



**JOINT CENTER**  
FOR POLITICAL AND ECONOMIC STUDIES



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## AN INTRODUCTION TO THE FUTURE OF WORK IN THE BLACK RURAL SOUTH

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Harin Contractor  
Spencer Overton

December 2019

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# Executive Summary

National future of work conversations rarely give attention to residents of the Black Rural South—workers who historically have borne the brunt of technological change. This report provides an introduction to the Black Rural South—156 rural counties with populations that are 35 percent Black or higher in the Southern United States. Key findings show:

- The Black Rural South Was an Engine of U.S. Economic Growth.** For the first six decades of the 1800s, cotton produced mostly by enslaved labor in the Black Rural South represented over half of American exports, and facilitated the development of several industries in other regions—textile factories, banks, insurance companies, and shipping lines. By the 1860s, the South was producing 75 percent of the world’s cotton, and the lower Mississippi Valley was home to more millionaires than anywhere else in the United States.
- Automation and Low-Cost Black Labor Shaped the Black Rural South.** The cotton gin’s automation of cotton seed removal eliminated the need for enslaved persons to perform this task, but triggered an explosive growth in the demand for raw cotton and the rapid spread of slavery. After the Civil War a Jim Crow caste system evolved that maintained a large pool of low-cost Black labor until cotton farming was automated in the 1950s and 1960. An abundant supply of low-cost unorganized Black labor and low taxes attracted manufacturing to the Black Rural South, but employment in the industry has declined by 40 percent in recent years due to automation and outsourcing.
- Deep Racial Inequality Persists in the Black Rural South.** While the Black Rural South has higher unemployment and childhood poverty rates and lower earnings than rural areas outside of the South and the nation as a whole, much of this stems from racial inequality. For example, in the Black Rural South 19 percent of White children live in poverty compared to 52 percent of Black children. On average, Whites in the Black Rural South enjoy greater prosperity than Whites in the “White Rural South” (Southern rural counties over 90 percent White).
- Almost a Quarter of Jobs in the Black Rural South Could Be Displaced by Automation by 2030.** Over half of all private sector workers in the Black Rural South are employed in industries with a high potential for automation (compared to only a third of private sector workers in the national population). The Joint Center also analyzed county-level data compiled by the consulting firm McKinsey & Company. Based on the Joint Center’s analysis of this data, 45.8 percent of the job activities in the Black Rural South can be automated with current technologies, and 24.2 percent of jobs in the Black Rural South could be displaced by automation by 2030.

- **Absent Intervention, Fewer New Jobs Will Be Created in the Black Rural South.** Between 2001 and 2017 job growth was 31.5 percent for Southern metro areas, 21.4 percent nationally, 6.8 percent for non-South rural areas, and negative 0.4 percent for the Black Rural South. Absent concerted intervention, we assume these trends will continue, with metro areas enjoying significant growth, and the Black Rural South experiencing significant job loss. While county-level data projections indicate job growth between 2017-2030 ranging from 6 percent to 17 percent for various metro areas, 1 percent for healthier rural areas, and negative 3 percent for typical distressed rural areas, the Joint Center’s analysis of the county-level data projects *negative* 9 percent job growth in the Black Rural South.
- **The Costs of Displacement Are Higher for Workers in the Black Rural South.** The Black Rural South has a slightly higher projected rate of displacement from automation (24.2 percent) than the U.S. as a whole (23 percent), but the real danger is the combination of displacement with high negative job growth in the Black Rural South. Many displaced workers in metro areas with high positive job growth could have a relatively easy time securing replacement employment. By comparison, the costs of displacement could be much higher in the Black Rural South because displaced workers could have a much more difficult time securing replacement employment if fewer open jobs exist in the region. The combination of displacement and negative job growth in the Black Rural South could increase already high unemployment and poverty rates, and further reduce already low earnings and workforce participation rates.
- **Policymakers and Private Sector Leaders Can Implement Solutions.** Sustained prosperity requires innovation, deeper investments in people, and solutions tailored to the unique structural challenges that confront the Black Rural South. Forthcoming Joint Center research will propose solutions for federal policymakers, the private sector, and local leaders, such as a Black Belt Commission and targeted investments in broadband, HBCUs, education, skills, remote learning and remote work, and entrepreneurship in the Black Rural South.

# Introduction

Media coverage and current future of work discussions organized by big tech, traditional industries, think tanks, and federal policymakers have largely ignored the Black Rural South. While future of work conversations often humanize the issue by invoking “Rust Belt” factory workers and Appalachian coal miners, they generally give little attention to residents of the Black Rural South.

Before the rise of the Industrial Midwest or Coal Country, however, the Black Rural South was the center of the nation’s economy. The cotton gin—an innovation developed just five years after the ratification of the U.S. Constitution—increased the demand for cheap labor to grow raw cotton and accelerated the growth of slavery throughout the Black Rural South. For the first six decades of the 1800s, cotton produced mostly by enslaved labor in the Black Rural South represented over half of American exports, and facilitated the development of several industries in other regions of the United States—textile factories, cotton brokers, ports, shipping lines, banks, and insurance companies.

As a result of cheap labor from enslaved workers, cotton evolved into the “first mass consumer commodity” and the U.S. quickly became the world’s second economic superpower. By the 1860s, the South was producing 75 percent of the world’s cotton, and the lower Mississippi Valley was home to more millionaires than anywhere else in the United States. The Black Rural South laid the foundation for our modern industrial world, and subsequent generations of American leadership in manufacturing and other industries.

While the Emancipation Proclamation and the 13<sup>th</sup> Amendment freed enslaved people in the 1860s, our nation failed to create effective bridges for most formerly enslaved people and their descendants to transition into better work. One of the more successful attempts—the establishment of “free colored schools” (today’s HBCUs)—provided the origins of a debate between emphasizing skills or higher education that continues today. Unfortunately, the nation prematurely retreated from Reconstruction, and allowed a repressive Jim Crow caste system to evolve that maintained a cheap supply of Black labor for Southern cotton plantation owners.

This labor was replaced with automated planting, weeding, and harvesting machines between the 1940s and 1960s. This prompted the second wave of the Great Migration, where African Americans again moved away from the Black Rural South. The federal government promoted automation to keep American cotton competitive internationally (cotton had been the leading American export from 1803 to 1937) but did not provide sufficient retraining or relocation assistance for workers who remained in the Black Rural South. And—rather than investing in widespread education and worker training—business leaders and policy makers in the South attracted food processing plants, wood production, and other manufacturing jobs by promoting

an abundant supply of low-wage nonunion labor and low taxes. In recent decades these manufacturing jobs have declined in response to automation in manufacturing and less expensive labor abroad. As a result, today the Black Rural South has some of the nation's deepest pockets of poverty, unemployment, and racial inequality.

Any national future of work discussion that excludes the Black Rural South is incomplete. We cannot build a modern system that fully transitions American workers to a new economy without consciously addressing the past, present, and future of the Black Rural South. Continued neglect of the residents of the Black Rural South sets the stage to neglect the residents of other regions with industries of declining significance—such as the Industrial Midwest, Appalachia, and eventually Silicon Valley.

This report connects the history of work in the Black Rural South to contemporary discussions about the future of work. Part I defines the Black Rural South as 156 counties that are a part of the Black Belt of the American South. Parts II and III review the historic and present status of work in the Black Rural South. Part IV analyzes the potential effect of automation on workers in the Black Rural South, and reveals that while almost half of jobs are concentrated in the five industries with the highest potential for automation, the risk of displacement from automation is just slightly higher in the Black Rural South than across the nation as a whole. Part V explains that despite similar displacement risks, the costs of displacement are much higher in the Black Rural South because projected negative job growth could make it much more difficult for displaced workers to obtain new work.

A second Joint Center report, *Solutions for Federal Policymakers and the Private Sector on the Future of Work in the Black Rural South*, provides initial solutions for federal policymakers and private industry to start to overcome the structural barriers that confront residents of the Black Rural South. A third Joint Center report, *Solutions for Local Leaders in the Black Rural South on the Future of Work*, provides initial solutions for local leaders in the Black Rural South to prepare their communities for a brighter future.



# Defining the Black Rural South

Our report defines the “Black Rural South” as a county that both:

- 1) has been designated as “rural” by the U.S. Department of Agriculture; and
- 2) has a population that is at least 35 percent African American. (By comparison, African Americans account for just over 12 percent of the U.S. population and 8 percent of the U.S. rural population).<sup>1</sup>

Under our definition, the Black Rural South consists of 156 counties in ten states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia).

Counties of the Black Rural South

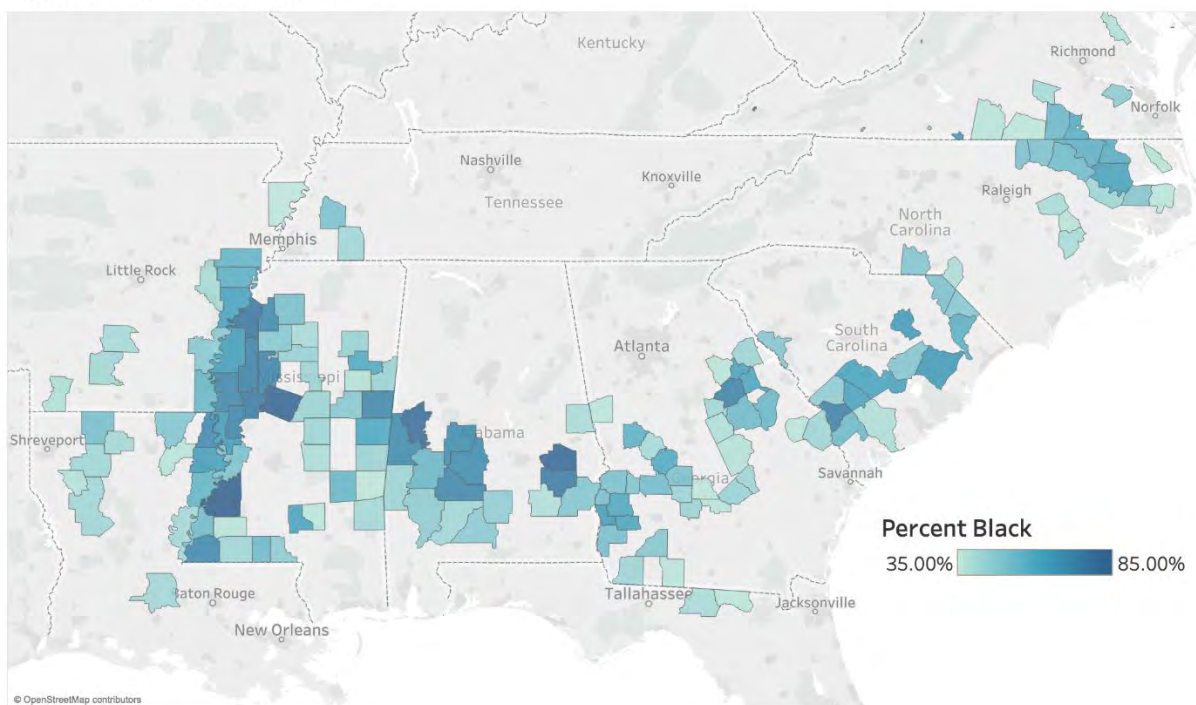


Figure 2: 156 Counties of the Black Rural South

The focus of our report overlaps with, but differs from, the “Black Belt,” as we exclude metropolitan counties in the region, and various definitions of the “Black Belt” exist.<sup>2</sup> Booker T.

Washington explained the term “Black Belt” was first used to describe a region with rich and dark soil, that enslaved people were taken to this area because it was most profitable for agriculture, and that eventually the term was used to describe the large numbers of African Americans in the area.<sup>3</sup> Over the years, researchers have defined the Black Belt using various formulations, including Southern counties with populations that are at least 40 percent Black and rural (147 rural counties),<sup>4</sup> at least one-third Black (42 metro counties and 198 rural counties),<sup>5</sup> and at least 12 percent Black (623 metro and rural counties).<sup>6</sup>

Our definition of Black Rural South is also underinclusive of the entire Black population in the rural South, as large concentrations of rural African Americans live in parts of counties that do not meet our 35 percent Black threshold. Recognizing that many datasets are organized by county, we aimed to isolate counties that were clearly part of the Black Rural South to understand the region’s distinctive characteristics relative to other parts of the nation. Thus, the recommendations offered in our future publications will be applicable to many Black rural communities outside of the 156 counties we define as the Black Rural South.



The 156 counties that make up the Black Rural South are distinct from other parts of the nation. Approximately 3.6 million people live in the Black Rural South, and African Americans—who collectively make up 48.3 percent of the population of the region—narrowly edge out Whites as the largest racial group.<sup>7</sup> This is four times higher than the Black percentage of the population in the United States as a whole, and six times higher than the Black percentage of the population in all rural counties nationwide.

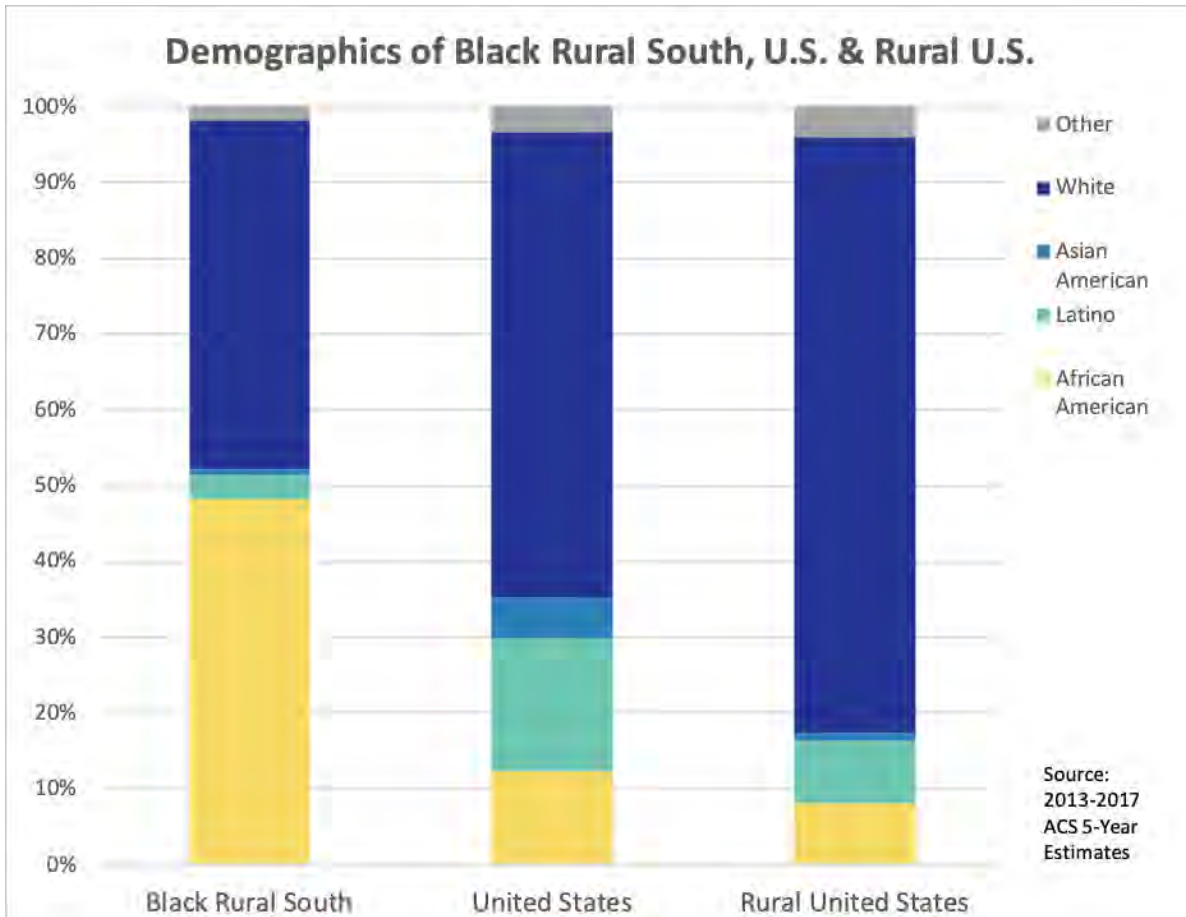


Figure 3: Demographic breakdown of counties in the Black Rural South, counties in the Rural United States, and counties in the United States.<sup>8</sup>

The Black Rural South is also very Black and White—Latinos, Asian Americans, and other people of color collectively make up only 6 percent of the Black Rural South, compared to 26 percent of the U.S. population as a whole.

# The History of Work in the Black Rural South

The new technology of the cotton gin in 1793 and the compelled labor of enslaved persons in the Black Rural South allowed the United States to quickly grow to become, along with Great Britain, one of the two first-rank economic powers in the 1800s.<sup>9</sup> Cotton was the “first mass consumer commodity,”<sup>10</sup> and slave plantations were America’s “first ‘big business.’”<sup>11</sup>

After the Civil War and the end of slavery, efforts to educate Black workers and children resulted in a network of Historically Black Colleges and Universities and a debate over whether to emphasize skills training or classical liberal arts education that continues to shape our thinking today. Many formerly enslaved people and their descendants continued to farm cotton as sharecroppers, only to be displaced by the automation of cotton planting, weeding, and harvesting between the 1940s and 1960s.

