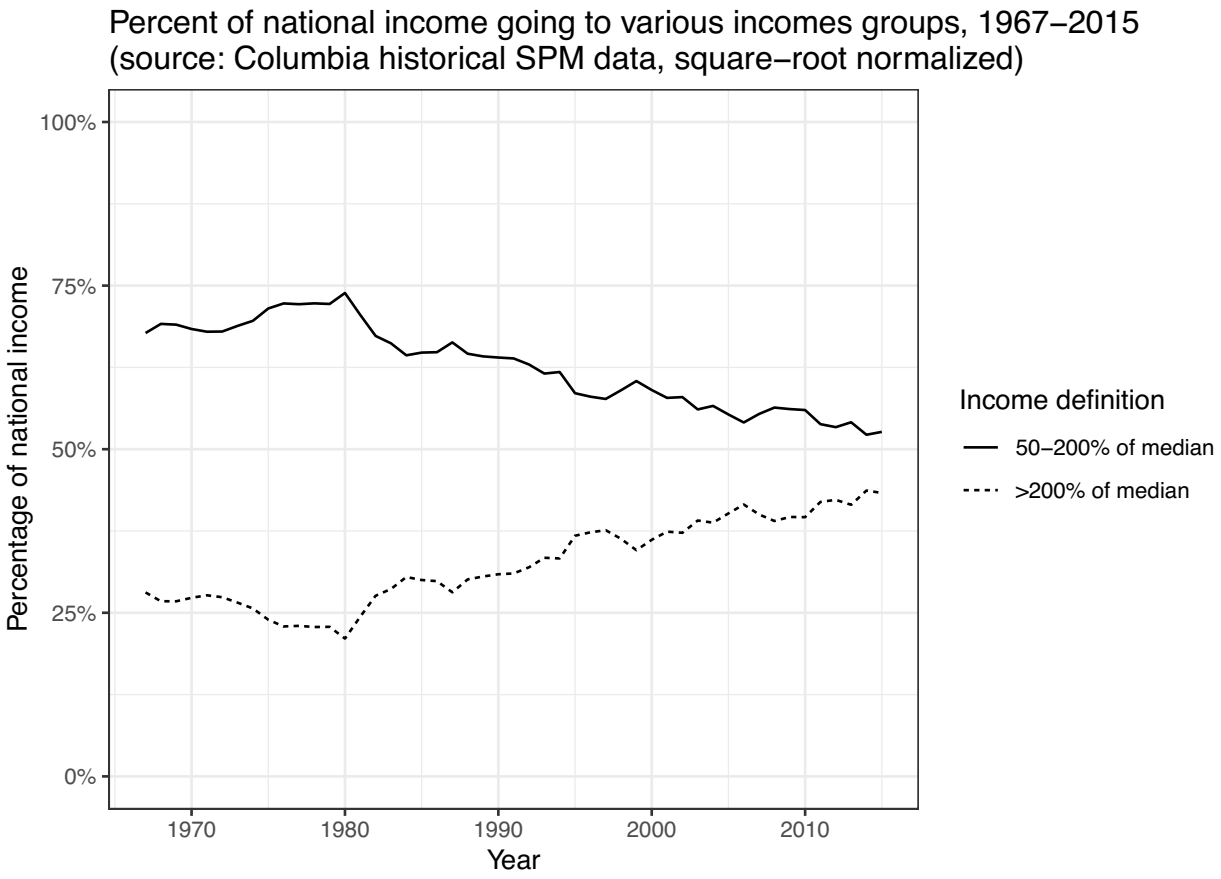


Figure 3.1. Proportion of national income going to various income groups, 1967-2015. Incomes are defined as family disposable income normalized by the square root of family size.

As the solid line in Figure 1 shows, until 1980, almost 75% of all income in the CPS went to households earning between 50% and 200% of the national median. Since then this share has seen a long decline. In 2015, this group of families took home just 53% of national income, barely more than half. At the same time, the dotted line shows how the share of income going to households substantially richer than average has increased. Households earning more than twice the median income took just 21% of all income in the country in 1980. By 2015, though, this share had increased to 43%.

What these trends mean is that as of 2015, households earning more than twice the median income were almost as large of an aggregate market as households earning "average" incomes. Corporate behavior has responded to these shifts. Companies target new products and R&D spending to the groups of consumers with the highest potential revenue (Jaravel 2016). In the 1970s, this meant that a revenue-maximizing company would focus most of its attention on the middle class—that was where the bulk of the money was. Today, though, these dynamics increasingly push companies to focus on high income consumers, leading to vertical differentiation in product markets (Wilmers 2017) that manifests a "two tier economy" (Timiraos and Hudson 2015).

The consequences of this stretching in consumer markets are felt by everyone, not simply those at the top. People are aware of what others are buying. Bertrand and Morse show that middle income households living in states with higher top-end consumption spend a larger fraction of their incomes, especially on goods and services whose consumption is easily visible to others (Bertrand and Morse 2016), as would be expected if consumers feel social pressure to keep up with those just above them in the income hierarchy (Duesenberry 1949; Frank, Levine, and Dijk 2014). For goods and services with inelastic supply, the effect is particularly severe: because these products (such as housing in supply-constrained areas or tickets to a concert) are on some level zero-sum, changes in demand will be sufficient in themselves to change who can afford what (Gyourko et al. 2013; Sen 1982). These negative effects of a stretching income distribution may be one reason why life satisfaction is lower in metro areas with higher levels of inequality (Graham 2017).

