Torn Apart? The Impact of Manufacturing Employment Decline on Black and White Americans

Eric D. Gould
Department of Economics
The Hebrew University of Jerusalem
CEPR, IZA, and CReAM

ABSTRACT: This paper examines the impact of manufacturing employment decline on the socio-economic outcomes within and between black and white Americans since 1960. The analysis shows that manufacturing decline negatively impacted blacks in terms of their wages, employment, marriage rates, house values, poverty rates, death rates, single parenthood, teen motherhood, child poverty, and child mortality. In addition, the decline in manufacturing increased inequality within the black community for wages and other outcomes. Similar patterns are found for whites, but to a lesser degree – leading to larger gaps between whites and blacks in wages, marriage patterns, poverty, single-parenthood, and death rates.

JEL CODES: J31, J12, J70

Contact info: Eric Gould - Department of Economics, The Hebrew University of Jerusalem, IZA, and CEPR. Email: eric.gould@mail.huji.ac.il. I thank the Editor, referees, and participants at the ICEF Conference on Applied Economics for helpful comments. Sheri Band Asif provided diligent research assistance. This research was supported by the Israel Science Foundation (grant No. 1927/18).

I. Introduction

This paper examines the impact of manufacturing employment decline on the socio-economic outcomes within and between black and white Americans from 1960 to 2010. Historically, the manufacturing sector provided high-paying jobs to relatively less educated workers. The steady decline in the proportion of workers employed in this sector over the last five decades, therefore, represents a dramatic deterioration in work opportunities for individuals on the lower portion of the education distribution. Furthermore, due to potential general equilibrium effects, the disappearance of high paying manufacturing jobs could have ripple effects on the wages and employment prospects of similar workers in all sectors of the economy.

The goal of this paper is to examine the impact of manufacturing employment decline on a broad array of labor market and socio-economic outcomes for men, women, and children including: wages, employment rates, marriage rates, house values, poverty rates, death rates, single parenthood, teen motherhood, child poverty, and child mortality. Wilson (1996) emphasized that declining job prospects, beyond their direct effects on income and employment, can have a wider impact on other measures of social organization like marriage, single parenthood, sexual norms, crime, and health. In particular, the lack of employment opportunities for men, who were disproportionately in the manufacturing sector relative to women, may significantly impact women by reducing their gains from marriage while increasing their incentives to work, be independent, and have children out of wedlock. The decline in marriageable men may also increase the bargaining power and incentives for certain men to avoid steady work and engage in casual sex and out-of-wedlock birth.

In this manner, the decline in manufacturing is likely to have a direct impact on men (working in and outside of manufacturing), as well as generating indirect effects on women and children through the marriage market, shifts in the local demand for labor – including wage

spillovers onto other sectors, labor supply responses of women, changes in the tax base, the provision of public goods, and intergenerational impacts on children through changes in the quality of the family and childhood environment.

All of these mechanisms should be stronger for less-educated individuals, since they benefited the most from a robust manufacturing sector, regardless of whether they worked there or not. Therefore, the analysis will examine whether manufacturing affects overall outcomes within the white and black populations, and if so, whether these effects are more pronounced for less-skilled individuals within both groups. That is, the disappearance of manufacturing work may not have only lowered socio-economic outcomes for each racial group, but increased inequality within each group as well.

If deindustrialization has a larger adverse effect on less educated people within whites and blacks, a similar mechanism may help understand the evolution of inequality between whites and blacks during recent decades. Given that the black population has historically been much less educated than whites, the paper will focus particular attention on whether manufacturing employment decline has disproportionately affected the black community (Bluestone (1988)), and if so, whether it can help understand the trends in racial gaps that have been getting larger (or ceased converging during and after the 1970's) across a broad array of social outcomes like wages, employment, marriage rates, poverty, mortality, and single-parenthood. The lack of progress in black outcomes during this time is especially puzzling given the legislative successes of the Civil Rights Movement in the 1960's and the steady improvement in the education levels of blacks relative to whites in the aftermath. A disproportionate effect of manufacturing job loss on less educated individuals can potentially explain why socio-economic outcomes are deteriorating over time for both whites and blacks, while increasing inequality within and between both racial groups as well.

The empirical strategy exploits geographic variation over time (1960-2010) and space (Metropolitan Areas) in the United States in manufacturing employment along with a broad array of socio-economic outcomes for black and white men, women, and children. A causal interpretation of the results is supported by showing that the results are robust to including or excluding other control variables that vary at the locality-year level, including the employment share of workers in services (which is rising as manufacturing employment falls), using different time periods, and using a "shift-share" instrument for the local manufacturing employment share. Also, by examining numerous outcomes and showing a consistent pattern across many of them, the overall findings and conclusions are unlikely to be the result of potential measurement issues specific to each one.

The analysis reveals that the decline in manufacturing had a significant and wide-ranging adverse impact on blacks. For black men, these outcomes include: wages, employment, marriage rates, poverty, receiving welfare payments, house values, death before the age of 65, overall wage inequality, and larger gaps between education groups in wages, marriage, and employment. For black women, adverse effects are found for: marriage rates, poverty, single motherhood, teen motherhood, wages, house values, death before the age of 65, becoming a widow before the age of 45, and larger gaps between education groups in marriage rates.

For white men, manufacturing decline is found to have negative effects on: wages, employment, poverty, receiving welfare payments, house values, overall wage inequality, and larger gaps between education groups in wages and marriage. For white women, significant impacts are found for: poverty, single motherhood, mean wages, house values, and larger gaps between education groups in marriage rates and single motherhood.