## Enslaved Persons Farming Cotton Enabled Early U.S. Economic Power

Innovation and the forced unpaid labor of slavery in the Black Rural South provided the foundation of a strong American economy. Five years after the ratification of the U.S. Constitution, Eli Whitney invented the cotton gin, a machine that could pick seeds out of raw cotton ten times faster than an enslaved person.<sup>12</sup> Initially, many believed the cotton gin would reduce the need for enslaved persons. The increased processing capacity, however, accelerated demand for cotton and for more enslaved persons to grow the crop. The number of enslaved persons quadrupled between 1805 and 1860, and just before the Civil War over 30 percent of the population in the American South were enslaved persons.<sup>13</sup>

While the largest percentage of enslaved Americans prior to the American Revolution were working on tobacco plantations in Virginia and Maryland, the cotton gin shifted the center of the slave economy to the deep South, and slavery rapidly expanded in Georgia, Alabama, Mississippi, and Louisiana.<sup>14</sup> By 1850, over 70 percent of enslaved persons working in agriculture in the U.S. were “working on cotton plantations.”<sup>15</sup> While the vast majority of these were field hands, some worked in other capacities on plantations (e.g., butlers, waiters, maids, seamstresses, launderers, carriage drivers, stable boys, carpenters, stonemasons, blacksmiths, millers, spinners, and weavers).<sup>16</sup> Only about ten percent of enslaved Africans worked in urban areas.<sup>17</sup>

Production of cotton exploded, and for the first six decades of the 1800s raw cotton comprised more than half of all U.S. exports.<sup>18</sup> By 1850, the United States produced 72 percent of the cotton used in Britain, as well as a similar percentage of that consumed in other nations in Europe.<sup>19</sup> By

the beginning of the U.S. Civil War, the American South was the source of three quarters of world's cotton.<sup>20</sup> Slavery, and the sharecropping system that replaced slavery in the Black Rural South, made cotton the leading American export from 1803 to 1937.<sup>21</sup>

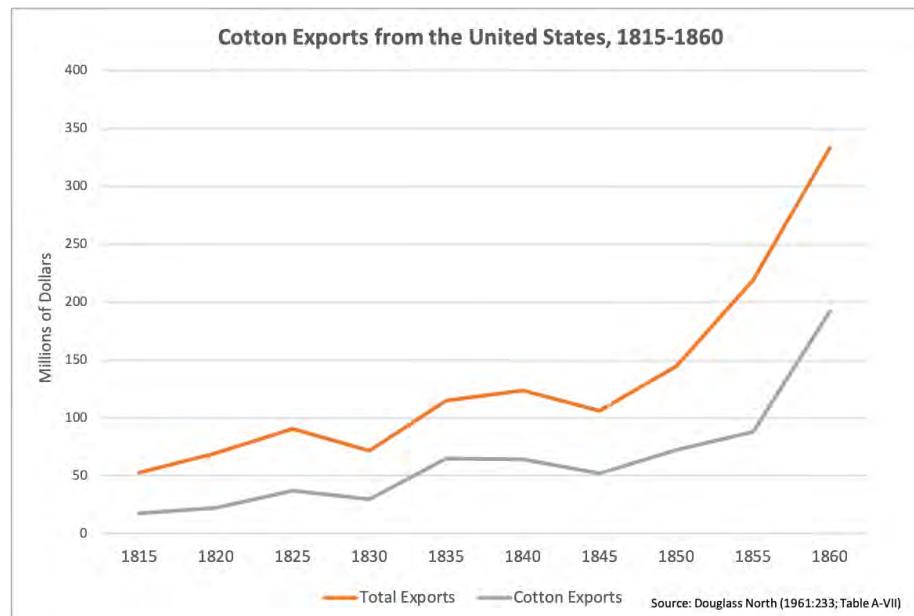


Figure 4: Cotton Exports from the United States, from 1815 to 1860, in millions of dollars.<sup>22</sup>

Enslaved people did not just produce the nation's largest export, but by 1860, the nation's four million enslaved persons were the second largest asset in the U.S. economy (only behind land).<sup>23</sup> Enslaved people were conservatively worth three times the amount of capital invested in manufacturing, three times the amount invested in railroads, "seven times the amount invested in banks," and "about seven times the total value of all currency in circulation in the country."<sup>24</sup> The high value of enslaved persons allowed their owners to use their bodies as collateral to obtain credit from American and English banks so they could buy more tools, land, enslaved persons, and other resources to quickly scale their slavery operations and move into other businesses. "[B]y 1860, there were more millionaires living in the lower Mississippi Valley than anywhere else in the United States."<sup>25</sup>

The Black Rural South generated significant wealth not just in the South, but throughout the United States. Relatively inexpensive cotton resulted in rapid growth of American textile mills—particularly in New England.<sup>26</sup> The banking industry in New York grew as it provided textile mills and plantation owners credit to expand their operations.<sup>27</sup> Insurance companies grew to insure these assets. Cotton brokers in New York emerged to trade cotton in global markets. Shipping lines

expanded to export raw cotton and textiles from New York to other nations.<sup>28</sup> The urbanization facilitated by these industries created a demand for food grown in the Midwest. Innovations other than the cotton gin developed by these other industries—such as larger cargo ships powered by steam engines, new financial instruments, looms, and weaving machines—drove the demand for cotton and slave labor.<sup>29</sup>

The origins of global capitalism as we know it and the modernization of the United States as a whole were driven in large part by the raw cotton grown by forced labor in the Black Rural South. As Harvard professor Sven Beckert explains, “Just as cotton, and with it slavery, became key to the U.S. economy, it also moved to the center of the world economy and its most consequential transformations: the creation of a globally interconnected economy, the Industrial Revolution, the rapid spread of capitalist social relations in many parts of the world. . . . In the first 300 years of the expansion of capitalism, particularly the moment after 1780 when it entered into its decisive industrial phase, it was not the small farmers of the rough New England countryside who established the United States’ economic position. It was the backbreaking labor of unremunerated American slaves in places like South Carolina, Mississippi, and Alabama.”<sup>1</sup>

*Unpaid Black labor produced the cash crop that drove industrialization throughout the U.S., and the development of our modern globally-interconnected economy.*

## Black Education and the Skills vs. Liberal Arts Debate

In the 1860s the Emancipation Proclamation and the 13<sup>th</sup> Amendment to the U.S. Constitution freed four million enslaved people, and a primary issue was transitioning them to a paid labor market.<sup>30</sup> Formerly enslaved people had been prohibited from learning to read and write, and formal education and the acquisition of skills were priorities.

In 1865, Congress created the Bureau of Refugees, Freedmen, and Abandoned Lands (the “Freedmen’s Bureau”), to set up education programs, allocate abandoned land, and take other steps to reconstruct the South.<sup>31</sup> With the support of the Freedmen’s Bureau and religious groups like the American Missionary Association,<sup>32</sup> several “free colored schools” were established.<sup>33</sup> Many of these schools focused initially on primary and secondary learning, and eventually evolved

into teacher-training institutions and colleges (which we now refer to as Historically Black Colleges and Universities—or “HBCUs”).<sup>34</sup> For example, the institution that is now Fayetteville State University initially taught primary and intermediate level grades in 1866, and became the first state-sponsored African American teacher training institution in the South in 1877.<sup>35</sup> An additional 16 HBCUs were established due to the federal Agricultural College Act of 1890,<sup>36</sup> such as the South Carolina State Agriculture and Mechanical Institute (which is now South Carolina State University).<sup>37</sup>

While African Americans engaged in public life during the 12 years of Reconstruction following the Civil War,<sup>38</sup> White Southern planters, businessmen, and politicians took advantage of the retreat of federal troops from the South in the late 1870s and used racial violence to discourage Black voting. White Southern interests took control of state legislatures and erected Jim Crow laws to segregate races later upheld by the U.S. Supreme Court in *Plessy v. Ferguson*. They also erected Black Codes that criminalized petty offenses such as being unemployed, which kept Black people tied to plantations and allowed those arrested to be leased to private companies and returned to forced labor.<sup>39</sup>

*Different visions of Black educational institutions emerged—one emphasizing practical skills, and the other emphasizing classical liberal arts education.*

Within this context, different visions of Black educational institutions emerged—one emphasizing the acquisition of practical skills, and the other emphasizing a classical liberal arts education. In 1866 the “Fisk Free Colored School” (today known as Fisk University) was opened in Nashville as a liberal arts school, with the belief that African Americans “needed to be educated in the social sciences in order to lead.”<sup>40</sup> In contrast, believing that skills and trades provided the formerly enslaved the fastest road to resources and self-sufficiency, Union veteran General Samuel Armstrong founded the Hampton Normal and Agricultural Institute in Virginia in 1868 (today known as Hampton University).<sup>41</sup>

Booker T. Washington, a graduate of Hampton who in 1881 became the first principal of Tuskegee Normal School for Colored Teachers in Alabama (now Tuskegee University),<sup>42</sup> became the most prominent spokesperson for skills development. Washington focused on basic education and skills in agriculture, industry, and domestic service because he believed those who “contribute to the markets of the world” would be valued.<sup>43</sup> Dr. W.E.B. DuBois, a Fisk graduate who returned to teach at the institution after earning a PhD at Harvard, became a leading critic. Du Bois believed that Washington was too accommodating to Whites, and pushed voting rights, civic equality with Whites, and higher liberal arts education of African Americans.<sup>44</sup>

While appearing to be accommodating, Washington was both engaged in politics and committed to education. Washington secretly invested money into legal challenges to Jim Crow laws, quietly enlisted the aid of W.E.B. DuBois to fight railroad segregation in Tennessee, and worked behind the scenes to secure the appointment of federal officials sympathetic to African Americans.<sup>45</sup> Washington and businessman Julius Rosenwald also developed a matching grant program that facilitated the construction of almost 5,000 schoolhouses between 1913 and 1931, which educated about a third of southern rural black children. Within twenty years, the “Rosenwald Schools” reduced the Black-White education gap in Southern states from about 3.5 years to 0.5 years.<sup>46</sup>

## Automating Cotton Farming and the Decline of the Black Rural South

While the invention of the cotton gin in the late 1790s led to the rapid expansion of slavery and the economic rise of white plantation owners in the Black Rural South, the development and gradual adoption of mechanical cotton farming machinery between the 1940s and 1960s deepened poverty in a region that had previously relied on cheap labor.

Despite efforts to promote education and skills, many former enslaved persons and their descendants continued to work on cotton plantations as sharecroppers.<sup>47</sup> The Civil War transitioned cotton production from slavery to sharecropping, but it did not change the primary technology to grow cotton—a plow, a team of mules, a wagon, and hand tools. By 1929, three out of four Black farmers (owners, tenants, and sharecroppers) received at least 40 percent of their gross income from cotton. In addition, Black wage labor working for White farmers produced an unknown—but probably considerable—amount of cotton.<sup>48</sup> Repressive Jim Crow laws and an abundance of formerly enslaved Black communities made labor cheap, and thus Southern planters did not need to automate cotton production.<sup>49</sup>

The first patent for a mechanical cotton picker was issued in 1850,<sup>50</sup> but the technology was not sufficiently developed and commercially viable until the 1940s. While only six percent of U.S. cotton was harvested mechanically in 1949, that number jumped to 96 percent by 1969, and the percentage of hand-picked cotton declined accordingly.<sup>51</sup>



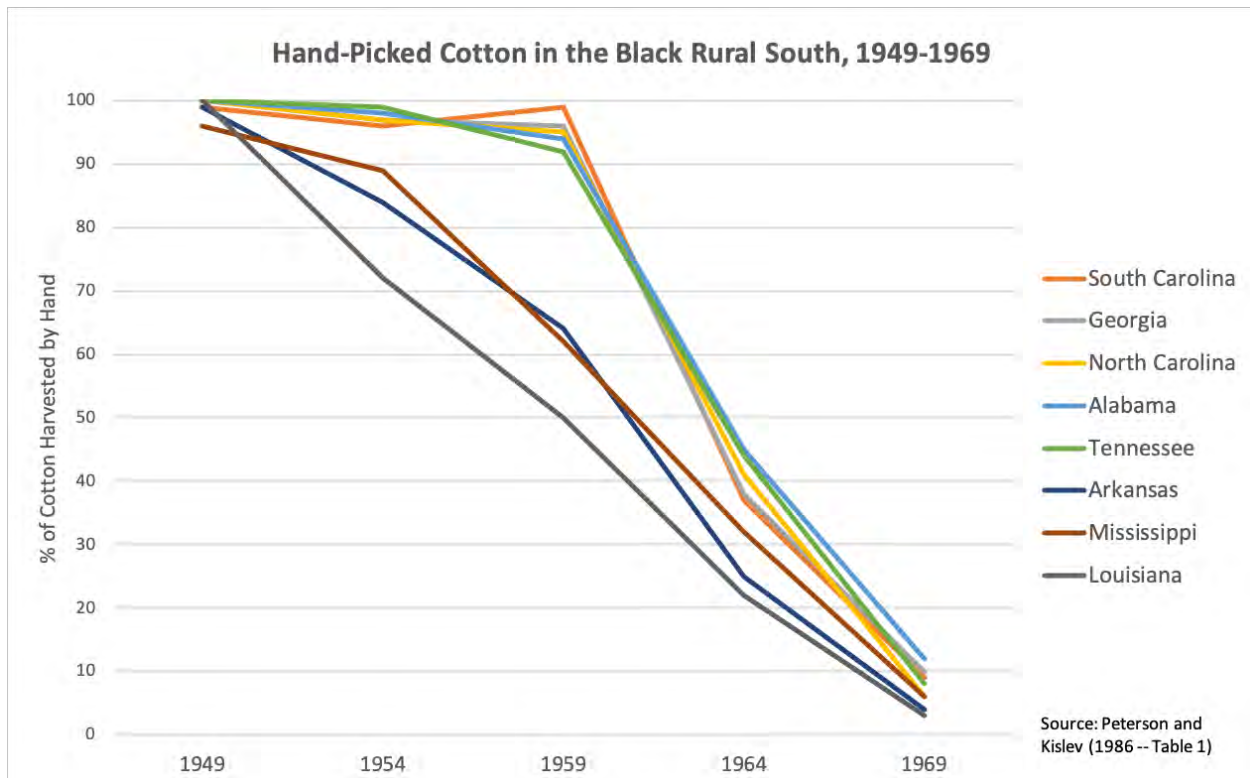


Figure 6: Percentage of Cotton Harvested by Hand in the Black Rural South States, from 1949-1969.