Note that the standard absolute and relative poverty measures are likely to entirely miss the exclusion generated by concentrated purchasing power among the rich. The US Official

Poverty Measure is anchored in the cost of food in 1955, and is not affected at all by how income is distributed. The relative poverty rate, on the other hand, is constructed in reference to the income of the median person, and takes no notice of how income for the richer half of society is distributed.

Empirical trend 2: growing regional income disparities

A second economic trend of the last 40 years with implications for the measurement of economic exclusion is the growing economic divergence between regions of the country. From the Civil War until the 1970s, poor parts of the United States grew faster than rich ones, such that the overall spatial variation of income shrunk (Barro and Sala-i-Martin 1991). Since 1980, though, this trend has reversed, with rich places increasingly pulling away from poor ones (Amos 2014; Ganong and Shoag 2017b). In 1980, the richest 10% of the population lived in cities with a mean income about 55% greater than the poorest 10%. By 2015 the gap had increased to 80%.

Divergence between regions is intricately bound with rising income inequality overall (R. A. Manduca 2019). But its spatial nature creates its own set of effects. Most notably, the local average income determines the market conditions facing the commercial institutions that serve local demand, such as restaurants, hair salons, and housing. Just as producers nationally shifted their production in response to the national stretching of the income distribution, so local producers will succeed or fail depending on the money available locally. For goods where supply is constrained, such as housing in many cities, the local income distribution drives much of the regional variation in prices (Gyourko et al. 2013).

Scholars of poverty measurement have debated whether and how to adjust for cost of living differences across regions of the country (e.g. Parolin 2017; Renwick 2011). The difficulty

arises in part because people participate in multiple communities and markets simultaneously. When they search for housing, get a haircut, or go out to eat with friends, people are mostly participating in their local community. But when they read a lifestyle magazine, purchase a product online, or observe the tastes of characters in a TV sitcom, they are participating nationally. It is entirely feasible for someone to feel excluded nationally—they can't afford the newest iPhone and don't identify with supposedly typical Americans on TV—while still being able to buy a home in their community and patronize their local restaurants. Conversely, in very expensive metros there are plenty of people who may feel entirely enmeshed in the national economy while being unable to afford a home. For instance, coastal California has some of the highest average incomes in the country, but fewer than 25% of homes there are affordable to the median resident (Joint Center for Housing Studies of Harvard University 2018). On the other hand, in many rust belt metros more than 75% of homes are affordable to the median resident, even though that person earns much less than her counterpart in California.

What is clear is that the standard OPM and relative poverty measures, which are defined in reference to one national income threshold, are no longer sufficient. Similarly, the experience of economic exclusion may vary substantially even holding income constant, depending on what sort of activity a person is undertaking and where they are in the country.

Taken together, these two economic shifts—the concentration of purchasing power among the rich and the growing disparities between regions of the country—suggest specific reasons why the standard relative and absolute poverty rates may not be capturing the full amount of economic exclusion experienced in the United States today.

Introducing the Economic Exclusion Rate

Having described why economic exclusion is important, and identified two trends that suggest why it might not be captured by the standard relative poverty rate, I now introduce an alternative metric that is better suited to fully identify the set of people excluded economically in the United States. This "economic exclusion rate" borrows the form of the relative poverty rate: it sets a baseline income threshold, then identifies people as excluded if their incomes are sufficiently below that threshold. But it differs in the specifics.

The key distinction is the way the reference income is set. As described above, the relative poverty rate uses the median person as a baseline for society, using them to define the mainstream. But as I have described, the upward concentration of purchasing power has meant that the median person is no longer the economic center of the country. To remedy this, I calculate the economic exclusion rate using a baseline of the income at which the median dollar is earned. This dollar-weighted median is the income at which half of all money in society goes to richer people, and half is earned by people who are poorer. From the perspective of a company seeking to maximize revenue, the income of the median dollar is the economic center of gravity of society.

Figure 2 illustrates the distinction between the median person and the median dollar in a stylized example. The left panel shows how the income of the median person is identified: everyone in the society is lined up in order of income, the middle person is identified, and his or her income is taken as the median. In this example, the median person has an income of $5. The right panel shows the calculation of the dollar-weighted median. Here, the exercise is as if everyone in the society is stacked vertically rather than ordered horizontally. This weights their income by its dollar amount. As the figure implies, the difference between the two can be substantial, especially in societies with high levels of inequality. Note that neither of these

quantities is equivalent to the mean income, which will always fall somewhere between the two. The mean income is best understood as a measure of total output for the entire society.