As Professor Donald Holley wrote:

While the cotton gin was the invention that created the Old South, the modern South is the product of the mechanical cotton picker. A century and a half after Whitney, the South experienced another major technological innovation that created revolutionary change. The cotton picker, which went into commercial production after World War II, generated great fear and trepidation. The cotton gin had set off a series of events that produced the antebellum South, bolstered slavery, and contributed to the Civil War. The potential effect of the mechanical cotton picker was seen as equally prodigious. This new machine symbolized a revolution that would eliminate hand labor from the cotton harvest and free the region from its dependence on labor-intensive agriculture. The effect on the region's sharecroppers was implicitly disastrous. Since many croppers were black, this outcome seemed especially fearful. At the same time, cotton was the last major crop to achieve full mechanization, enabling cotton farmers to work more efficiently and earning them greater prosperity.<sup>52</sup>

Experts differ on which technological driver was more significant in reducing the hand picking of cotton—the lower cost of machine harvesting that displaced farm workers (decline in labor demand), or increased wages in manufacturing that drew farm workers away from the South (decline in labor supply). Decline in labor demand estimates range from 21 percent of the decrease in handpicking,<sup>53</sup> to just under 40 percent,<sup>54</sup> to a majority.<sup>55</sup>

Before extensive roll out of automated cotton farming, industry leaders argued that a decline in labor supply would be the driver of automation, and cautioned against panic by workers. In 1947 in an address entitled “The Cotton Industry’s Responsibility in Mechanization,” the president of the National Cotton Council claimed that mechanization would not push workers off of farms, but instead replace workers who had left the South.<sup>56</sup> Economists predicted that mechanization would be rolled in gradually, and that at maximum of 518,000 workers would be displaced by picking machines.<sup>57</sup>

*Experts differ on whether the automation of cotton farming stemmed more from the lower cost of cotton machine harvesting, or from the need to replace workers who left the South for higher manufacturing wages.*

Granted, factors other than the automation of cotton farming contributed to the deepening of poverty of the Black Rural South, including the invasion of the boll weevil beetle that reduced crop yields in infested areas by 50 percent, a failure to diversify economically, soil erosion, repressive Jim Crow laws,<sup>58</sup> competition from international cotton and synthetic fabrics, and the decline of cotton prices.<sup>59</sup> However, the automation of cotton—combined with higher-paying manufacturing opportunities outside of the South—were key factors.<sup>60</sup>

In many ways, the automation of cotton farming helped many Black Southerners. Manual harvest of cotton was backstraining and monotonous,<sup>61</sup> and automation of cotton farming prompted many to look for higher quality work. Mechanization of cotton also coincided with the American Civil Rights Movement, and reduced incentives for White Southerners to defend Jim Crow to maintain a cheap Black labor force.<sup>62</sup>

*The automation of cotton farming prompted many Black workers to leave the South for higher quality work, better wages, less overt discrimination, and more opportunities for their children.*

Automation of cotton farming also motivated many Black workers to leave the South for better lives with higher incomes and less overt discrimination. A county's share of land planted in cotton predicted Black outmigration in the 1940s and 1960s as the mechanical cotton planter and weeder were initially phased in, and later the mechanical cotton harvester.<sup>63</sup> From 1940 to 1970, nearly 4 million African Americans left the South in the second wave of the Great Migration.<sup>64</sup> While more than 90 percent of African Americans lived in the South in 1910, by 1970 most African Americans lived outside of the South.<sup>65</sup> Black men settling in the North earned at least 100 percent more than those who stayed in the South.<sup>66</sup> The children of Black families who left the South enjoyed high school graduation rates 11 percent higher than those who stayed in the South, "made \$1000 more per year in 2017 dollars, and were 11 percent less likely to be in poverty"—even after controlling for education, occupation, and income of parents.<sup>67</sup>

*Even through the federal government heavily subsidized and coordinated the automation of cotton farming, it provided displaced workers with no retraining or relocation assistance.*

Unfortunately for those workers who were displaced and remained in the Black Rural South, the federal government did not enact programs for "retraining or relocation assistance for displaced farm workers" as it does for workers experiencing trade-related job loss.<sup>68</sup> Retraining and relocation assistance was unavailable, even though the federal government subsidized and promoted mechanized cotton production in an effort to keep American cotton competitive in international markets.<sup>69</sup> The federal government, cotton plantation owners, and farm machinery companies effectively externalized the costs of automation onto those least positioned to bear it—Black workers.<sup>70</sup> The negative shift in labor demand from automation in an industry that had previously depended on a cheap labor supply drove even deeper poverty in the Black Rural South.<sup>71</sup>

# The Present Status of Work in the Black Rural South

The Black Rural South, a product of the 1700s and 1800s, remains discernable today.<sup>72</sup> A century and a half after Emancipation, generations of attracting businesses interested in a large supply of low-wage, low-skill workers with few other options has had short-term benefits, but long-term costs. Unemployment, labor force participation, earnings, and childhood poverty are far worse in the Black Rural South than in other parts of the United States. Stark racial disparities persist.

The data on the Black Rural South provide sobering insights into the future of work in the rest of the United States. The costs of failing to develop systems for sustained *and inclusive* investment in human capital (e.g., education, skills, infrastructure) are high. The data also suggest that in developing strategies for a bright future of work in the United States, the Black Rural South presents significant opportunities for growth.

## The Opportunity to Increase Prosperity

Policymakers and the private sector have a significant opportunity to increase prosperity in the Black Rural South. Generally, unemployment, labor force participation, income, and child poverty rates are worse in the region than in other parts of the United States.

For example, the Black Rural South has produced high unemployment rates for decades—generally about 2 percentage points higher than the nation. The Black Rural South’s unemployment rate is also more volatile than the rate in other regions. From 2000 to 2010, the recession caused the unemployment rate in the Black Rural South to jump over 7 percentage points, compared to only 4 percentage points in non-southern rural counties.



Figure 7: Average Non-Seasonally Adjusted Unemployment Rates from 1990-2018. This figure is *not* broken down by race.<sup>73</sup>

A large portion of the Black Rural South's population, both Black and White, is outside of the labor force altogether. The region's labor force participation rate is 51.8 percent, which is 8.1 points lower than in rural counties outside the South and 11.6 points lower than the United States as a whole.

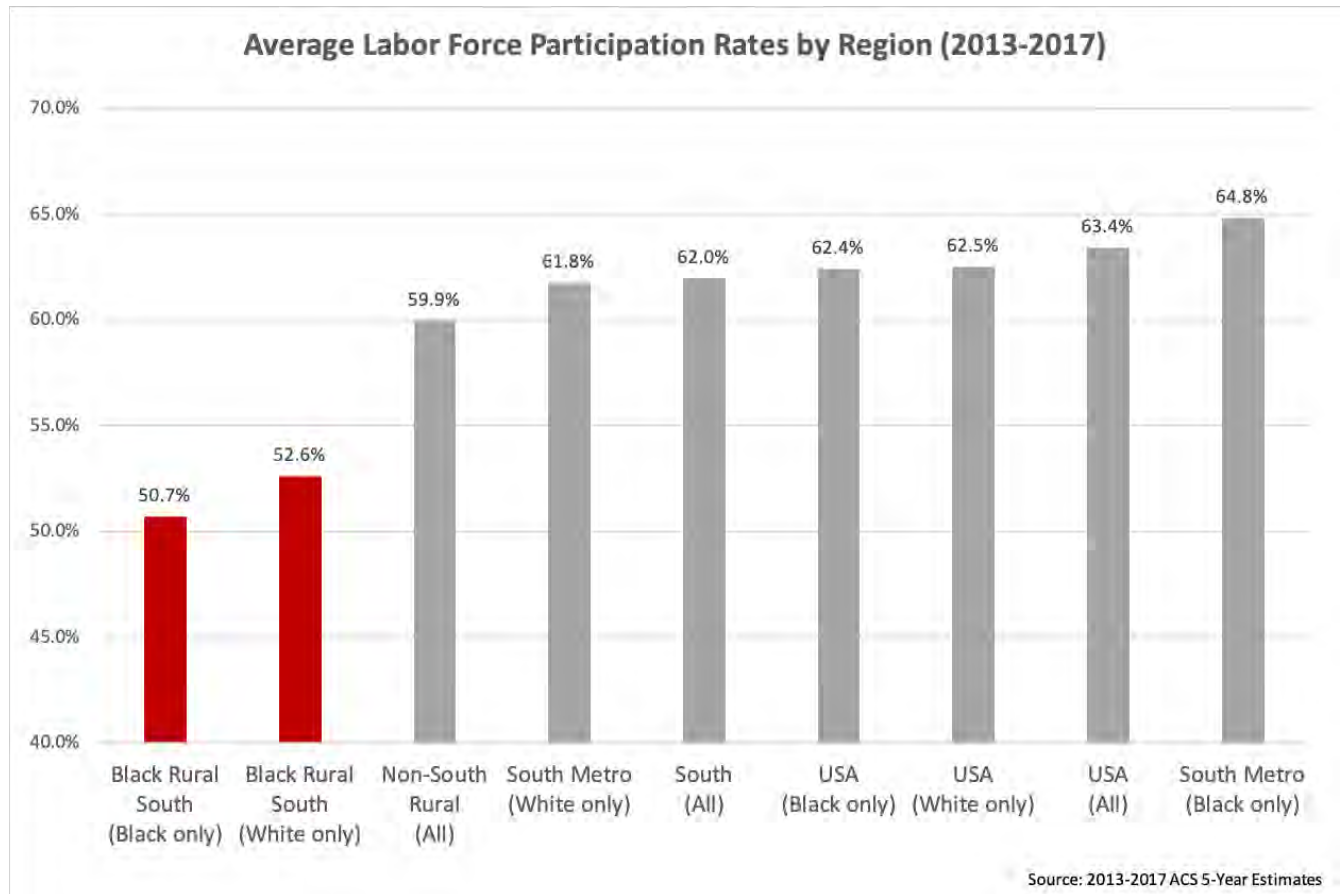


Figure 8: Average Labor Force Participation Rate over 2013-2017.<sup>74</sup>



Similarly, while the household incomes of other regions have largely clustered together, the household income in the Black Rural South has lagged behind other regions, and the growth rate of those incomes has slowed over the past two decades.

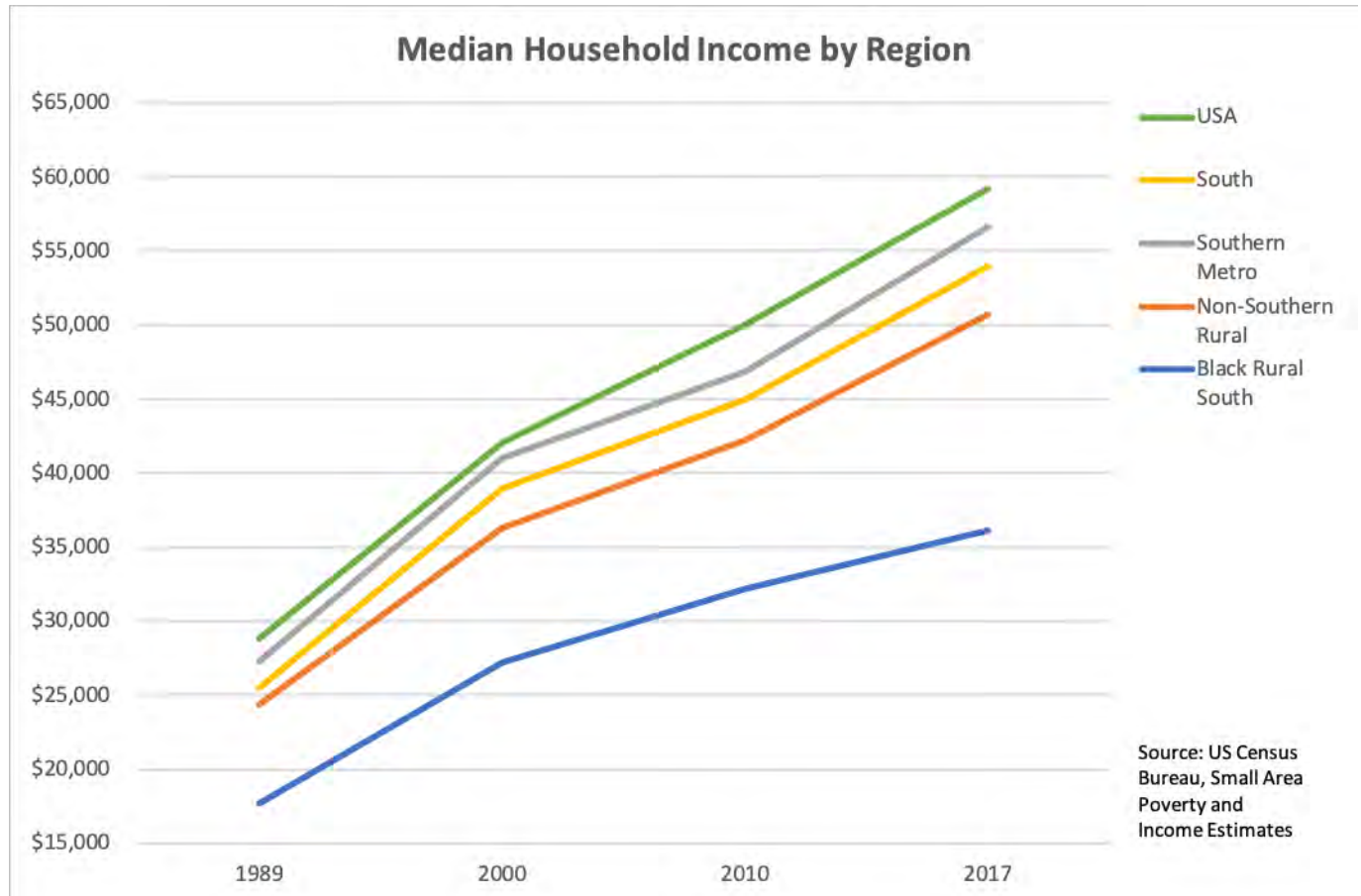


Figure 9: Median Household Incomes from 1989- 2017. This figure is **not** broken down by race, and has **not** been adjusted for inflation.<sup>75</sup>

The future of work in the United States is also shaped, in part, by the percentage of children in poverty. Just like income and unemployment, childhood poverty rates are much worse in the Black Rural South than in other regions, and are about ten points higher than overall poverty rates.

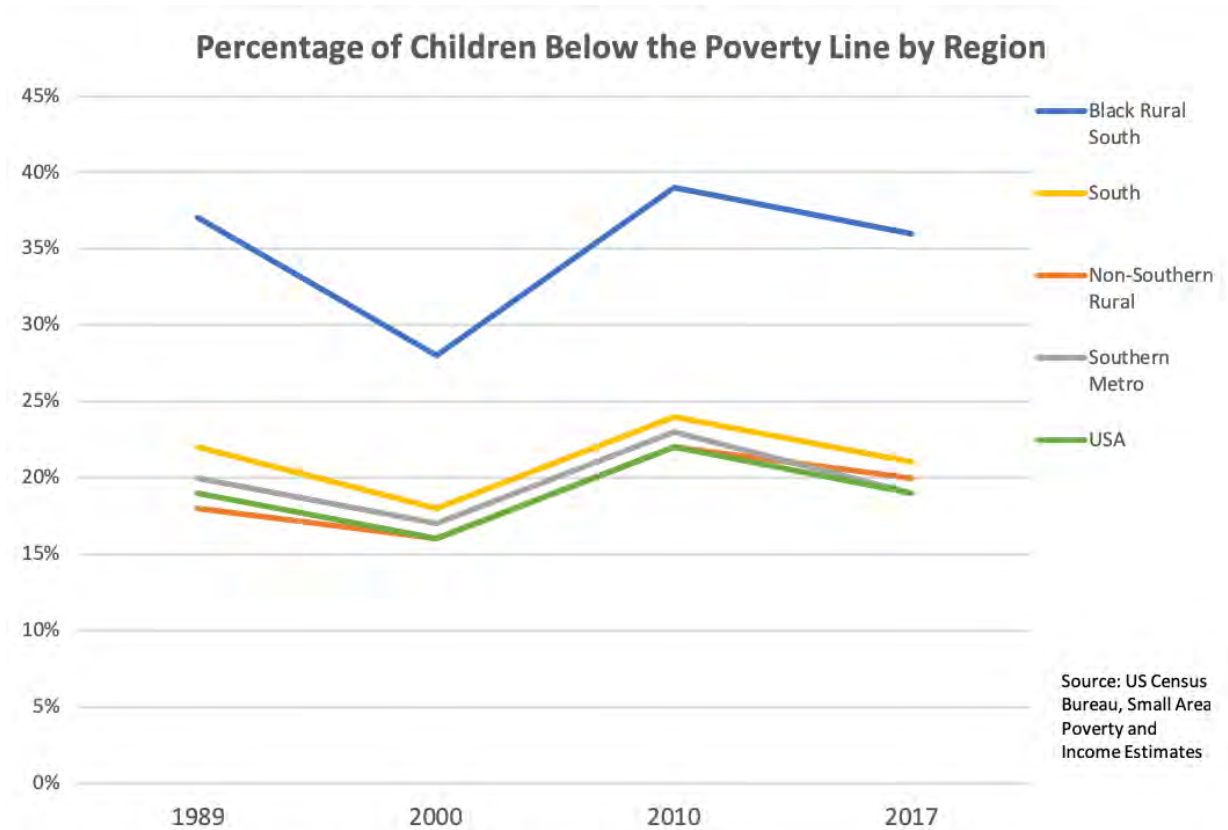


Figure 10: Percentage of Population Under 18 Below the Poverty Line from 1989-2017. This figure is **not** broken down by race.<sup>76</sup>

## The Opportunity to Increase Racial Equity

The federal government and private employers have a significant opportunity to increase racial equity in the Black Rural South. On most major economic indicators outside of labor force participation, African Americans fare much worse than Whites.

For example, the unemployment rate among African Americans in the Black Rural South is 14.5 percent, compared to only 5.9 percent for Whites in the region. The White unemployment rate in the Black Rural South is lower than the rates of the South and the U.S. as a whole, and comparable to the unemployment rate across rural counties outside of the South.

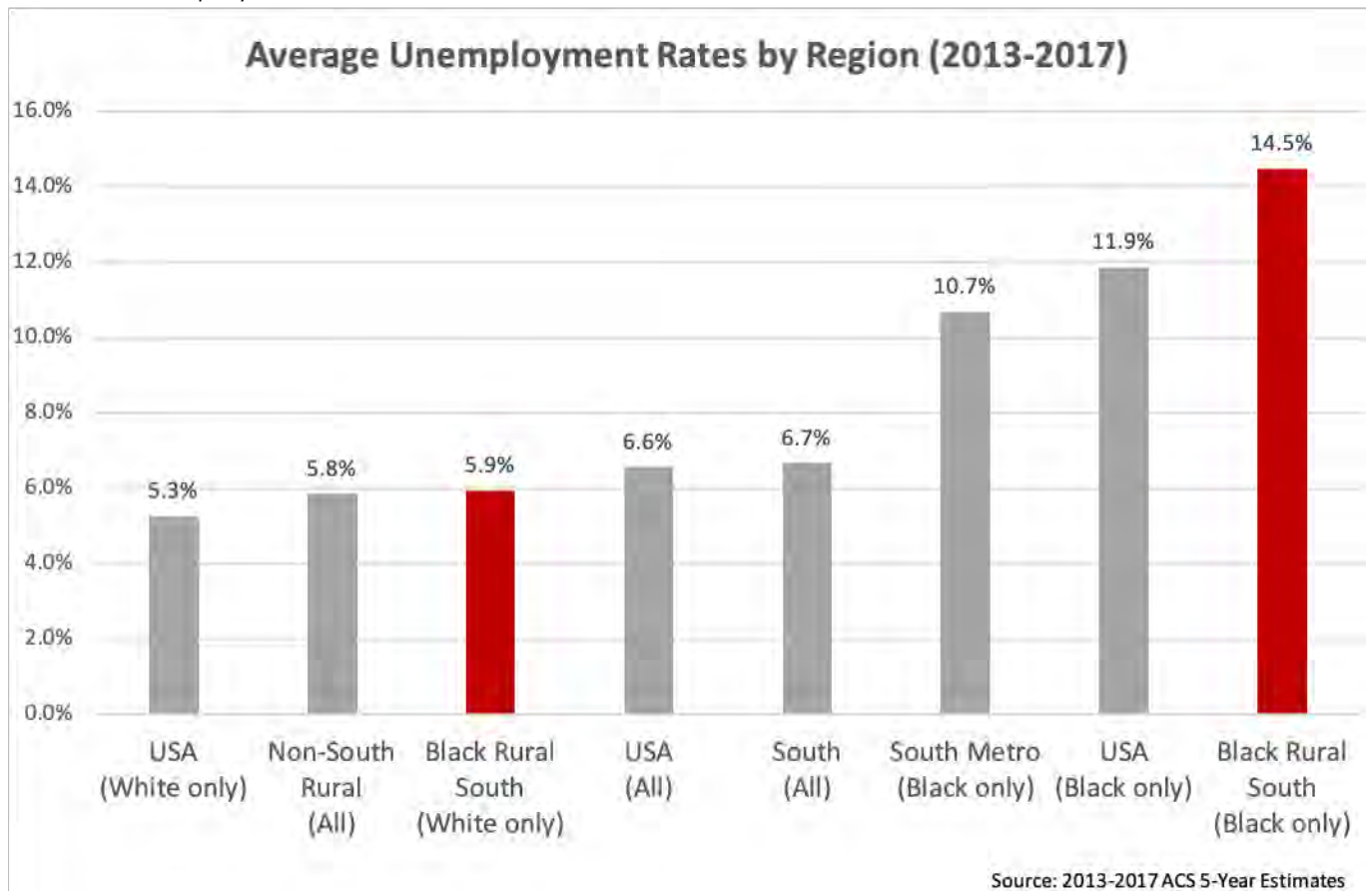


Figure 11: Average Unemployment Rate over 2013-2017. Note that the White unemployment rate in the Southern metro, not included in this figure, is 5.1 percent, just slightly below the White unemployment rate across the USA.<sup>77</sup>

Earnings data in the Black Rural South reveal similar racial disparities. Whites in the Black Rural South earn about as much as the national average earnings. In contrast, African Americans in the Black Rural South earn about two-thirds the amount of Whites in the Black Rural South, and just over half of the amount of Whites nationwide.

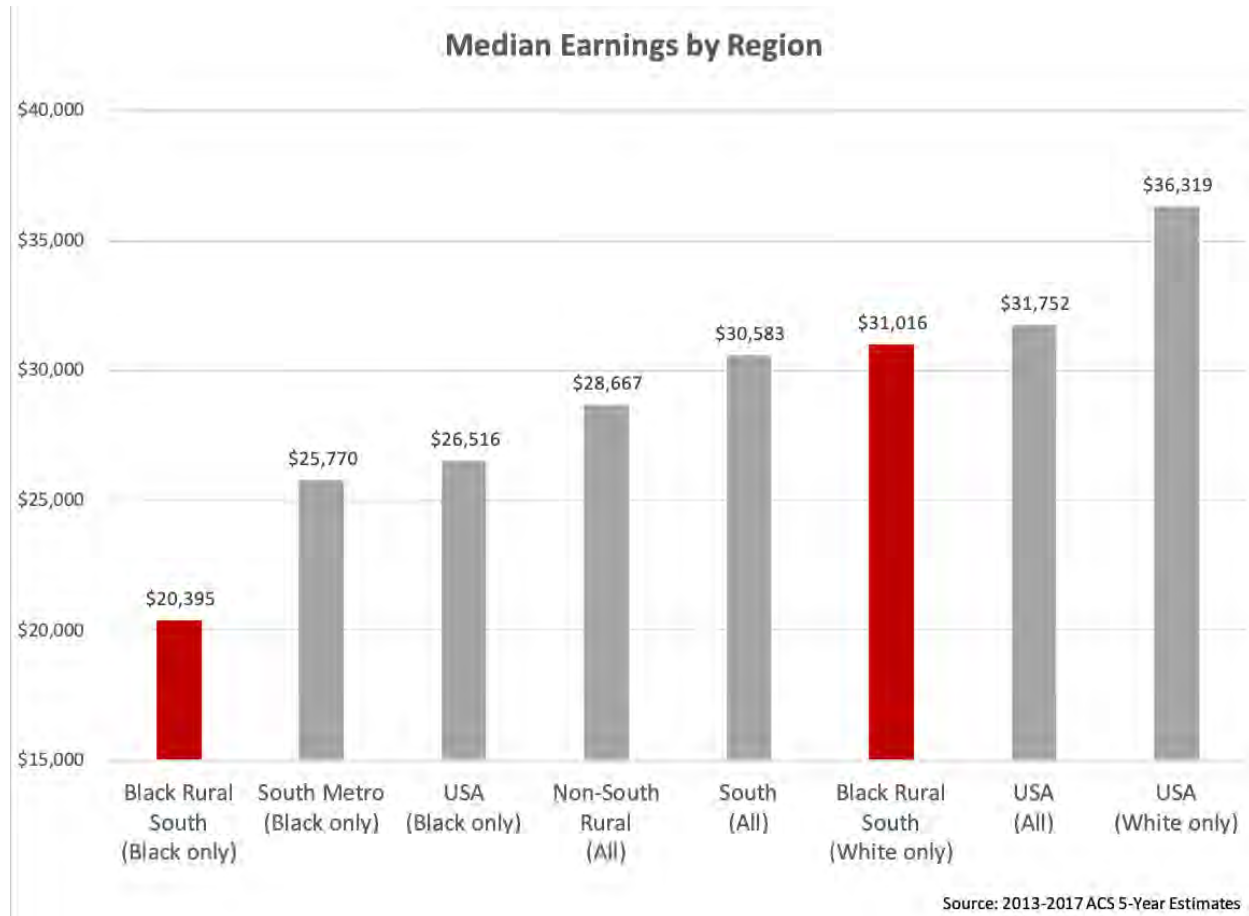


Figure 12: Median Earnings in the Past 12 Months among Population 16 Years and Older with Earnings in the Past 12 Months, Averaged over 2013-2017. Note that the median earnings for Whites in the South metro, not included in this graph, are \$36,216.<sup>78</sup>

Not surprisingly, the Black Rural South's racial disparities in unemployment and income are reflected in racial disparities in the percentage of children who live poverty.

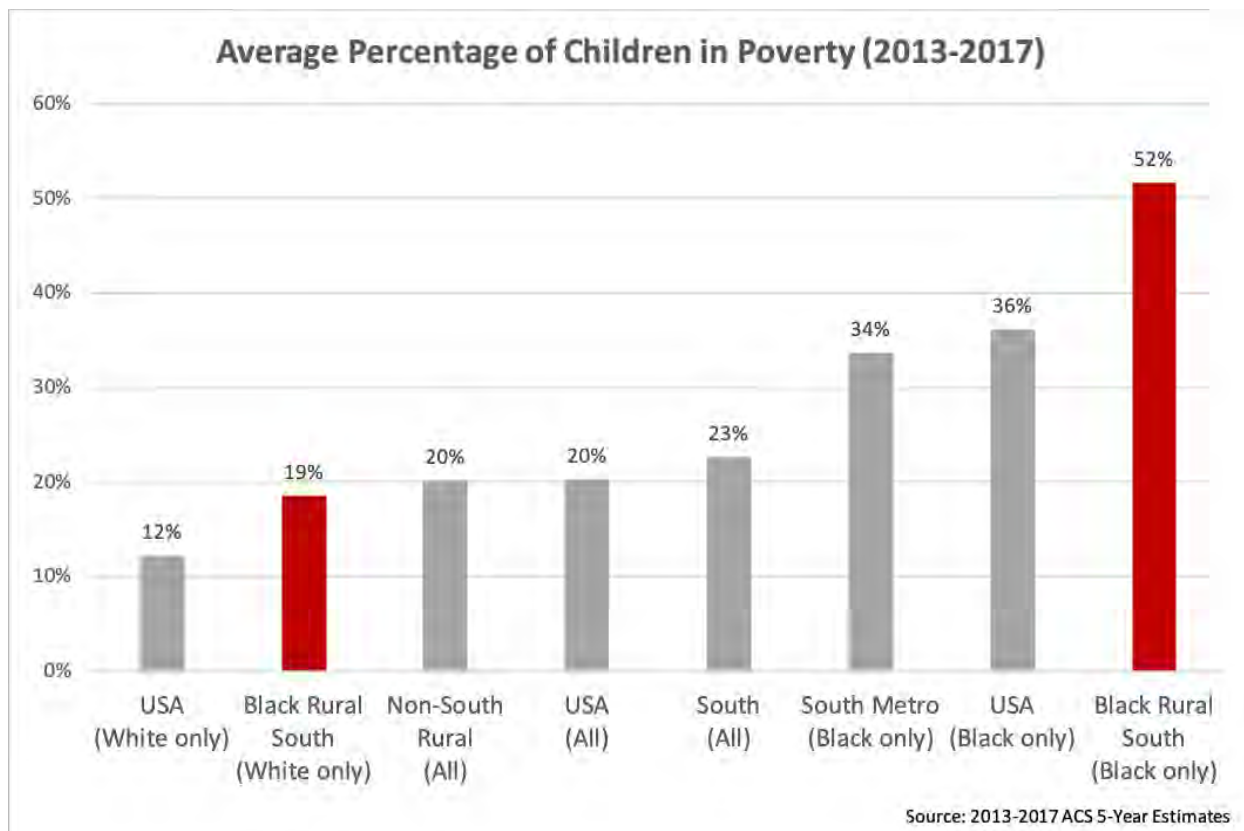


Figure 13: Percentage of Population Under 18 that is Below the Poverty Line, averaged over 2013-2017. Note that the Child Poverty Rate among Whites in the Southern metro counties, omitted from this graph, is 11 percent.<sup>79</sup>

The racial inequality in the Black Rural South is illustrated, in part, by the fact that White people in the region have unemployment and poverty rates comparable to those of other rural Whites throughout the United States. Indeed, despite high Black poverty rates in the Black Rural South, Whites living in the Black Rural South have much lower poverty rates than Whites who live in southern rural counties with few African Americans (over 90 percent White, see the chart below). A similar pattern exists for unemployment rates (the unemployment rate for Whites in the Black Rural South is 5.9 percent, compared to 5.2 percent for Whites in non-Southern rural counties and 7.0 percent for Whites in Southern rural counties that are at least 90 percent White).

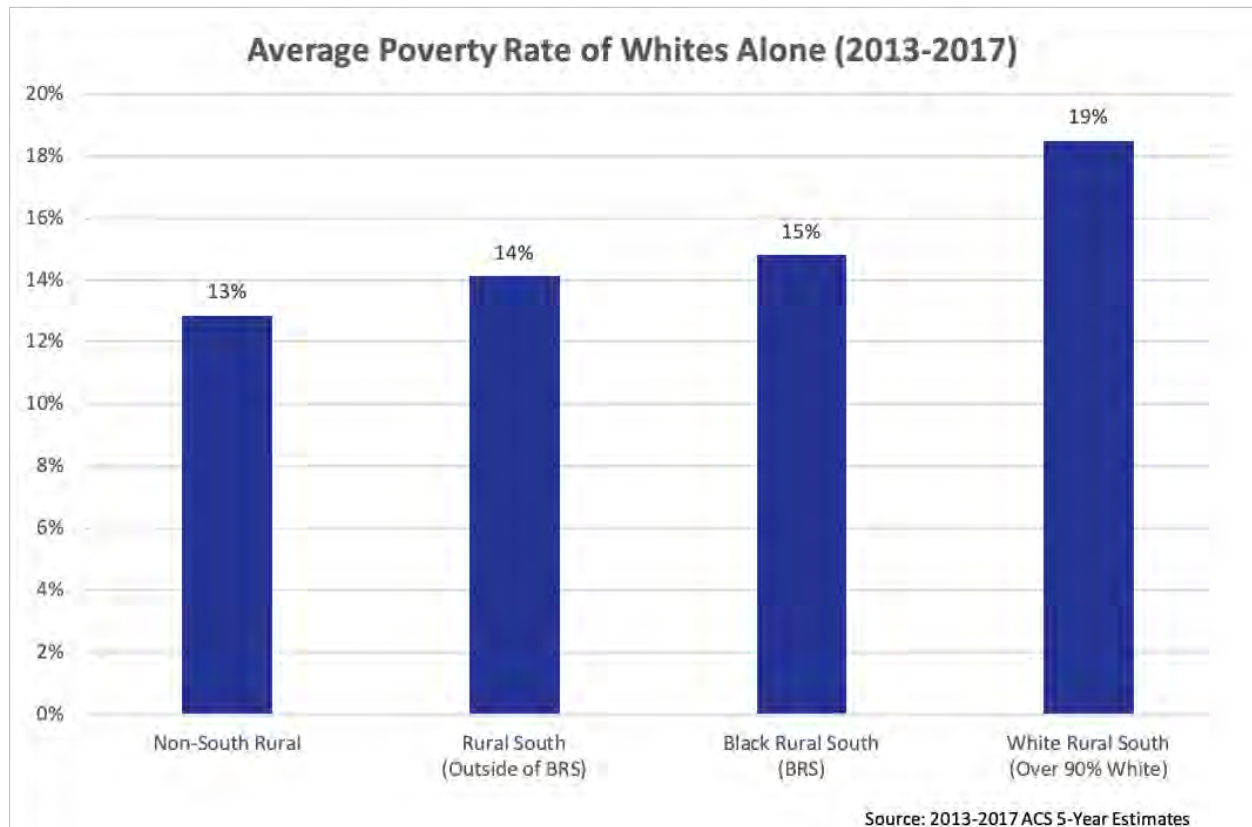


Figure 14: Percentage of Population for which Poverty Status is Determined that is Below the Poverty Line, averaged over 2013-2017.<sup>80</sup>



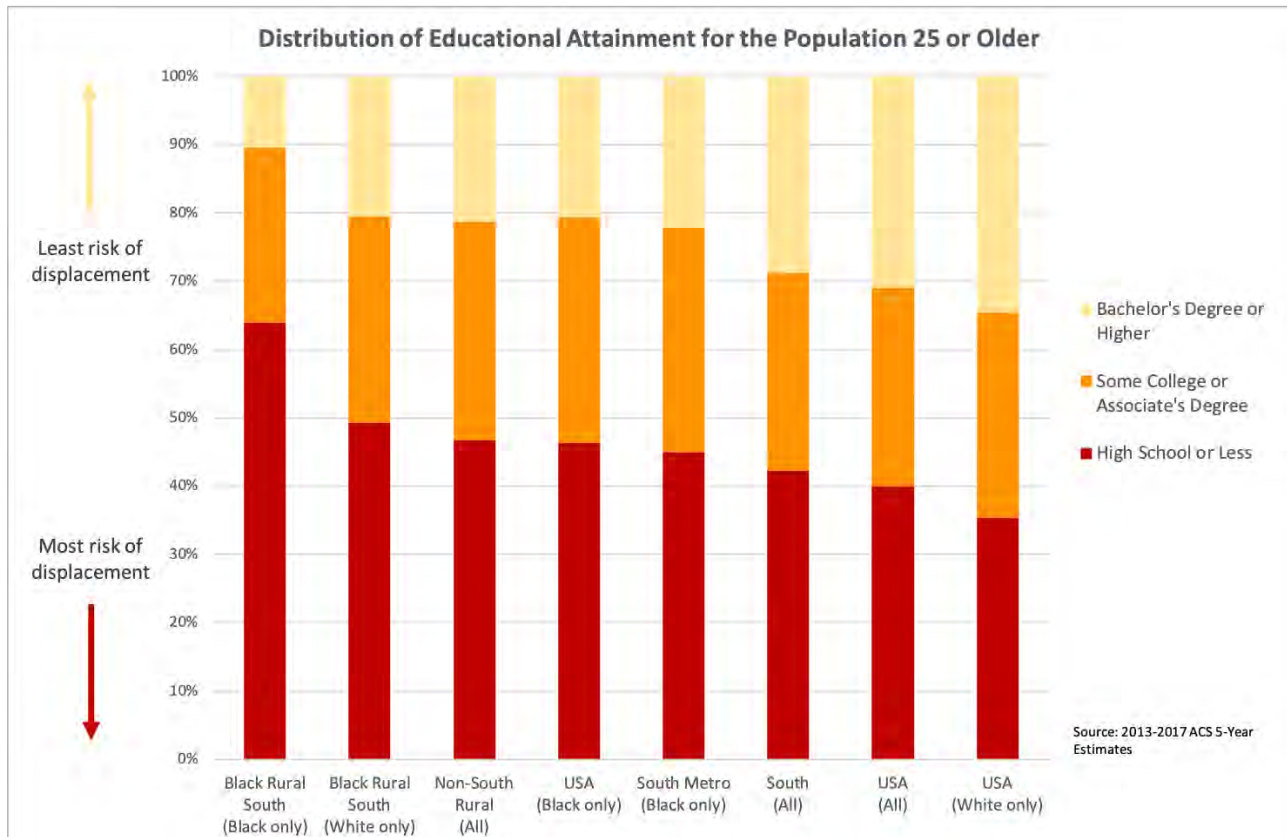
# Automation and Displacement in the Black Rural South

A combination of factors make workers in the Black Rural South—particularly Black workers—vulnerable to displacement through automation, including low educational attainment and an overreliance on industries at high risk to automation.