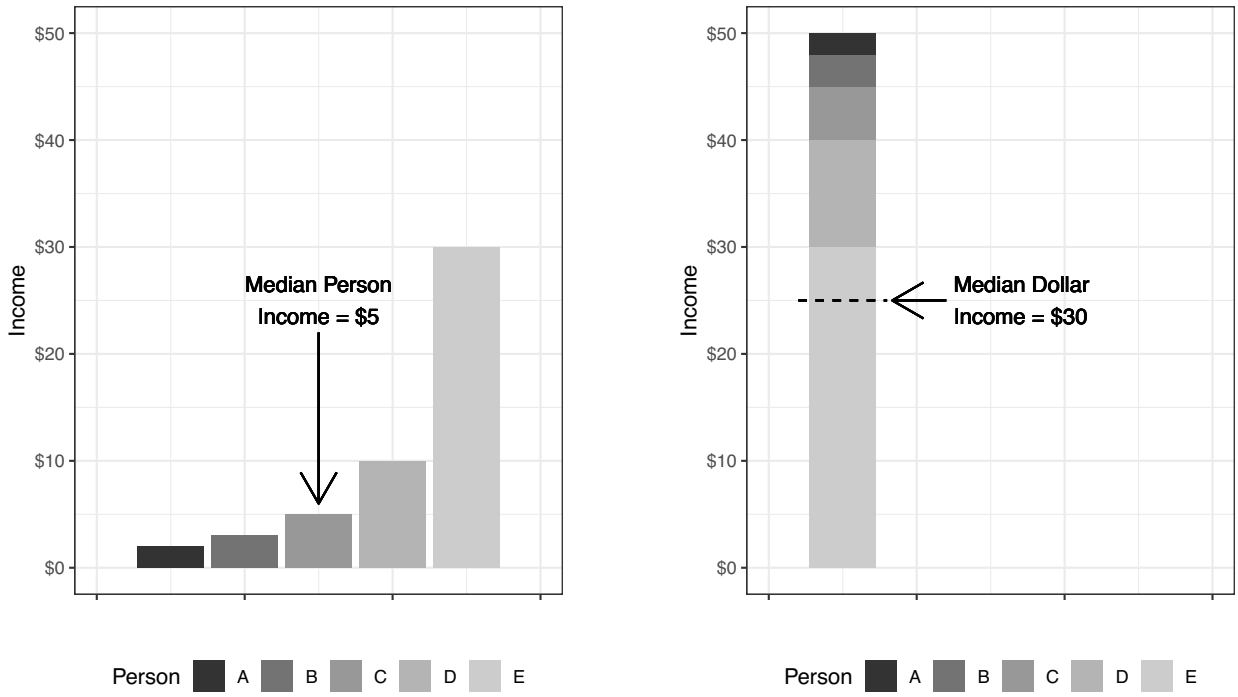


Figure 3.2. Stylized illustration of income of median person (left) and median dollar (right).

I calculate the economic exclusion rate as the fraction of society earning less than 35% of the dollar-weighted median income. The choice of 35%, like the choice of 50% or 60% for the relative poverty rate, is to a large degree arbitrary. The trends and spatial patterns I present in this chapter are robust to using alternate thresholds of 10% or 50% instead. I choose 35% for my baseline analysis because that corresponds to the ratio between the income of the median person and the median dollar in 1970, around the time relative poverty measures were being widely adopted. A 35% threshold allows that the researchers developing the relative poverty rate

correctly identified the dollar income amount that corresponded to economic exclusion in their time. But because they anchored the rate to the wrong quantity, it has failed to correctly evolve in light of rising inequality at the top of the distribution.

The seemingly small changes between the calculation of the relative poverty and economic exclusion rates can make a very large difference. For instance, in the hypothetical society shown in Figure 2, the standard relative poverty rate would be 20%: the median income is $5, 50% of that is $2.50, and Person A, with an income of $2, is the only one earning less than $2.50. But the economic exclusion rate would be 80%: 35% of the median dollar income is $10.50, and everyone but person E earns less than that amount. Despite sharing the same basic logic, these two measures provide very different pictures of how people are getting along economically.

The economic exclusion rate can be calculated from the income distribution of any community or society. Here, in light of the growing divergence between regions of the United States, I calculate it once for the nation as a whole and once using the dollar-weighted median income of each Metropolitan Statistical Area (MSA) separately. Metropolitan areas, which each encompass an individual local labor market, are the basic units of economic geography (Storper 1997).

Trends and patterns in economic exclusion in the United States

Figure 3 plots the national economic exclusion rate in the United States from 1967-2015, using the Historical SPM dataset. It also plots the Official Poverty Measure and the relative poverty rate calculated using the same dataset. The two standard poverty measures roughly track each other, and have remained almost perfectly unchanged since the 1980s: the OPM has

fluctuated between 11% and 15%, while the relative poverty rate has remained fairly stable around 18% since the early 1990s, if anything showing a slight decline over the past two decades.