## Low Educational Attainment Increases Automation Displacement Risk

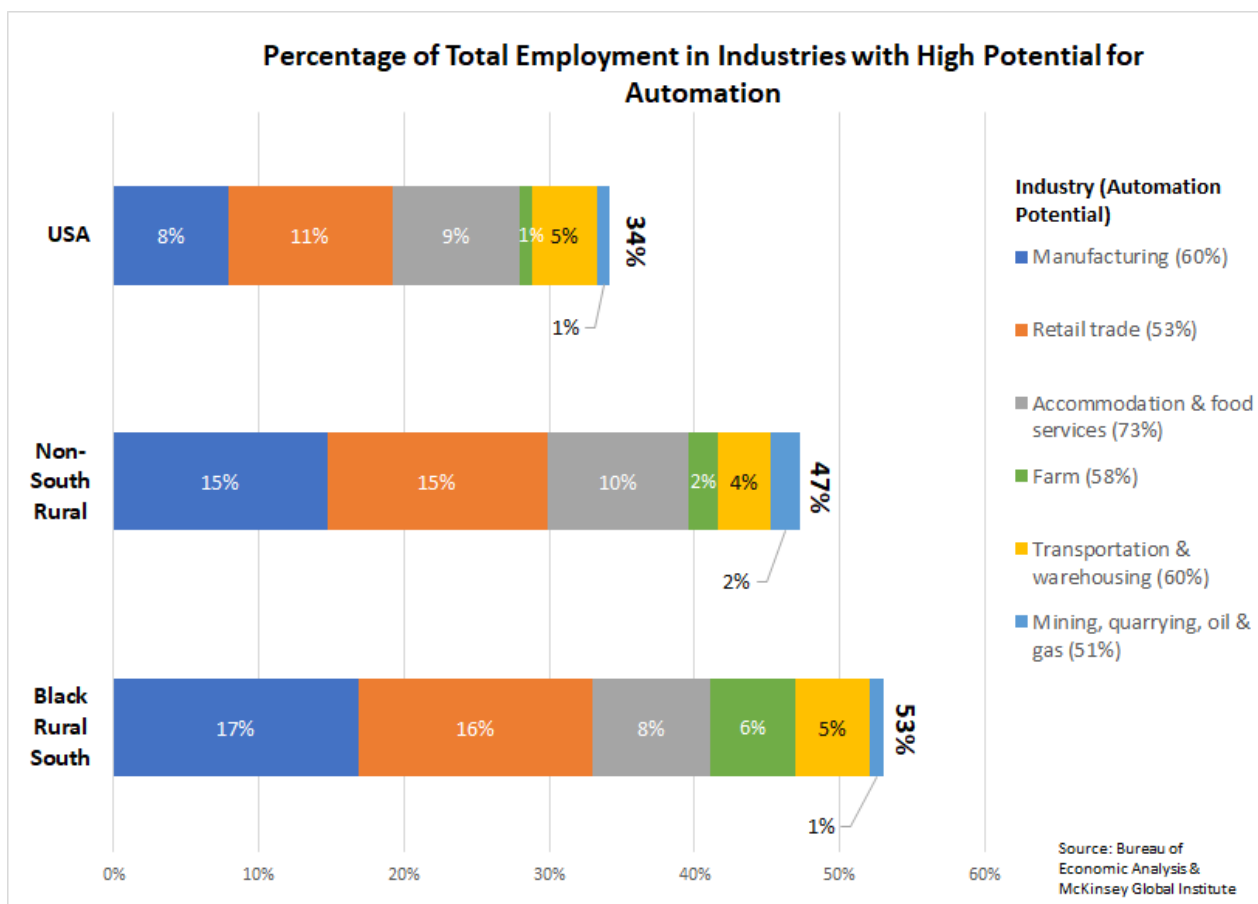
In 2016, the Georgetown Center on Education and the Workforce found that 78 percent of jobs lost in the 2007-2009 recession were jobs for workers with a high school diploma or less.<sup>81</sup> The Georgetown Center also found that 99 percent of the jobs added following the recession went to workers with at least some college education (73 percent of the new jobs went to those with a bachelor's degree or higher).<sup>82</sup>

In light of the large number of people in the Black Rural South with only a high school degree or less, automation could hit the region hard—both in terms of displacement and the challenges in securing future employment. The McKinsey Global Institute, a leading think tank that analyzes the impacts of the future of work, predicts that a person with a high school degree or less is four times more likely to be in an occupation vulnerable to automation than a person with a bachelor's degree,<sup>83</sup> and up to “14 times more vulnerable than someone with a graduate degree.”<sup>84</sup> As indicated below, over 60 percent of African Americans in the Black Rural South have a high school degree or less, giving them the largest share of those who are in the group that is more likely to be in an occupation vulnerable to automation.

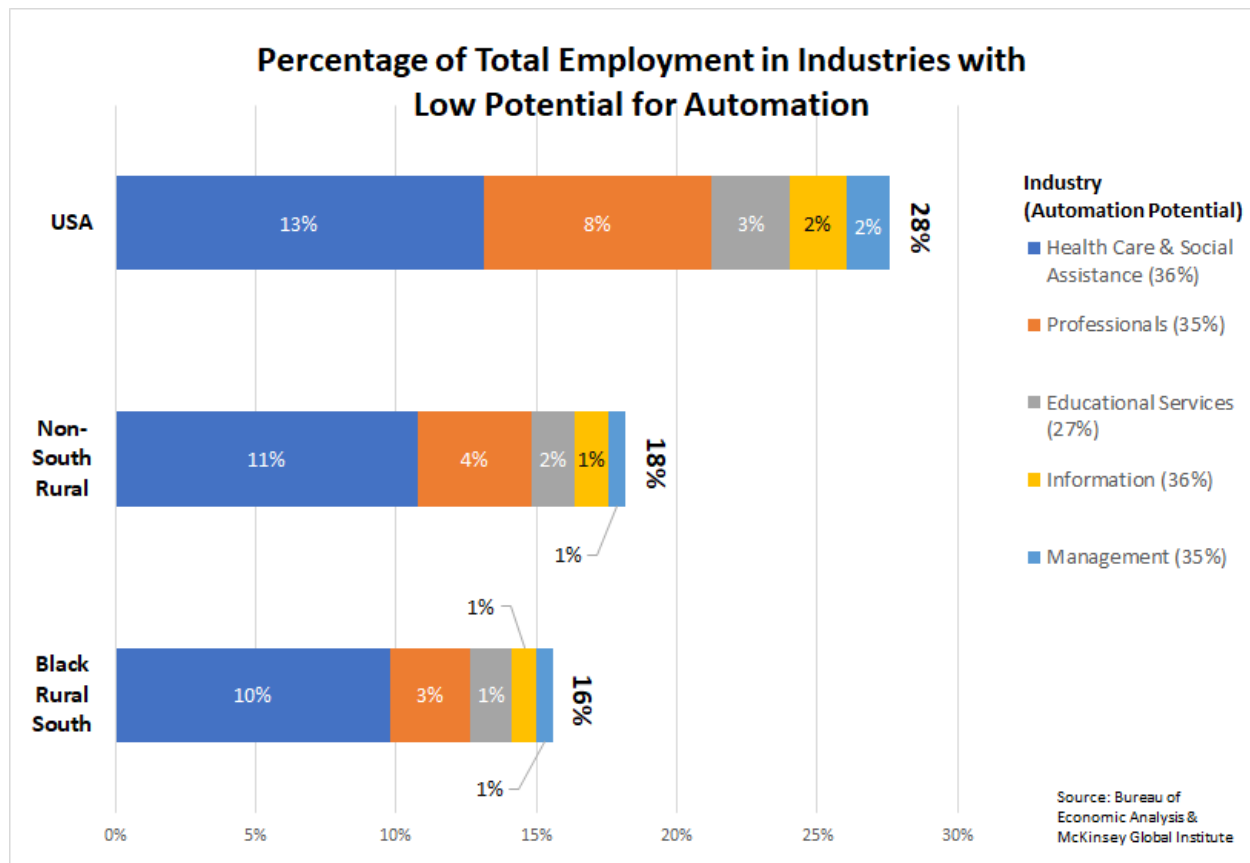


## Large Portion of Workforce in Industries With High Automation Potential

In the Black Rural South, a significant percentage of the private sector workforce is employed in the six industries with the highest percentage of work activities that could be automated (all had an automation potential over 50 percent).<sup>85</sup> Manufacturing, retail trade, agriculture,<sup>86</sup> accommodation and food services, transportation and warehousing, and mining account for over half of the private sector employment in the Black Rural South, but only a third of the private sector employment nationwide. Particular occupations associated with these industries—such as production work and machine operations workers, food service workers, and office support workers—are particularly prone to displacement through automation.<sup>87</sup>



Conversely, the five industries with the lowest automation potential account for a relatively small share of the employment in the Black Rural South. Compared to non-South rural counties and the nation as a whole, the Black Rural South has a high percentage of residents who work in industries with high potential for automation, and a low percentage of residents who work in industries with a low potential for automation.



## Black Rural South Displacement Rates Slightly Higher

Distinct from a region's percentage of private sector jobs in industries with high potential for automation is the percentage of job activities in all industries that can be automated using today's technology. For example, a nurse's job activity of entering data of a patient's vitals into a computer could possibly be automated, whereas job activities that require higher cognitive skills (e.g., recognizing a patient's sarcasm) or social and emotional skills (e.g., empathizing with a patient's pain) may defy automation with today's technology.

A Joint Center analysis of county-level data provided by the McKinsey Global Institute found that 45.8 percent of current job activities in the Black Rural South can be automated using today's technology. Counties like Scott County, Mississippi or Dooly County, Georgia are the most at risk, with 57 percent of their job activities prone to automation. The most prominent employers in these counties are in manufacturing (including food processing), which has numerous jobs that have a large percentage of job activities susceptible to automation.

Another indicator is a prediction of the percentage of all workers in a region that could be displaced by automation by 2030. According to the Joint Center's analysis of the county-level data, 24.2 percent of workers in Black Rural South counties could be displaced by automation by 2030.<sup>88</sup> By comparison, 23 percent of workers nationwide, 18 percent of workers in the least affected places, and up to one-third of workers in the most affected places could be displaced by 2030.<sup>89</sup> This data accounts for the fact that employers in low-wage areas like the Black Rural South have fewer incentives to invest resources to adopt new technologies that result in displacement.<sup>90</sup>

As shown in the next section, while displacement rates in the Black Rural South are only slightly higher than the national average, the costs of displacement are likely to be much higher in the Black Rural South than most areas of the nation.

# Higher Costs of Displacement to Workers in the Black Rural South

While the Black Rural South's projected rate of displacement from automation is only slightly higher than the U.S. as a whole, the consequences of displacement are much more severe in the Black Rural South. Compared to workers in metro areas with significant projected job growth, displaced workers in the Black Rural South could have a much more difficult time securing comparable replacement employment due to fewer open jobs.

## The Black Rural South Has Projected Negative Job Growth

While most areas of the United States have enjoyed moderate to significant employment since 2001, the Black Rural South has experienced negative employment growth. Absent concerted intervention, we expect these trends to continue into the future.

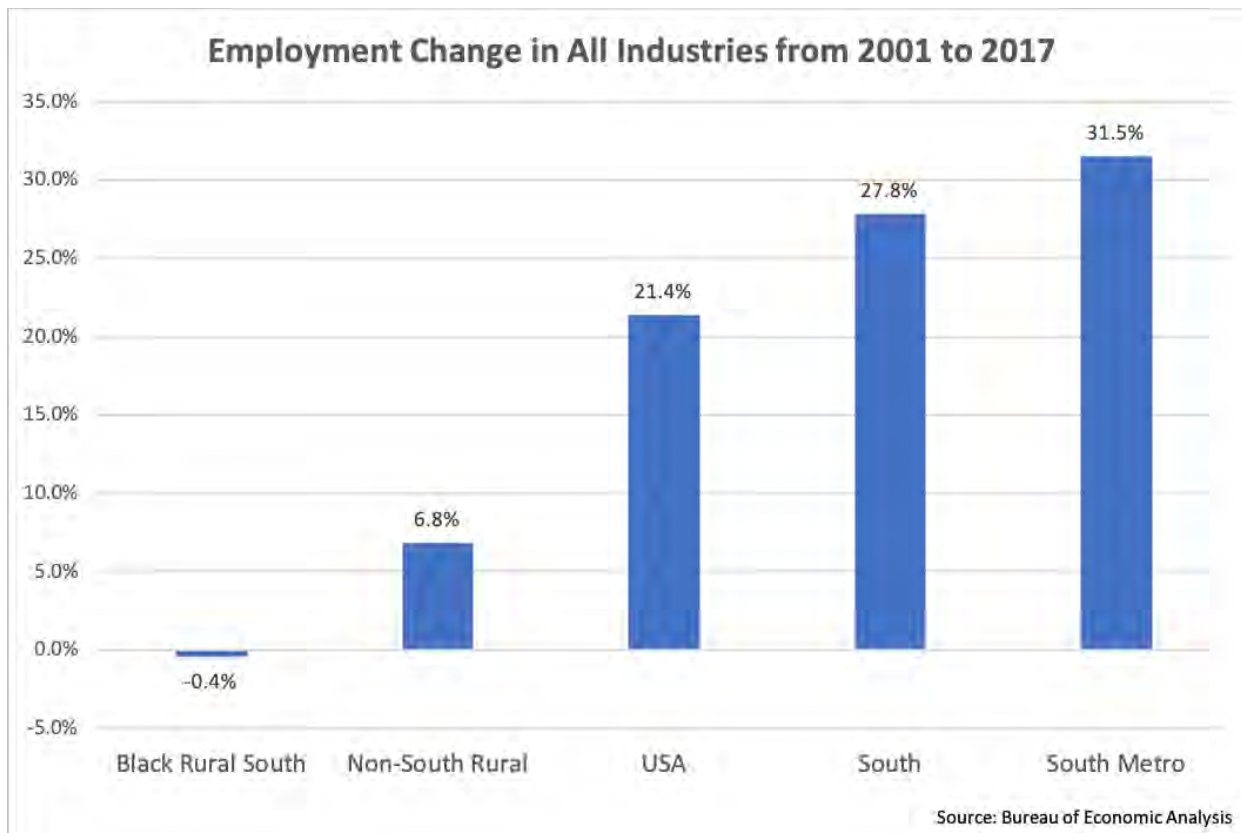
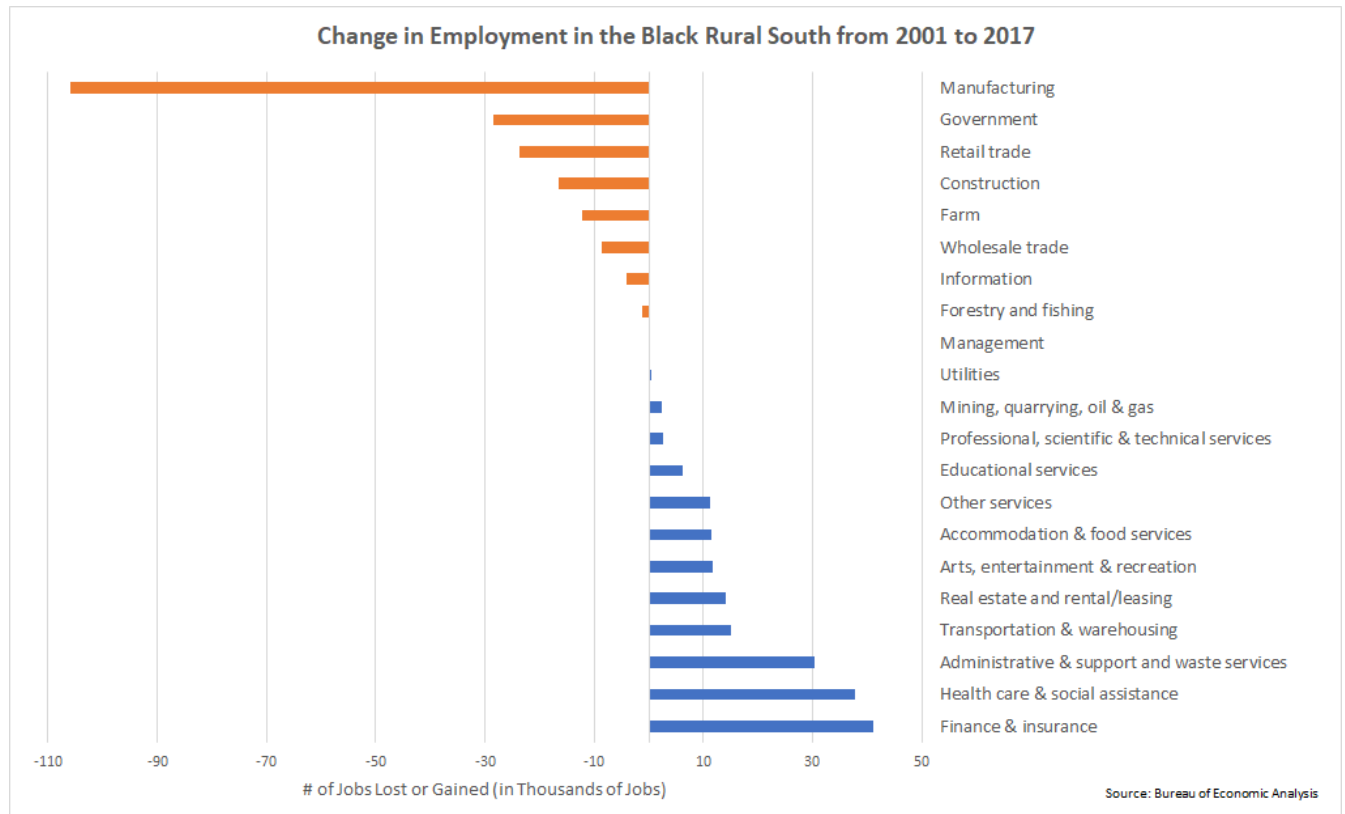


Figure 15: Percentage change in Private Non-Farm Employment between 2001 & 2017. Data is for counties in the Black Rural South, rural counties outside the South, Southern metro counties, Southern counties, and the entire U.S.



Much of the Black Rural South’s job loss comes from the decline of manufacturing, likely due to outsourcing and automation.<sup>91</sup> As demonstrated by the chart below, the Black Rural South lost over 100,000 manufacturing jobs from 2001-2017—or almost 40 percent of the region’s manufacturing jobs. This is twice as high as the loss in non-South rural counties.



At the same time, the Black Rural South enjoyed minimal growth of professional, scientific and technical services jobs, which include a wide range of growing occupations, from scientific research to computer systems design to legal services. These jobs grew at rates twice as high in the non-Rural South counties and nearly five times higher in South Metro counties.

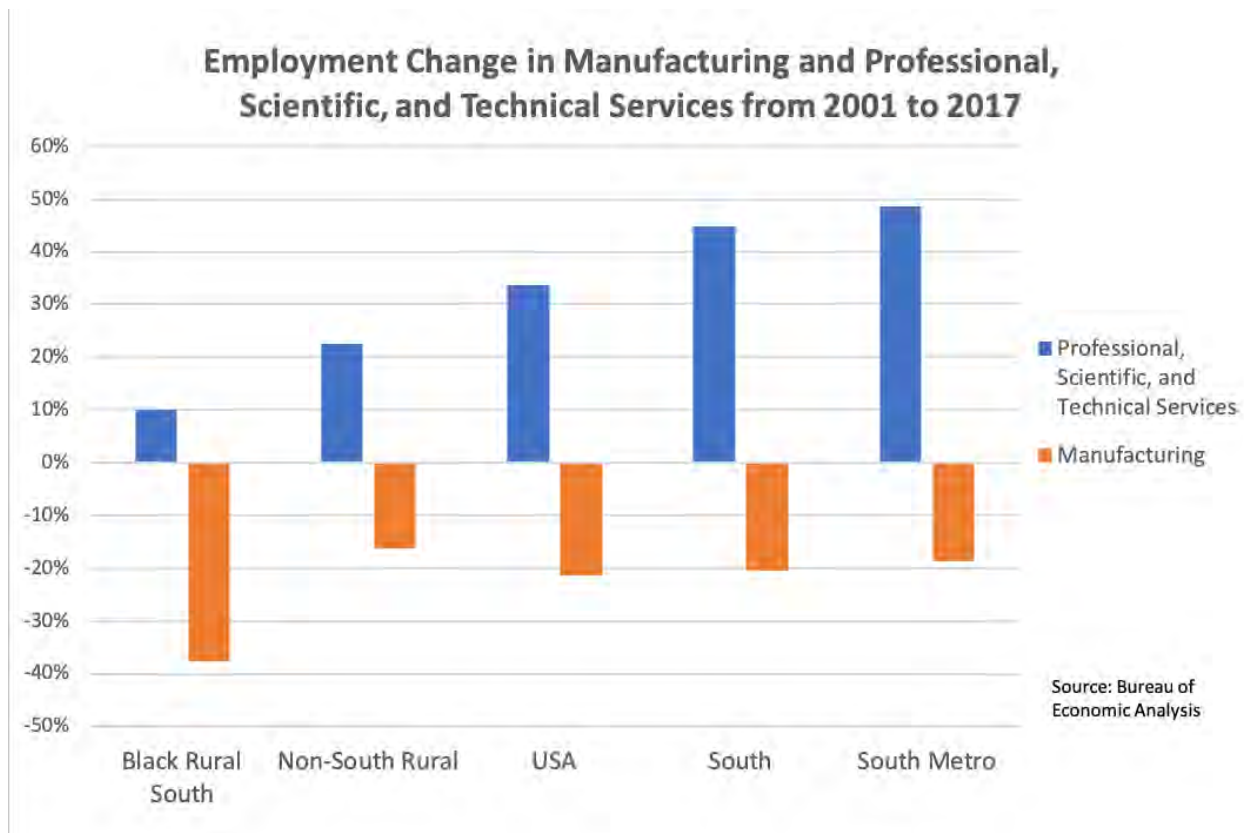


Figure 16: Percentage change in employment in Manufacturing and Professional, Scientific, and Technical Services industries between 2001 and 2017.<sup>92</sup>

Absent significant policy interventions providing pathways to a new economy for the Black Rural South or an unanticipated variable (e.g., an untreatable virus that affects only metro areas), we assume these trends will continue over the next decade. Metro areas will likely enjoy significant job growth, and the Black Rural South will likely experience significant job loss.

The Joint Center's analysis of county-level data indicates projected net job growth of *negative* 9 percent for the Black Rural South between 2017 and 2030. By comparison, distressed rural areas nationwide could on average experience net job growth of *negative* 3 percent, healthier rural areas could experience net job growth of 1 percent, and various types of metro areas could experience net job growth of 6-17 percent.<sup>93</sup>

## Fewer Replacement Jobs Increases Costs of Displacement to Workers

While automation will displace a significant share of workers in metro hubs and high growth areas,<sup>94</sup> vibrant job growth in these and many other areas of the nation will significantly outpace job loss. In contrast, under current predictions, jobs lost in the Black Rural South jobs due to automation will be offset by much less job growth.<sup>95</sup> Therefore, workers in the Black Rural South will have a more difficult time obtaining new employment following displacement.

Many Black workers in both metro areas and the Black Rural South are currently concentrated in occupations at higher risk to automation, and if displaced may be less likely to possess the credentials to obtain a new job with similar compensation and benefits. *The unique hurdle faced by the Black worker in the Black Rural South is that even when she secures the credentials, fewer open replacement jobs could exist within commuting distance from her home due to negative job growth.*

The difference between the costs of displacement in metro areas and the Black Rural South is similar to the difference between playing a game of musical chairs that adds a chair every time the music starts (the metro areas), and playing traditional musical chairs that subtracts a chair every time the music starts (the Black Rural South). Workers would be much more likely to secure an open chair when the music stops in the game that adds chairs (the metro areas).

Displacement will not always come in the form of mass layoffs—it may come from natural attrition and decisions by employers not to refill the positions with new workers.<sup>96</sup> Nevertheless, even displacement through attrition means there will likely be fewer open jobs for new workers entering the job market in the Black Rural South due to the combination of both displacement and projected negative job growth.

For workers in the Black Rural South, the combination of displacement and negative job growth could lead to searching for remote work online, dropping out of the workforce, or moving to another area with more jobs. On a larger scale, the mix of displacement and negative job growth could increase already high unemployment and poverty rates in the Black Rural South, and further reduce already low earnings and workforce participation rates.

## Conclusion

For too long, the economy of the Black Rural South has been built on the low-wage or no-wage labor of Black workers, with inadequate investment into people. Plantation owners, low-skill manufacturing companies, and many others prospered by preserving an ample supply of cheap Black labor. In the last several decades, however, low-skill manufacturing jobs have declined due to automation and outsourcing.

Generations of promoting an ample supply of low-cost Black labor and actively discouraging and/or failing to invest in education for Black communities has put the region at a disadvantage. The Black Rural South is projected to experience significant job loss in the future, while metro areas and high-growth hubs with educated, skilled, and adaptable labor forces are projected to experience significant job growth.

The different projected job growth rates also make displacement from automation more costly to workers in the Black Rural South. While the region has an automation displacement rate that is only slightly higher than the rest of the nation, the consequences of displacement are much more severe to workers in the Black Rural South. The region's projected negative job growth means that displaced workers in the Black Rural South could find it much more difficult to secure replacement employment, which could increase unemployment and poverty rates.

Economic distress and racial inequity for residents of the Black Rural South, however, are not inevitable. To learn how the federal government and the private sector can use this moment of disruption to help the Black Rural South facilitate remote work, stimulate growth by shifting away from low-wage unskilled work, and provide targeted infrastructure and resources to focus on education, skills, entrepreneurship, and new types of careers and industries, read the second Joint Center report in this series, *Solutions for Federal Policymakers and the Private Sector on the Future of Work in the Black Rural South*. To learn how local leaders in the Black Rural South can develop a strategy to navigate economic changes and take critical steps to prepare local residents to succeed in the future, read the third Joint Center report in this series, *Solutions for Local Leaders in the Black Rural South on the Future of Work*.

# Appendix

## Counties in the Black Rural South

County	State	Percent Black	Percent White
Barbour County	AL	48.0	46.6
Bullock County	AL	75.6	21.9
Butler County	AL	44.9	52.4
Chambers County	AL	39.3	57.7
Choctaw County	AL	42.3	56.5
Clarke County	AL	45.7	53.2
Conecuh County	AL	46.5	51.3
Dallas County	AL	70.4	28.2
Greene County	AL	80.3	17.1
Macon County	AL	82.2	15.8
Marengo County	AL	54.1	45.4
Monroe County	AL	41.5	55.1
Perry County	AL	69.6	29.7
Pike County	AL	38.0	57.1
Sumter County	AL	70.8	24.7
Wilcox County	AL	72.1	26.9
Chicot County	AR	54.2	43.2
Dallas County	AR	40.3	55.0
Desha County	AR	47.5	48.6
Lafayette County	AR	37.9	60.0
Lee County	AR	56.9	41.9
Mississippi County	AR	35.1	60.9
Monroe County	AR	40.8	55.8
Ouachita County	AR	40.9	57.2
Phillips County	AR	62.8	36.2
St. Francis County	AR	55.6	41.3
Hamilton County	FL	35.1	60.4
Madison County	FL	39.1	57.7
Baldwin County	GA	41.5	54.2

County	State	Percent Black	Percent White
Ben Hill County	GA	36.2	60.0
Calhoun County	GA	60.7	33.8
Clay County	GA	64.3	30.3
Crisp County	GA	43.2	53.5
Decatur County	GA	42.1	52.4
Dooly County	GA	49.7	43.8
Early County	GA	51.0	46.2
Greene County	GA	35.9	59.0
Hancock County	GA	73.0	24.5
Jefferson County	GA	54.3	43.3
Jenkins County	GA	35.8	61.2
Laurens County	GA	36.9	59.8
Macon County	GA	59.3	34.9
Mitchell County	GA	47.6	49.3
Quitman County	GA	50.7	42.5
Randolph County	GA	59.7	36.7
Screven County	GA	41.7	55.8
Stewart County	GA	50.3	27.7
Sumter County	GA	52.4	42.2
Talbot County	GA	56.6	42.1
Taliaferro County	GA	61.8	37.0
Taylor County	GA	40.4	57.5
Telfair County	GA	42.9	54.6
Thomas County	GA	35.8	60.0
Troup County	GA	35.2	59.0
Turner County	GA	42.9	55.4
Warren County	GA	60.6	37.2
Washington County	GA	53.1	45.0
Webster County	GA	48.8	49.4

County	State	Percent Black	Percent White
Wheeler County	GA	42.2	57.3
Wilcox County	GA	35.5	62.5
Wilkes County	GA	42.5	52.8
Wilkinson County	GA	38.2	58.8
Bienville Parish	LA	41.5	55.7
Claiborne Parish	LA	51.3	46.0
Concordia Parish	LA	41.1	57.7
East Carroll Parish	LA	71.6	27.8
Lincoln Parish	LA	40.6	53.8
Madison Parish	LA	63.5	35.7
Morehouse Parish	LA	47.9	49.8
Natchitoches Parish	LA	40.9	54.0
Red River Parish	LA	37.5	57.6
Richland Parish	LA	36.1	61.8
St. Landry Parish	LA	41.0	56.2
Tensas Parish	LA	55.4	43.9
Adams County	MS	53.2	42.6
Amite County	MS	42.0	57.6
Attala County	MS	42.9	54.1
Bolivar County	MS	64.2	32.8
Chickasaw County	MS	43.3	53.7
Claiborne County	MS	86.9	12.1
Clarke County	MS	35.1	63.8
Clay County	MS	59.0	39.8
Coahoma County	MS	77.2	21.6
Covington County	MS	36.1	62.6
Franklin County	MS	36.0	63.7
Grenada County	MS	43.3	55.4
Holmes County	MS	83.2	15.8
Humphreys County	MS	75.5	21.6
Issaquena County	MS	64.9	34.3
Jasper County	MS	54.1	45.1
Jefferson County	MS	86.4	13.2
Jefferson Davis County	MS	61.6	38.0
Kemper County	MS	60.3	35.9

County	State	Percent Black	Percent White
Lauderdale County	MS	42.9	54.5
Leake County	MS	42.4	51.2
Leflore County	MS	73.2	24.5
Lowndes County	MS	43.5	53.9
Montgomery County	MS	42.1	54.0
Noxubee County	MS	72.1	27.3
Oktibbeha County	MS	37.1	57.7
Panola County	MS	50.4	48.5
Pike County	MS	53.3	44.7
Quitman County	MS	71.0	27.9
Scott County	MS	38.5	57.7
Sharkey County	MS	72.3	26.9
Sunflower County	MS	74.0	24.9
Tallahatchie County	MS	47.2	35.6
Walthall County	MS	45.8	53.1
Warren County	MS	50.2	48.0
Washington County	MS	71.9	25.9
Wayne County	MS	40.5	57.8
Wilkinson County	MS	71.3	27.9
Winston County	MS	47.3	50.6
Yalobusha County	MS	40.1	58.6
Anson County	NC	48.6	48.0
Bertie County	NC	62.0	35.3
Greene County	NC	35.9	57.9
Halifax County	NC	52.8	40.2
Hertford County	NC	58.0	35.5
Lenoir County	NC	39.3	55.1
Martin County	NC	41.9	54.4
Northampton County	NC	57.1	39.7
Pasquotank County	NC	36.3	58.8
Scotland County	NC	38.7	44.9
Tyrrell County	NC	35.7	55.1
Vance County	NC	50.0	44.0
Warren County	NC	50.4	40.1

County	State	Percent Black	Percent White
Washington County	NC	48.2	46.9
Wilson County	NC	39.7	50.8
Allendale County	SC	73.8	25.1
Bamberg County	SC	61.5	36.0
Barnwell County	SC	45.4	51.7
Clarendon County	SC	48.6	49.2
Colleton County	SC	38.1	57.0
Dillon County	SC	47.3	47.5
Hampton County	SC	53.2	42.7
Lee County	SC	64.4	33.0
McCormick County	SC	47.5	50.0
Marion County	SC	56.7	40.3
Marlboro County	SC	50.4	41.1
Orangeburg County	SC	61.9	34.1
Williamsburg County	SC	65.2	32.0
Hardeman County	TN	41.5	56.0
Haywood County	TN	50.0	45.5
Brunswick County	VA	54.2	42.2
Essex County	VA	37.8	55.6
Greensville County	VA	57.9	39.6
Halifax County	VA	36.0	60.7
Mecklenburg County	VA	35.7	61.7
Nottoway County	VA	40.3	56.9
Surry County	VA	45.6	52.5
Covington City	VA	49.2	45.7
Danville City	VA	64.3	32.8
Galax City	VA	50.1	41.8
Martinsville City	VA	40.7	49.0
Norton City	VA	75.7	17.2



## About the Authors

**Harin Contractor** is the former Workforce Policy Director and a current consultant of the Joint Center for Political and Economic Studies. Harin worked at a tech start-up that used government data to empower communities. He also started the Data Analytics unit of the Universal Service Administrative Company (USAC), a government-run nonprofit that provides \$10 billion of grants to facilitate broadband access across the United States. Harin worked in the Obama Administration at the U.S. Department of Labor as the Economic Policy Advisor to the Secretary. Harin is a graduate of the University of Georgia and the University of Chicago.