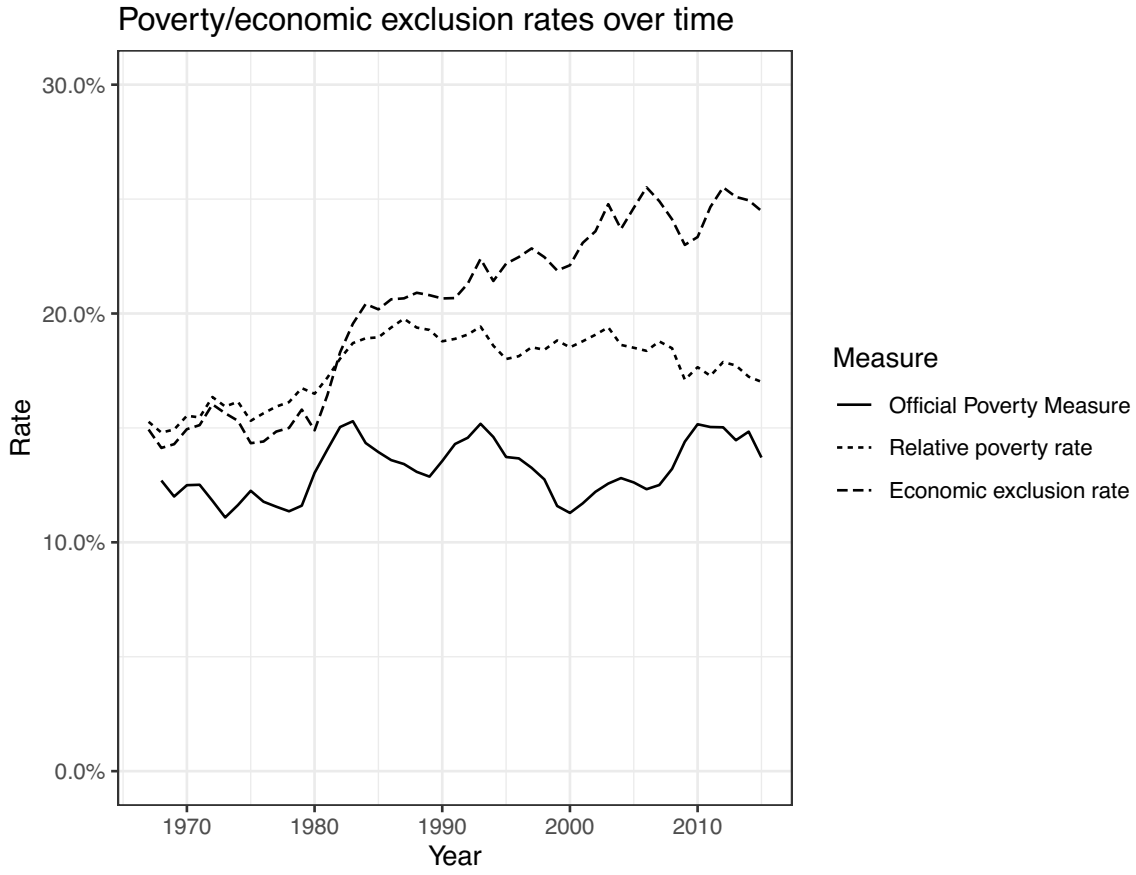


Figure 3.3. Economic exclusion and poverty over time. Incomes are defined as family disposable income normalized by the square root of family size.

The economic exclusion rate, in contrast, shows a steady increase over the last 40 years. By construction, it almost exactly matches the relative poverty rate in the early years of the sample period. But in the 1970s it started a long climb, peaking at just over 25% in 2006 and again in 2012 (the fluctuations in the exclusion rate during the Great Recession reflect the drop

in top incomes during that time). Overall, the relative poverty rate increased by 11% from 1967-2015, most of that during the 1970s. The economic exclusion rate increased by 64%, a qualitatively different trend.

National vs local economic exclusion

While economic exclusion has increased nationally over the last 40 years, there is also substantial variation between regions of the country. Figure 4 maps the economic exclusion rate by MSA, calculated first using the national threshold and then using MSA-specific local thresholds. This analysis uses the 2013-2017 American Community Survey five year estimates (Ruggles et al. 2015) rather than the Historical SPM data because the larger sample size better facilitates the construction of income distributions in small geographic areas. Individual records are matched from Public Use Microdata Areas to MSAs using the Missouri Census Data Center Correspondence Engine (Missouri Census Data Center 2012). One weakness of the ACS is that it is limited to pre-tax income, which is a less direct measure of experienced standard of living than post-tax income.

The patterns for national and local exclusion differ markedly from one another. The national exclusion rate varies dramatically across the country: the national mean is 33%, but the Washington DC and San Jose MSAs have exclusion rates below 20% while some MSAs in Texas, New Mexico, and Mississippi have rates above 60%. There are also sharp differences across very small geographies: The Merced, CA, MSA, which borders San Jose, has a national exclusion rate of 52%, more than 30 percentage points higher. The gaps between Austin and nearby rural areas in Texas, and between Raleigh-Durham and rural parts of North Carolina, are similarly large.