**Spencer Overton** is the President of the Joint Center. He is also a tenured Professor of Law at George Washington University, where he teaches and writes on race and the law. Spencer is the co-author of *5G, Smart Cities & Communities of Color* and several articles related to the future of work, and he is a member of the Markle Foundation's Rework America Task Force. During the 2007-2008 presidential campaign, Spencer chaired Government Reform Policy for then-U.S. Senator Barack Obama, and during the 2008 Obama-Biden Transition he served as a member of the Technology, Innovation, and Government Reform (TIGER) policy team. In the first term of the Obama Administration, Spencer served as Principal Deputy Assistant Attorney General of the Office of Legal Policy, the "think tank" of the Department of Justice that coordinates policy and regulations within DOJ and with the White House and other agencies. Spencer is an honors graduate of both Hampton University and Harvard Law School, he clerked for U.S. Court of Appeals Judge Damon J. Keith, and he practiced law at Debevoise & Plimpton. Three of his great-grandparents were enslaved people in the American South.

# Acknowledgments

The Joint Center's research on the future of work in the Black Rural South was made possible with generous support from the Google.org Foundation. We are also appreciative of Lumina Foundation for several opportunities to workshop this research and obtain feedback from various audiences, and for Lumina's support of our public education efforts on the future of work. Thanks to McKinsey & Company for providing projected rates of displacement due to automation and projected job growth by county, which allowed us to compare the Black Rural South to other areas of the nation. The cover photo is compliments of @itsd3d3 on nappy.co.

We thank Steven Begley, Shannon Glick, and Duwain Pinder of McKinsey & Company, Paula Boyd of Microsoft, Dr. John Cromartie and Tim Parker of the USDA, former FCC Commissioner Mignon Clyburn, Oleta Fitzgerald of the Children's Defense Fund, H. Russell Frisby, Jr, Heather Gate of Connect Nation, Dr. John Horrigan of the Technology Policy Institute, Janice Bryant Howroyd, Dr. Joe Leonard, Steve Turner of the Southern Rural Development Center, Dr. Veronica Womack, Scott Woods of NTIA, the Thurgood Marshall College Fund, and the United Negro College Fund for providing input. Thanks to Amy Kim who provided assistance with data analysis and visualization.

We also thank Vanessa Griddine, Dr. Homer Wilkes, Lolita Bolden, and participants at the Congressional Black Caucus Institute 2019 Policy Conference and the One Voice Mississippi Black Leadership Institute for providing feedback on findings and recommendations. We appreciate Congressman Bobby Scott and his outstanding staff (Veronique Pluviose, Richard Miller, David Dailey, and Ron Hira) for partnering with the Joint Center on future of work roundtable sessions, which helped us identify many of the key questions in this area. We also appreciate the insights of the staffs of Congressman James Clyburn and Congresswoman Terri Sewell throughout the process, as well as the input of Congressman Hank Johnson. Special thanks to Joint Center Economic Director Jessica Fulton, who edited the report. The statements made and views expressed are solely those of the authors.

<sup>1</sup> [Rural America at a Glance: 2018 Edition](#) (Washington, DC: USDA, 2018), 3.

<sup>2</sup> Booker T. Washington, *Up From Slavery* (New York: Doubleday, 1907), 108. See also Arthur F. Raper, *Preface to Peasantry: A Tale of Two Black Belt Counties* (Columbia: University of South Carolina Press, 2005), 3 (“In the heart of the South there are approximately two hundred counties in which over half the population is Negro. These counties lie in a crescent from Virginia to Texas and constitute the ‘Black Belt.’ They contain the big plantation area of today and coincide with the location of the slave plantations of a few decades ago. . . . The Black Belt includes the most fertile soil of the South, and contains a disproportionate number of its poorest people.”)

<sup>3</sup> *Ibid.*

<sup>4</sup> William W. Falk and Thomas A. Lyson, *High Tech, Low Tech, No Tech: Recent Industrial and Occupational Change in the South* (Albany, N.Y.: State University of New York, 1988), 55.

<sup>5</sup> Samuel D. Calhoun, Richard J. Reeder and Faqir S. Bagi, [“Federal Funds in the Black Belt,”](#) *Rural America* 15, no. 1 (January 2000): 26. See also William W. Falk and Bruce H. Rankin, [“The Cost of Being Black in the Black Belt,”](#) *Social Problems* 39, no. 3 (August 1992): 302 (“We operationalize the Black Belt as consisting of all county groups in the nonmetropolitan South with 33 percent or greater black population. . . .”).

<sup>6</sup> Joyce E. Allen-Smith, Ronald C. Wimberley, and Libby V. Morris, [“America’s Forgotten People and Places: Ending the Legacy of Poverty in the Rural South,”](#) *Journal of Agricultural and Applied Economics* 32, no. 2 (August 2000): 326 (defining the Black Belt as counties in the 11 “Old South” states that have at least the national percentage of the Black population (at least 12 percent), and finding 623 counties fit this definition).

<sup>7</sup> U.S. Census Bureau. [“DP05: ACS Demographic and Housing Estimates.”](#) Data Set: American Community Survey 5-Year Estimates, 2013-2017.

<sup>8</sup> Demographic categories, according to ACS: ‘Not Hispanic – Black or African American only’, ‘Hispanic/Latino’, ‘Not Hispanic – Asian only’, ‘Not Hispanic – White only’, and ‘Not Hispanic – Other Race or Two or More Races’.

<sup>9</sup> Stephen D. Krasner, “State Power and the Structure of International Trade,” *World Politics* 28, no. 3 (1976): 332 (“Statistics are available over a long time period for per capita income, aggregate size, share of world trade, and share of world investment. They demonstrate that, since the beginning of the nineteenth century, there have been two-first-rank economic powers in the world economy—Britain and the United States.”)

<sup>10</sup> Henry Louis Gates, Jr., [“Why Was Cotton ‘King’?”](#) *The Root*, February 4, 2013.

<sup>11</sup> Sven Beckert, [“Slavery and Capitalism,”](#) *The Chronicle of Higher Education*, December 12, 2014.

<sup>12</sup> Greg Timmons, [“How Slavery Became the Economic Engine of the South,”](#) *History*, March 6, 2018 (“[I]nventor Eli Whitney devised a machine that combed the cotton bolls free of their seeds in very short order. Manually, one slave could pick the seeds out of 10 pounds of cotton in a day. The cotton gin could process 100 pounds in the same time.”)

<sup>13</sup> Roger L. Ransom, [“The Economics of the Civil War,”](#) *EH.net* (“In 1805 there were just over one million slaves worth about \$300 million; fifty-five years later there were four million slaves worth close to \$3 billion.”)

<sup>14</sup> Howard Dodson, *Jubilee: The Emergence of African-American Culture* (Washington, DC: National Geographic, 2003), 52 (“The invention of the cotton gin in 1793 gave slavery a new life in the United States. . . This shift of the slave economy from the upper South (Virginia and Maryland) to the lower South was accompanied by a comparable shift of the enslaved African population to the lower South and West.”)

<sup>15</sup> *Ibid.*, 57 (“After the abolition of the slave trade in 1808, the principal source of the expansion of slavery into the lower South was the domestic slave trade from the upper South. By 1850, 1.8 million of the 2.5 million enslaved Africans employed in agriculture in the United States were working on cotton plantations.”)

<sup>16</sup> *Ibid.* (“The vast majority of enslaved Africans employed in plantation agriculture were field hands. Even on plantations, however, they worked in other capacities. Some were domestics and worked as butlers, waiters, maids, seamstresses, and launderers. Others were assigned as carriage drivers, hostlers, and stable boys. Artisans—carpenters, stonemasons, blacksmiths, millers, coopers, spinners, and weavers—were also employed as part of plantation labor forces.”)

<sup>17</sup> *Ibid.* (“Enslaved Africans also worked in urban areas. Upward of ten percent of the enslaved African population in the United States lived in cities.”)

<sup>18</sup> Beckert, “[Slavery and Capitalism](#),” (“More than half of the nation’s exports in the first six decades of the 19th century consisted of raw cotton, almost all of it grown by slaves.”)

<sup>19</sup> *Ibid.* (“[B]y 1850, 72 percent of the cotton consumed in Britain was grown in the United States, with similar proportions for other European countries.”)

<sup>20</sup> Timmons, “[How Slavery Became the Economic Engine of the South](#).”

<sup>21</sup> Gates, “[Why Was Cotton ‘King’?](#)” (“In fact, cotton productivity, no doubt due to the sharecropping system that replaced slavery, remained central to the American economy for a very long time.”); Gene Dattel, “Cotton, the Oil of the Nineteenth Century,” *The International Economy* 24, no. 1 (Winter 2010): 61 (“Cotton was the leading American export from 1803 to 1937”).

<sup>22</sup> Douglass C. North, [The Economic Growth of the United States, 1790–1860](#) (New York: Harper & Row, 1961), 233 cited in Ransom, “[The Economics of the Civil War](#).”

<sup>23</sup> Steven Deyle, *Carry Me Back: The Domestic Slave Trade in American Life* (Oxford: Oxford University Press, 2006), 59-60.

<sup>24</sup> Steven Deyle, *Carry Me Back: The Domestic Slave Trade in American Life* (Oxford: Oxford University Press, 2006), 60.

<sup>25</sup> Ta-Nehisi Coates, “Slavery Made America,” *The Atlantic*, June 24, 2014 (“...by 1860, there were more millionaires (slaveholders all) living in the lower Mississippi Valley than anywhere else in the United States.”) quoting Yale Professor David Blight’s course “The Civil War and Reconstruction.”

<sup>26</sup> [The Economic Growth of the United States, 1790–1860](#), 161-63.

<sup>27</sup> Timmons, “[How Slavery Became the Economic Engine of the South](#),” (“The benefits of slave-produced cotton extended to industries beyond the South. In the North and Great Britain, cotton mills hummed, while the financial

and shipping industries also saw gains. Banks in New York and London provided capital to new and expanding plantations for purchasing both land and slaves.”); Tasha Williams, [“America, the House That Slavery Built,”](#) *Pacific Standard*, August 5, 2016 (“Enslaved humans, therefore, boosted the economy not only with their labor, but by living and breathing as relatively liquid assets.”); Maurie D. McInnis, [“How the Slave Trade Built America,”](#) *The New York Times*, April 3, 2015 (“So did foreign investors in Southern securities, some of which were issued on mortgaged slaves.”); Dodson, *Jubilee: The Emergence of African-American Culture*, 58 (“The value of the investments slaveholders held in their slaves was often used to secure loans to purchase additional land or slaves. Slaves were also used to pay off outstanding debts.”)

<sup>28</sup> Dina Gerdeman, [“The Clear Connection Between Slavery and American Capitalism,”](#) *Forbes*, May 3, 2017 (“Sven Beckert: .... there were a vast number of very obvious economic links between the slave plantations of the southern states and enterprises as well as other institutions in the northern states: Just think of all these New York and Boston merchants who traded in slave-grown goods. Or the textile industrialists of New England who processed vast quantities of slave-grown cotton. Or the bankers who financed the expansion of the plantation complex.”)

<sup>29</sup> Timmons, [“How Slavery Became the Economic Engine of the South,”](#) (“And the invention of the cotton gin coincided with other developments that opened up large-scale global trade: Cargo ships were built bigger, better and easier to navigate. Powerful navies protected them against piracy. And newly invented steam engines powered these ships, as well as looms and weaving machines, which increased the capacity to produce cotton cloth.”); Edward E. Baptist, *The Half Has Never Been Told: Slavery and the Making of American Capitalism* (New York: Basic, 2014), 246-47 (discussing new bonds with slaves as collateral that allowed planters to borrow money and backed by the state).

<sup>30</sup> Reginald Stuart, [“HBCUs’ Mission Rooted in Reconstruction,”](#) *Diverse Issues in Higher Education*, February 18, 2016 (“The issue facing those trying to “reunite” the nation was how to help some 4 million Blacks in the South transition from slavery to freedom.”)

<sup>31</sup> *Ibid.* (“Congress, meanwhile, created the Bureau of Refugees, Freedmen, and Abandoned Lands in early 1865 to help for one year in the “reconstruction” of the South. Working as a unit of the Department of War, the Freedmen’s Bureau could set up education programs, allocate land the federal government had claimed as “abandoned” during the war and help to establish labor agreements.”)

<sup>32</sup> *Ibid.* (“From the convergence of these backgrounds, there was a general consensus: formal education was the key for the new Americans and the key for the country from a past where formal education was considered almost exclusively for the privileged.”)

<sup>33</sup> *Ibid.*

<sup>34</sup> [“Historically Black Colleges and Universities and Higher Education Desegregation,”](#) March 1991, U.S. Department of Education, accessed July 9, 2019.

<sup>35</sup> [“Our History,”](#) Fayetteville State University, accessed July 7, 2019.

<sup>36</sup> [“Where We’ve Been, Where We’re Going: A Timeline of HBCU Development,”](#) April 26, 2019, United Negro College Fund, accessed July 7, 2019 (“The Second Morrill Act in 1890 required states with racially segregated public higher education systems to provide a land-grant institution for black students whenever a land-grant institution was established exclusively for white students. Eventually, 16 black institutions were designated as land-grant colleges.”)

<sup>37</sup> *Ibid.* (“The Second Morrill Act in 1890 required states with racially segregated public higher education systems to provide a land-grant institution for black students whenever a land-grant institution was established exclusively for white students. Eventually, 16 black institutions were designated as land-grant colleges.”)

<sup>38</sup> Eric Foner, *Reconstruction: America's Unfinished Revolution, 1863-1877* (New York: Harper Perennial Modern Classics, 2014)

<sup>39</sup> Kathy Roberts Forde and Bryan Bowman, “[Exploiting Black Labor After the Abolition of Slavery](#),” *U.S. News and World Report*, February 7, 2017.

<sup>40</sup> Stuart, “[HBCUs’ Mission Rooted in Reconstruction](#).”

<sup>41</sup> *Ibid.*

<sup>42</sup> “[History of Tuskegee University](#),” Tuskegee University, accessed July 9, 2019.

<sup>43</sup> Booker T. Washington, “[Atlanta Exposition Address](#),” (Speech, Atlanta, GA, September 18, 1895).

<sup>44</sup> W.E.B. Du Bois, *The Souls of Black Folk* (Chicago: A.C. McClurg & Co.: 1904), 41-59.

<sup>45</sup> August Meier, “Toward a Reinterpretation of Booker T. Washington,” *The Journal of Southern History* 23, no. 2 (May 1957): 220-227.

<sup>46</sup> Daniel Aaronson and Bhashkar Mazumder, “[The Impact of Rosenwald Schools on Black Achievement](#),” *Journal of Political Economy* 119, no. 5 (October 2011): 821-888.

<sup>47</sup> W. Fitzhugh Brundage, “[Reconstruction and the Formerly Enslaved](#),” Freedom’s Story, National Humanities Center, accessed on July 5, 2019 (“After the Civil War “White landowners had land but no cash to pay laborers; former slaves had labor but no cash or credit to buy land. As a result, a system of [sharecropping](#) emerged in the South that enabled landowners to secure labor and workers to secure access to land.”)

<sup>48</sup> Gunnar Myrdal, *An American Dilemma: The Negro Problem and Modern Democracy* (New Brunswick and London: Transaction Publishers, Sixth printing 2009), 233.