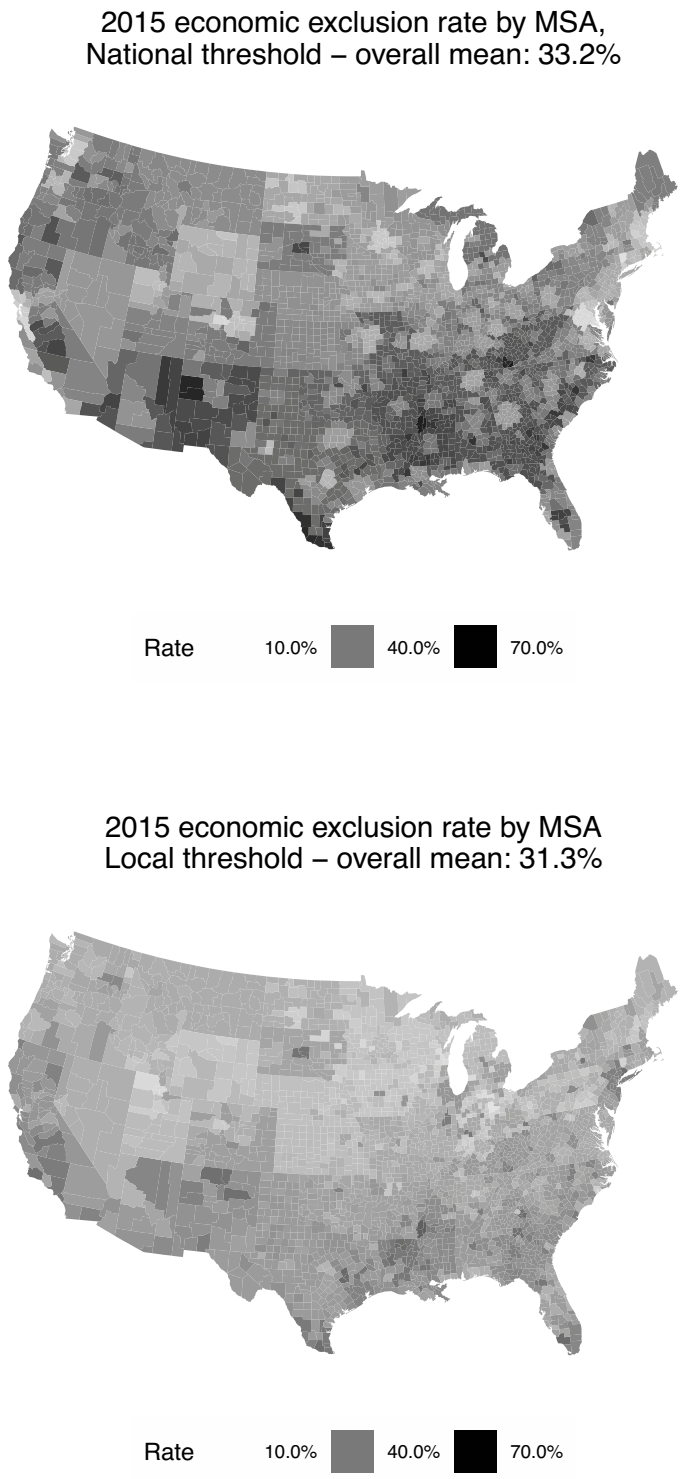


Figure 3.4. Maps of economic exclusion by MSA, calculated using a national (top) and local (bottom) threshold.

The map of local economic exclusion shows a very different picture. The overall average is similar for the two measures: a national mean of 31% rather than 33%. But there is much less spatial variation. The highest exclusion rate measured using a local threshold is 45% (for three MSAs in the Mississippi Delta), compared to a maximum of 64% using the national threshold. In addition to there being less variation overall, there is much less variation at small spatial scales. San Jose and Merced, for instance, which have national exclusion rates more than 30 percentage points apart, have local exclusion rates that differ by less than one percentage point.

The difference between national and local exclusion is a development of the past 40 years. As Figure 5 shows, in 1980 the national and local exclusion rates of MSAs were closely linked, with a population-weighted correlation of 0.72. By 2015, they were quite distinct, with a correlation of only 0.22. This unlinking results from the growing geographic income disparities between regions of the country, and in particular the rise of large metropolitan areas that have high average incomes but a great deal of internal inequality, such as New York and San Francisco. These MSAs appear in the top left corner of the 2015 graph.

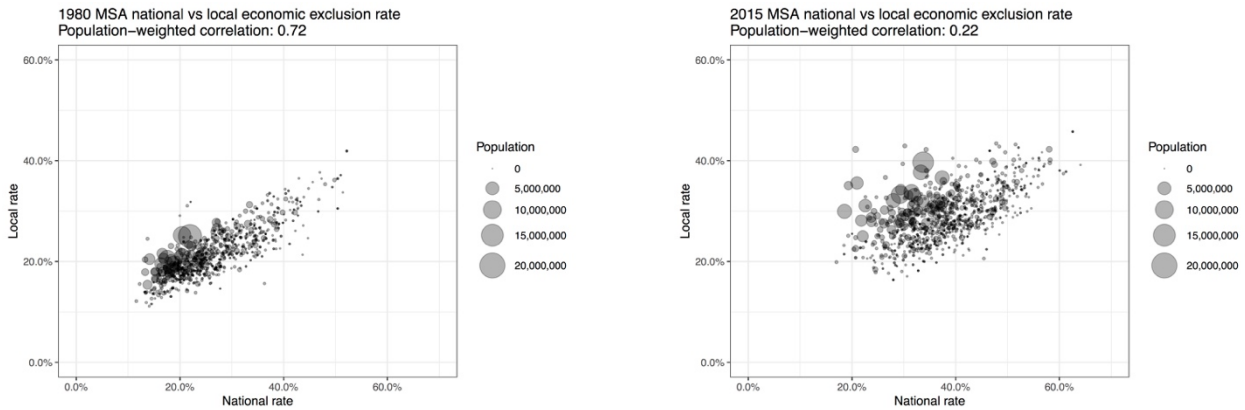


Figure 3.5. National and local economic exclusion rates by MSA, 1980 and 2015.

MSAs in 2015 display a range of exclusion profiles. San Francisco and New York, as mentioned above, have high rates of local exclusion but low rates of national exclusion. Residents in these cities may be able to afford imported consumer goods without much difficulty while still struggling to afford rent. On the other end of the spectrum, many rural areas have high rates of national exclusion but low rates of local exclusion. People living in these areas may feel passed over by the national economy but still find themselves able to participate effectively in their local community. There are also many cities where the national and local exclusion rates remain similar to one another, such as New Orleans, in which they are both similarly high, or Minneapolis, where they are both quite low. Both the type and the amount of economic exclusion today vary substantially from city to city.

Validating the economic exclusion rate

To justify being introduced, a new social metric should ideally meet three criteria. First, it should have a conceptual rationale that makes it necessary above and beyond current measures. This could be greater interpretability, superior mathematical properties, or a clearer connection to theory. Second, it should show patterns or trends different from those produced by current measures, highlighting some aspect of the social world that would be otherwise overlooked. Finally, variation in levels of the new measure should help statistically explain some social outcomes that are not well explained by current metrics.

Thus far I have provided a conceptual argument that the standard relative and absolute poverty rates do not meet their goals of identifying those people who are economically excluded from full participation in society due to a lack of economic resources. I have also shown that the

economic exclusion rate diverges markedly from the absolute and relative poverty rates in both its level and trend over time. I now turn to the third criterion. Are there other social outcomes that economic exclusion can statistically explain, that aren't well predicted by current metrics?

To answer this, I explore the relationship between the economic exclusion rate and three social phenomena that are often discussed in connection with economic dislocation: the rate of drug poisonings per 10,000 people in 2015, the Republican vote share in the 2016 Presidential election, and a measure of local social capital in 2015. Each of these social phenomena, in addition to being a source of concern to many, is often considered to be associated with the economic dislocations of the past 40 years. For instance, Case and Deaton famously refer to the growing death rate among middle-aged whites from drug poisonings, suicides, and alcohol-related liver problems as "Deaths of Despair" (Case and Deaton 2015, 2017). The opioid epidemic has hit harder in places beset by economic distress (Monnat 2019). Similarly, many of the people and places hit hardest by the economic shifts of recent decades are hotbeds of support for authoritarian political movements (Monnat and Brown 2017; Morgan and Lee 2018; Spicer 2018)—enough that some scholars have described the 2016 Brexit and Trump elections as the "revenge of the places that don't matter" (Rodríguez-Pose 2018).

Both of these developments may related to the declines in feelings of hope and optimism documented by Graham (Graham 2017). A large gap in psychological wellbeing has opened up between rich and poor Americans in recent years. As Graham notes, this is not just about experienced affect in the moment but about hope for the future, stress, and pain. The steepest declines in experienced wellbeing have been for white Americans (Graham and Pinto 2019b), especially men who are out of work (Graham and Pinto 2019a).

More than the first two indicators, social capital is a contributor as well as a consequence of local economic conditions (Benner and Pastor 2015; Storper et al. 2015). But to the extent that it develops from residents having the time to spend interacting with one another and engaging in local community organizations, and from large portions of the population being able to interact as relative equals, it may be reduced if many people lack the financial ability to afford housing or local services.

My empirical analysis is intentionally kept simple, and asks only whether cross-MSA variation in each of the three outcome measures is more strongly associated with variation in the local and national economic exclusion rates or variation in the local and national relative poverty rates. I establish this using unconditional linear regressions. The purpose of this exercise is not to definitively determine the drivers of drug overdoses or local social capital. Rather, it is a gut check to see whether the measure I have introduced has a strong statistical relationship with the social outcomes it is thought to be conceptually linked to.

I run three linear regressions for each outcome variable. The first regresses the outcome on the local and national relative poverty rate, defined as the fraction of the MSA population earning one half of either the MSA or national median income. The second regresses the outcome on the local and national economic exclusion rates, while the third regresses the outcome on both measures at once. Comparing the R2 of the three regressions identifies the overall explanatory power of each metric, while changes in the sign and magnitude of the coefficients between the isolated and combined regressions suggest which variable has the stronger association.

Results are presented in Table 1. Columns 1-3 show the coefficients from the regression predicting the share of MSA votes going to Donald Trump in the 2016 election. Both the relative

poverty rate and the economic exclusion rate are strongly predictive of cross-MSA variation in GOP vote share, with the relative poverty rate having an R2 of 0.46 and the economic exclusion rate having one of 0.57. In both cases the national rate is positively associated with GOP vote share and the local rate is negatively associated. When both metrics are included at once, the R2 increases slightly from the regression with only economic exclusion, and the signs on the relative poverty rate flip, suggesting that it is less predictive once economic exclusion is known.

Table 3.1. Regressions of GOP vote share, drug poisoning rate, and MSA social capital on relative poverty and economic exclusion, 2014-2016.