<sup>49</sup> Donald Holley, *The Second Great Emancipation: The Mechanical Cotton Picker, Black Migration, and How They Shaped the Modern South* (Fayetteville: The University of Arkansas Press, 2000), 2-3 (“The farm equipment used in the Cotton Belt consisted only of simple tools like a plow, harrow, seed planter, and fertilizer distributor, a team of mules with their harnesses, and hoes. A wagon was also needed, as well as other hand tools, including axes, rakes, and shovels—nothing more. Ginning was the only mechanized process in cotton farming. . . . After 1865 the transition from slave to free labor produced sharecropping’ but the upheavals of the Civil War and Reconstruction created no fundamental changes in cotton production techniques. In the late nineteenth century, plantation labor evolved into a pattern that lasted until World War II. Cotton [3] remained a crop of mules and tenants. The Cotton South did not need to mechanize because labor was abundant and cheap.”).

<sup>50</sup> *Ibid.*, 35.

<sup>51</sup> Willis Peterson and Yoav Kislev, "The Cotton Harvester in Retrospect: Labor Displacement or Replacement?" *Journal of Economic History*, 46, no.1 (March 1986): 206 (finding that only six percent of U.S. cotton was harvested mechanically in 1949, compared to 96 percent by 1969).

<sup>52</sup> [\*The Second Great Emancipation: The Mechanical Cotton Picker, Black Migration, and How They Shaped the Modern South\*](#), 1-2.

<sup>53</sup> Peterson, "The Cotton Harvester in Retrospect: Labor Displacement or Replacement?" 207 ("79 percent of the reduction in hand picking of cotton was due to increased nonfarm wages—the pull effect; the remaining 21 percent is attributable to the decreased cost of machine harvesting—the push effect.")

<sup>54</sup> [\*The Second Great Emancipation: The Mechanical Cotton Picker, Black Migration, and How They Shaped the Modern South\*](#), 173 (attributing "less than 40 percent of the total decrease in handpicking was due to the decline in labor demand caused by mechanization," while the "other 60 percent of the decline can be attributed to the decrease in the supply of labor caused by higher wages in manufacturing industries, which depleted the labor supply.")

<sup>55</sup> Wayne A. Grove and Craig Heinicke, "[Better Opportunities or Worse? The Demise of Cotton Harvest Labor, 1949-1964](#)," *The Journal of Economic History* 63, no. 3 (September 2003): 736-761 ("We ...conclude that, on net, labor-demand, not labor-supply factors ended the age of labor-intensive cotton production.")

<sup>56</sup> [\*The Second Great Emancipation: The Mechanical Cotton Picker, Black Migration, and How They Shaped the Modern South\*](#), 123.

<sup>57</sup> *Ibid.*

<sup>58</sup> Allen Tullos, "[The Black Belt](#)," April 19, 2004, Southern Spaces ("In the first half of the twentieth century, years of soil erosion, the boll weevil invasion, the collapse of cotton tenancy, the failure to diversify economically, the urban exodus, and the repressive era of Jim Crow all combined to mire the southern Black Belt in a seemingly irreversible decline...").

<sup>59</sup> Bloome, D., Feigenbaum, J. & Muller, C, "Tenancy, Marriage, and the Boll Weevil Infestation, 1892–1930," *Demography* 54 (2017): 1029; Kent Osband, "[The Boll Weevil Versus 'King Cotton'](#)," *The Journal of Economic History* 45, no. 3 (1985): 627; Fabian Lange, Alan L. Olmstead, and Paul W. Rhode, "[The Impact of the Boll Weevil, 1892–1932](#)," *The Journal of Economic History* 69, no. 3 (2009): 685–718 ("The boll weevil is America's most celebrated agricultural pest. We analyze new county-level panel data to provide sharp estimates of the time path of the insect's effects on the southern economy. We find that in anticipation of the contact, farmers increased production, attempting to squeeze out one last large crop. Upon arrival, the weevil had a large negative and lasting impact on cotton production, acreage, and especially yields. In response, rather than taking land out of agricultural production, farmers shifted to other crops. We also find striking effects on land values and population movements."); Richard B. Baker, John Blanchette and Katherine Eriksson, "[Long-run Impacts of Agricultural Shocks on Educational Attainment: Evidence from the Boll Weevil](#)," December 2018, The National Bureau of Economic Research ("The boll weevil spread across the Southern United States from 1892 to 1922 having a devastating impact on cotton cultivation. The resulting shift away from this child labor–intensive crop lowered the opportunity cost of attending school, and thus the pest increased school enrollment and attendance. We investigate the insect's long run effect on educational attainment using a sample of adults in 1940 linked back to themselves in childhood in the county in which they were likely educated. Both whites and blacks who were young (ages 4 to 9) when the boll weevil arrived saw increased educational attainment by 0.25 to 0.35 years. These findings are not driven by concurrent shocks and are not sensitive



to linking method or sample selection. Our results demonstrate the potential for conflict between child labor in agriculture and educational attainment.”)

<sup>60</sup> Leah Platt Boustan, “Competition in the Promised Land: Black Migration in Northern Cities and Labor Markets,” (Princeton: Princeton University Press, 2016), 1 (“Seven million black migrants left the South during the twentieth century, with the highest outflow in the 1940s. By 1970, for the first time since the country’s founding, the majority of black residents lived outside of the South....The black share of the population in the typical northern or western city, where black residents were still a rarity at the turn of the twentieth century, increased from 5 percent in 1940 to 22 percent by 1970.”)

<sup>61</sup> [\*The Second Great Emancipation: The Mechanical Cotton Picker, Black Migration, and How They Shaped the Modern South\*](#), 9-10 (“The work was slow, tedious, monotonous, and backbreaking as pickers walked in a stooped position to reach the lower bolls. After picking for hours they could hardly stand up straight. . . . by the late fall, when the plant had dried, the burr’s sharp points scratched and nicked their fingers.”)

<sup>62</sup> Grove, “[Better Opportunities or Worse? The Demise of Cotton Harvest Labor, 1949-1964](#),” 762 (“Technological displacement appears to have improved black progress in the *long term* since mechanization reduced the incentive of southern political interests to maintain a system of social control and to block both Civil Rights legislation and enforcement.”)

<sup>63</sup> Boustan, “Competition in the Promised Land: Black Migration in Northern Cities and Labor Markets,” 28 (“A county’s share of cultivated land planted in cotton predicts black out-migration in both the 1940s and 1960s, as first the planting and weeding stages of cotton cultivation were automated and then as a viable mechanical cotton harvester diffused throughout the south, replacing hand labor.”)

<sup>64</sup> *Ibid.*, 67 (“Nearly four million southern blacks moved to the North and West between 1940 and 1970...”)

<sup>65</sup> *Ibid.*, 154.

<sup>66</sup> *Ibid.*, 60 (“Blacks who settled in the North earned at least 100 percent more than men who stayed in the South in 1930 and 1940.”); *Ibid.*, 2 (“Migration from the low-wage South to the higher-wage North contributed to the national growth of black earnings and the (partial) closure of the black-white earnings gap. During the twentieth century, the ratio of black-to-white earnings for the average male worker increased from less than 40 percent to nearly 70 percent. . . . Quantitatively, rising levels of black education (in both quantity and quality contributed most to improvements in relative black earnings. But migration also played a role.”)

<sup>67</sup> J. Trent Alexander, Christine Leibbrand, Catherine Massey and Stewart Tolnay, “[Second-Generation Outcomes of the Great Migration](#),” *Demography* 54, no. 6 (December 2017): 2249-2271.

<sup>68</sup> Grove, “[Better Opportunities or Worse? The Demise of Cotton Harvest Labor, 1949-1964](#),” 738 n.10 (“Government subsidies and coordination to mechanize cotton production resulted from an attempt to maintain the international competitiveness of American cotton. . . . Petitions for retraining or relocation assistance for displaced farm workers failed to be enacted. . . . Unlike farm laborers, for 30 years the federal government has aided, through the Trade Adjustment Assistance program, workers who experienced trade-related job loss.”)

<sup>69</sup> *Ibid.* (“Government subsidies and coordination to mechanize cotton production resulted from an attempt to maintain the international competitiveness of American cotton. . . . Petitions for retraining or relocation assistance for displaced farm workers failed to be enacted. . . . Unlike farm laborers, for 30 years the federal government has

aided, through the Trade Adjustment Assistance program, workers who experienced trade-related job loss.”); *Ibid.*, 738 (“We find that mechanization and government acreage reduction programs formed the main impetus to rid the cotton fields of hand labor for good . . .”).

<sup>70</sup> Peterson, “The Cotton Harvester in Retrospect: Labor Displacement or Replacement?” 200 (“If labor has in fact been pushed out of agriculture, then the research establishment and farm machinery companies share responsibility for the social costs of the large-scale migration of farm people.”); Grove, [“Better Opportunities or Worse? The Demise of Cotton Harvest Labor, 1949-1964,”](#) 738 (“Establishing the causes of the decline of cotton hand harvest labor matters because the federal government heavily subsidized and coordinated the mechanization of cotton production, but failed to absorb the adjustment costs of those harmed by the results.”)

<sup>71</sup> Grove, [“Better Opportunities or Worse? The Demise of Cotton Harvest Labor, 1949-1964,”](#) 761-62 (“Federal and state governments assisted growers in the transition to completely mechanized production but offered virtually no adjustment assistance to displaced workers as has occurred for trade-displaced workers for decades. Negative shifts in labor demand resulted, either fully or partially, from government policies. . . . Many *nonmigrants* may have fared poorly as the old [762] cotton belt contains some of the greatest pockets of American rural poverty today.”)

<sup>72</sup> Allen-Smith, [“America's Forgotten People and Places: Ending the Legacy of Poverty in the Rural South,”](#) 319 (“A product of the 1700s and 1800s, the Black Belt is quite discernable even today. The historic Black Belt did not disappear with the rural and southern outmigrations of the early and mid-twentieth century. Neither did its poor conditions go away with the coming of New South prosperity in urban areas or with technological advances and social programs. The Black Belt's socioeconomic quality-of-life conditions remain some of the worst in the nation.”)

<sup>73</sup> Data is for counties in the Black Rural South, Rural counties not in the South, Non-Rural counties in the South, Southern counties, and the entire USA and is weighted by population in the labor force in each respective year and region.

<sup>74</sup> Data is for counties in the Black Rural South, Rural counties not in the South, Non-Rural counties in the South, Southern counties, and the entire USA and includes analysis of the whole population and of specific demographic categories ‘Black or African American Alone’ and ‘White Alone, Not Hispanic or Latino’ when noted.

<sup>75</sup> Data is for counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA. Data is weighted by 1990, 2000, 2010 Census Bureau Population and 2013-2017 ACS Population estimates respectively.

<sup>76</sup> Data is for counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA. Data is weighted by 1990, 2000, 2010 Census Bureau Population and 2013-2017 ACS Population estimates respectively.

<sup>77</sup> Data is of counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA. Data is weighted by average labor force over 2013-2017, and includes analysis of entire population, as well as for demographic categories ‘Black or African American Alone’ and ‘White Alone, Not Hispanic or Latino’ when noted.

<sup>78</sup> Data is for counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA. Data is weighted by average population over 2013-2017, and includes analysis of entire population, as well as for demographic categories ‘Black or African American Alone’ and ‘White Alone, Not Hispanic or Latino’ when noted.

<sup>79</sup> Data is for counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA, and includes analysis of the entire population of a region, as well as for demographic categories ‘Black or African American Alone’ and ‘White Alone, Not Hispanic or Latino’ when noted.

<sup>80</sup> Data is for counties in the Black Rural South, Rural counties not in the South, Rural counties in the South that are not part of the ‘Black Rural South’, and White Rural South (Rural Counties in the South that are over 90% White) and for demographic category ‘White Alone, Not Hispanic or Latino.’

<sup>81</sup> Anthony P. Carnevale, Tamara Jayasundera, Artem Gulish, [America’s Divided Recovery: College Haves and Have-Not](#)s (Washington, DC: Georgetown Center on Education and the Workforce, 2016), 1-3.

<sup>82</sup> *Ibid.*

<sup>83</sup> Susan Lund, James Manyika, Liz Hilton Segel, André Dua, Bryan Hancock, Scott Rutherford, and Brent Macon, [The Future of Work in America: People and Places, Today and Tomorrow](#) (San Francisco: McKinsey Global Institute, July 2019), vi (“Individuals with a high school degree or less are four times more likely to hold highly automatable roles than those with bachelor’s degrees. . . .”)

<sup>84</sup> *Ibid.*, 12-13 (“Workers with the lowest levels of educational attainment are at greatest risk Education does not automatically confer job skills, but we rely on educational attainment as a proxy for skills—and it stands out as a key indicator of displacement risk from automation. We find that individuals with a high school degree or less are four times more likely to be in a [13] highly automatable role than individuals with a bachelor’s degree or higher—and as much as 14 times more vulnerable than someone with a graduate degree.”). See also Mark Muro, Robert Maxim, and Jacob Whiton, [Automation and Artificial Intelligence: How Machines are Affecting People and Places](#) (Washington, DC: Metropolitan Policy Program, Brookings Institution, January 2019), 35 (finding that the average automation potential is 52 percent for workers with only a high school degree, 31 percent for workers with a bachelor’s degree, and 25 percent for workers with a graduate or professional degree); Lund, [The Future of Work in America: People and Places, Today and Tomorrow](#), 52 n.64 (explaining that McKinsey finds a slightly weaker correlation between educational attainment and displacement rates than Brookings because McKinsey’s analysis accounts for employers’ lower incentives to automate systems in areas with low wages).

<sup>85</sup> The Joint Center used McKinsey’s ranking of sectors by automation potential. James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst, [A Future That Works: Automation, Employment, and Productivity](#) (San Francisco: McKinsey Global Institute, January 2017), 7 (graph ranking sectors by automation potential).

<sup>86</sup> While agricultural employment is often excluded in the analysis of private sector employment, we included it in our analysis of the six industries with the highest potential for automation to illustrate that it accounts for a relatively small share of employment even in rural economies. We did not include agricultural employment in calculating the share of private sector employment of the industries with the lowest automation potential.

<sup>87</sup> Lund, [The Future of Work in America: People and Places, Today and Tomorrow](#), 7 (graph showing that office support workers, food service workers, and production work workers are among the largest occupational categories in the U.S. and have the highest rates of displacement risk).

<sup>88</sup> *Ibid.*, 6 (“Our model shows some local economies experiencing more disruption than others. At the high end of the displacement spectrum are 512 counties, home to 20.3 million people, where more than 25 percent of workers could be displaced.”)

<sup>89</sup> *Ibid.*, 47 (“In our midpoint automation adoption scenario, 23 percent of US workers could be displaced across the nation as a whole by 2030.”)

<sup>90</sup> *Ibid.*, 52 n.64 (explaining that McKinsey finds a slightly weaker correlation between educational attainment and displacement rates than Brookings because McKinsey’s analysis accounts for employers’ lower incentives to automate systems in areas with low wages)

<sup>91</sup> *Ibid.*, 35 (“The decline of manufacturing employment in the United States began in the late 1990s. From 2000 to 2017, the sector shed 5.5 million jobs. Those losses were driven by a combination of factors, including increased trade competition and earlier waves of automation (Exhibit 10). Manufacturing employment has declined by more than 25 percent since 2000.”)

<sup>92</sup> Data is for counties in the Black Rural South, rural counties not in the South, metro counties in the South, Southern counties, and the entire USA.

<sup>93</sup> Susan Lund, [\*The Future of Work in America: People and Places, Today and Tomorrow\*](#), 11 (“The picture is worst for the roughly 970 distressed Americana counties that are entering the decade in poor economic health. Our model suggests that these areas could experience net job loss, with their employment bases shrinking by 3 percent.”)

<sup>94</sup> *Ibid.*, 6 (“Our model shows some local economies experiencing more disruption than others. . . [U]rban areas with more diversified economies and workers with higher educational attainment, such as Washington, DC, and Durham, NC, might feel somewhat more muted effects from automation; just over 20 percent of their workforces are likely to be displaced. These differences are explained by each county and city’s current industry and occupation mix as well as wages.”)

<sup>95</sup> *Ibid.*, vi (These diverse starting points affect whether communities will have the momentum to offset automation-related displacement. The same 25 cities and peripheries that led the post-recession recovery could capture 60 percent of US job growth through 2030. . . . but rural counties could see a decade of flat or even negative net job growth.”)

<sup>96</sup> *Ibid.*, 35 (“Automation-related job losses are not likely to manifest as sudden mass unemployment. Some occupations are likely to shrink through attrition and gradually reduced hiring, and many of these declines would represent a continuation of past and current trends.”)

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Joint Center for Political and Economic Studies  
[info@jointcenter.org](mailto:info@jointcenter.org)  
[www.jointcenter.org](http://www.jointcenter.org)  
@JointCenter



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#### Media Contact

[press@jointcenter.org](mailto:press@jointcenter.org) | 202.789.3500 EXT 105

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#### Joint Center for Political and Economic Studies

633 Pennsylvania Ave., NW

Washington, DC 20004

[info@jointcenter.org](mailto:info@jointcenter.org)

[www.jointcenter.org](http://www.jointcenter.org)

@JointCenter