	MSA GOP vote share, 2016			Drug poisoning rate per 100,000 population, 2015			MSA Social Capital Index, 2014 (Rupasingha and Goetz 2008)		
	1	2	3	4	5	6	7	8	9
Relative poverty, national	1.383***		-3.695***	6.129*		55.505	-2.137***		1.502
Relative poverty, local	-3.658***		1.958***	-26.317**		132.462***	-6.361***		10.067***
Economic exclusion, national		1.215***	4.081***		8.964***	-31.745		-1.155***	-2.164
Economic exclusion, local		-1.569***	-1.732***		-43.862***	-92.414***		-5.870***	-9.228***
Constant	0.985***	0.554***	0.073	21.189***	27.328***	12.391**	1.388***	1.639***	0.347
Observations	957	957	957	961	961	961	962	962	962
R^2	0.457	0.575	0.595	0.007	0.098	0.182	0.103	0.259	0.302
Adjusted R^2	0.456	0.574	0.593	0.005	0.096	0.179	0.101	0.257	0.299

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Columns 4-6 show the results for the regressions predicting drug poisonings per 100,000 residents. Here a similar pattern appears, except that the R2 increases substantially when both types of measure are included together. Finally, Columns 7-9 show results for the regression predicting local social capital. In these regressions, the coefficients are negative for both the national and local economic exclusion and relative poverty rates, meaning that places with higher levels of exclusion of either kind have lower levels of social capital. Including both relative poverty and economic exclusion in the same regression moderately increases the R2.

In sum, across three social outcomes from different domains, each with strong theoretical links to the concept of economic exclusion, the economic exclusion rate is more predictive of spatial variation than the relative poverty rate is.

Discussion

Economic shifts have social consequences. Over the last four decades, the US has undergone a wrenching economic transformation, the result of major shifts in economic policy, technology, and political institutions. These economic changes have concentrated income among the very richest members of society, and left many people and places behind.

In this chapter I have argued that two aspects of the economic changes of the past 40 years in particular have generated substantial economic exclusion, far beyond the levels suggested by standard measures such as the absolute and relative poverty rates. The concentration of consumer purchasing power at the top of the income distribution has reshaped product markets, driving companies to focus more of their effort on developing products for very high income buyers. As a result, even as inflation-adjusted incomes for much of the country have remained at the level they were in the 1970s, a person near the middle of the income distribution is now much further from the center of the commercial economy than a person with the equivalent income would have been in 1975.

At the same time, the growing economic disparities between regions of the United States mean that the standard of living purchased by a given dollar income varies substantially across the country. Many people in wealthy regions may have incomes well above the national median, while still struggling to afford basic necessities like housing and transportation. Statistics based on one national income threshold will miss this squeeze.

To quantify the impact of these two trends I have introduced a measure, the economic exclusion rate, that is designed to account for the exclusion generated by rising incomes at the top and growing disparities across space. By construction, this measure draws on the logic of the standard relative poverty rate, and shows similar levels in the 1970s. But as the economy began its exclusive turn, the economic exclusion rate rose sharply even as standard poverty measures stayed roughly constant. Similarly, the local economic exclusion rate today is much higher than the national rate in many large coastal metros with high average incomes.

My investigations of economic exclusion call attention to the relationship between poverty, social exclusion, and inequality. Over the past several decades, scholars of poverty have increasingly recognized that a major component of poverty, especially in high-income countries, is the social exclusion attributable to having too few resources. It is a low relative income, not a low absolute one, that generates the personal feelings of shame at not being able to meet societal norms, and the external condescension and imposition of social boundaries, that theorists from Adam Smith to Michael Harrington to Amartya Sen have recognized as central to the experience of poverty. This social exclusion can have major material consequences, especially as more and more basic services become commoditized and provided through zero-sum positional goods (Grusky et al. 2019).

This chapter pushes advocates of relative poverty to take their logic to its ultimate conclusion. If poverty is largely a form of social exclusion generated by having an income too low relative to others in one's society, then as resources become more and more concentrated at the top, a larger and larger portion of society will be excluded economically. It thus does not make sense to consider poverty and inequality as truly separable concepts, nor is it justifiable to limit concerns about poverty to those below the median income in a society as top-skewed as the

United States today. Rather, capturing the true amount of economic exclusion requires considering the full shape of the entire income distribution.

The economic exclusion rate I have introduced does just this, accounting for the shape of the top as well as the middle and bottom of the income distribution. One consequence is that the economic exclusion rate is correlated quite strongly (>.9) with measures of inequality, such as the Gini coefficient or the share of income going to the top 5%. This drives home just how closely inequality and exclusion are tied. But the economic exclusion rate serves a very different purpose from overall inequality measures. Its goal is not just to characterize the overall amount of spread of the income distribution, but to identify the specific individuals and groups who are being harmed or left out by the concentration of resources at the top. Unlike population-level measures like the Gini coefficient, which do not have a one-to-one correspondence with individual members of society, it is possible to determine whether any individual person is economically excluded based on their income alone. That makes it possible to calculate economic exclusion rates for individual demographic groups, occupations, or geographic areas in a way that is impossible to do with the Gini coefficient. It also helps highlight that rising inequality has major negative consequences for individual people, and is not just an abstract concept.

The United States today is facing major economic and social challenges. Properly addressing those challenges requires knowing their true extent, and who is being most negatively affected by them. By motivating and introducing the economic exclusion rate, this chapter offers researchers and policymakers a new tool to help document the full amount of economic exclusion in our society.

Conclusion

Economic inequality has become one of the defining issues of our time. In politics, culture, business, and social science, it is at the center of many of the biggest conversations and debates going on in the United States and internationally today. From the World Economic Forum at Davos to the Democratic Socialists of America, everyone is talking about the problems created by inequality.

In this dissertation, I have shown that the consequences of rising inequality in the United States have been, if anything, even greater and more wide ranging than commonly realized. Many of the other pressing issues of our time are in fact closely intertwined with, and exacerbated by, growing economic inequality at the national scale. Here, I have demonstrated these interconnections between national income inequality and the racial income gap between blacks and whites, the growing economic disparities between regions of the United States, and the growing number of people in the US who are economically excluded from full participation in American society.

In chapter 1 of the dissertation, I showed how rising income inequality has counteracted what would otherwise have been meaningful, though far from complete, progress towards economic parity between African Americans and whites. Over the 50 years since the Civil Rights Movement, the amount of racial stratification—the extent to which most whites occupy higher positions in the income distribution than most blacks—did in fact decrease, by about 30%. This decrease came in spite of continued racial discrimination in hiring, unequal access to education, and large racial disparities in parental wealth. Yet the decrease in racial stratification has not translated into a closing of the black-white income gap. As I showed, this disconnect is because

as African Americans were making strides up the income distribution, the distribution itself was stretching out, with a larger and larger share of resources being concentrated in the hands of the richest—and most disproportionately white—members of society. Thus rising income inequality overall undid what would have been real, though nowhere near sufficient, racial progress.

In chapter 2, I demonstrated how a similar dynamic has contributed to the growing economic disparities between regions of the United States. Since 1980 the richest metro areas in the country have seen their incomes grow faster and faster, while many other places have been left behind, struggling with unemployment and disinvestment. While the income stratification of metro areas—typically described as the sorting of residents by income or education level—has in fact been going up, I showed that the increase in stratification alone can account for less than one-fourth of the total increase in regional divergence. A majority of the divergence is due instead to the rise in inequality everywhere. Because metro areas have always been somewhat stratified by income, an increase in the total amount of inequality will disproportionately benefit some and disadvantage others. This stretching process, rather than a change in who lives where, is the primary driver of regional divergence.

In chapter 3, I argued that the concentration of economic resources in the hands of the very rich has the effect of excluding more and more people from full participation in US society. This is because businesses will tend to adjust their behavior to target those portions of society where the most revenue is to be found. As the rich have taken a larger and larger slice of total US income, businesses have shifted their efforts towards providing the goods and services that the rich demand--and businesses who did not adjust their behavior have gone bankrupt. The result is that people whose incomes have not changed find themselves receiving fewer and fewer benefits from product innovations and having to compete harder and harder for positional goods like

housing and access to quality education. This change is occurring not because they are now occupying lower rungs on the income ladder, but because the ladder itself has elongated. As I showed, the economic exclusion rate is predictive of variation in many social outcomes of great concern today, including the drug poisoning rate, voting behavior in the 2016 election, and levels of local social capital.

My hope for this dissertation is that it will offer both methodological and conceptual contributions for scholars of inequality, and that it will help policymakers and members of the public plot a way forward in responding to the challenge of economic inequality. Methodologically, I have made use of straightforward descriptive simulations to show how changes to the shape of the income distribution affect other variables of interest. The key technique I have used is to separate the rank position in the distribution from the incomes earned at each rank. This approach builds on established methods in the stratification literature that separately analyze the set of social positions that exist, the processes that allocate people to positions, and the ways in which the rewards of each position are assigned (Weeden 2002). By distinguishing the ranks in the income distribution that different people occupy from the dollar incomes earned at each rank, and then constructing hypothetical scenarios in which the dollars at each rank are different, I am able to isolate the effects of rising income inequality on its own from the effects of changes in stratification. I have applied this method to study inequality between races and regions of the country, but it could similarly be applied to study inequality by sex, education level, occupation, or any other categorical variable.

Conceptually, this dissertation highlights the distinction between stratification and inequality, while also showing how changes in the level of overall inequality can increase the disparities between stratified social groups, even if the level of stratification itself does not

change. This is in fact a special case of a more general principle, implied by Peter Blau's macrosociological theory of social structure (Blau 1977a, 1977b). Any time different groups are stratified along some continuous variable—income in this case—their relative positions can change not only through changes in the extent of stratification between them, but also through global changes affecting the continuous variable for all of society.

For citizens and policymakers concerned about income inequality, this dissertation offers both reasons for worry and reasons for hope. I have shown that the consequences of rising inequality are far larger and more varied than is commonly appreciated. They are born not only by individuals, but by entire social groups and cities. This means that even those fortunate people whose personal economic situation has not deteriorated may be impacted by the worsening economic situations of their hometowns, their ethnic groups, or their social networks.

While it is concerning that the footprint of income inequality on society is larger than generally acknowledged, it may also point the way towards addressing the problem. In this dissertation, I have shown that some major social problems that are frequently discussed separately from rising inequality—namely racial economic disparities and regional income divergence—are in fact closely intertwined with the overall level of inequality in society. Importantly, the coalitions concerned with each of these three issues are somewhat distinct. Yet one implication of my findings is that many of their individual concerns can be address through the same set of policies to reduce the amount of inequality in society at large. It is possible, though by no means guaranteed, that this common ground could be the basis for the type of broad-based political coalition that will be necessary to address such a fundamental societal challenge. By showing the interconnections between these different issue areas I hope to make such a coalition marginally more likely to emerge.

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