Regarding black and white children, the decline in manufacturing increased poverty, the percent raised in single-parent households, and mortality rates before the age of ten. These

effects are likely to be indirect – caused by the adverse impact of manufacturing on the outcomes of parents and the subsequent changes in childhood, neighborhood, and family conditions.

However, the results reveal a general pattern across outcomes whereby the effects are larger for blacks relative to whites, thus increasing racial gaps along several dimensions. For men, these outcomes include wages, employment, marriage, poverty, welfare, mortality before age 65, home ownership, and house values. For women, stronger effects on blacks are found for: marriage, poverty, single motherhood, wages, home ownership, mortality before age 65, and house values. For children, the decline in manufacturing is increasing racial gaps in poverty, the chances of growing up without both parents, and mortality before the age of ten. Most of these findings are quite robust across times periods and using OLS or IV. Overall, a clear general pattern emerges that manufacturing decline has worsened many outcomes within both communities, increased inequality within each group, and widened the racial gaps in socio-economic conditions.

The estimates are not only statistically significant for many socio-economic outcomes, but are often quite large in magnitude. Using the OLS coefficients which tend to be a bit smaller in magnitude than the IV estimates, the decline in the manufacturing employment share since 1960 is predicted to lower outcomes for black men by 14.7 percent in wages, 5.9 percentage points in their employment rate, and 4.7 percentage points in their marriage rate. For black women, the predicted effects are a reduction in the marriage rate by 5.6 percentage points, increased poverty by 10.0 percentage points, and an increase the rate of single motherhood by 3.5 percentage points. Black children are predicted to have an increase in the poverty rate of 11.4 percentage points and an increasing chance of living with only one parent of 5.1 percentage points. The manufacturing trend is also predicted to account for almost a third of the increase in wage inequality among black men.

Regarding the racial gaps, the downward trend in manufacturing is predicted to increase them by: 13 percent in male wages, 4.3 percentage points in male employment, 4.9 percentage points in male marriage rates, 5.8 percentage points in female marriage rates, 9.6 percentage points in female poverty rates, 9.4 percentage points in child poverty, and 4.4 percentage points in the rate of children living with only one parent. Some of these magnitudes are quite large compared to the trends in the racial gaps – most notably the outcomes regarding wages, employment, and poverty.

There is a large literature on the overall trends in employment and wage inequality.[1] Juhn (1992) links the two trends together, while others argue that the decline in employment rates for prime age men is influenced by social welfare and disability programs (Parsons (1980)), crime, and drug epidemics (Fryer et. al. (2013)).

Considerable attention has also been given to the employment outcomes for black men (Juhn (1992), Western and Petit (2005)) and to the racial gaps in wages.[2] Smith and Welch (1989) document the advances of blacks relative to whites from 1940 to 1980 at different points of the wage distribution, along with the steady growth of the middle class within blacks. However, racial gaps do persist and the progress of blacks relative to whites has slowed or even reversed course in certain socio-economic indicators. There are many studies on how much the remaining racial wage gap reflects differences in human capital and educational achievements versus discrimination (Carneiro et. al. (2006), Charles and Guryan (2008), Fryer

[1] See Juhn, Murphy, and Pierce (1993), Juhn (1992), Autor, Katz, and Kearney (2008), etc.

[2] See Smith and Welch (1977, 1989), Brown (1984), Bound and Freeman (1992), Jaynes (1990), Juhn, Murphy, and Pierce (1991), Margo (1995), Neal and Johnson (1996), Altonji and Blank (1999), Chandra (2000), Donohue and Heckman (1991), Western and Petit (2005), Black et. al. (2006), Carneiro, Heckman, and Masterov (2006), and Bayer and Charles (2018).

(2011), Lang and Manove (2011)), and how much the trend is influenced by the increasing importance of social skills (Borghans et. al. (2014)) and the trends in the incarceration and employment rates of black men.[3] Manufacturing decline was linked to lower employment and wages for black men during the 1970's and 1980's by Bound and Freeman (1992) and Bound and Holzer (1993). These studies decompose wages and employment during this period into contributions by industrial shifts caused by supply and demand factors. Overall, the literature has paid little attention to the wage inequality trends within blacks (or inequality in black marriage and employment outcomes), and there is no causal evidence on whether the wages, employment, or other socio-economic outcomes for whites and blacks – and the racial gaps between the two groups – have been influenced by the disappearance of manufacturing work over the last five decades.

In the sociology literature, William Julius Wilson (1996) has long argued that the decline of manufacturing in inner cities has led not only to joblessness for black men, but also to family dissolution, poverty, and social disorganization. Recently, Murray (2012) argued that a similar process occurred within the white community. In my previous work (Gould (2019)), the trend in manufacturing is found to explain a large portion of the "residual wage" inequality trend for white men, as well as the decline in employment for non-college white men. In contrast, this paper examines many more socio-economic outcomes (mean wages, marriage, poverty, house prices, single parenthood, mortality, etc.), looks at women and children in addition to men, and focuses on blacks and the racial gaps. Given that less-educated workers

[3] The estimation of racial gaps over time, and whether they are converging, is significantly influenced by the selection of workers who are dropped out of the labor force or are incarcerated over time. See Chandra (2000), Juhn (2003), Western and Petit (2005), and Bayer and Charles (2018).

benefited the most from manufacturing jobs, and that blacks are much less educated than whites for historical reasons, a particular emphasis is given to examining whether the deindustrialization process increased inequality between education groups within each racial group, and whether this process disproportionately affected the black community relative to whites for a broad array of socio-economic measures.

Recent work has shown that increased import competition with China led the manufacturing sector to shrink since 1990, and consequently lowered the employment rates and wages of workers in other sectors (Autor, Dorn, and Hanson (2013, 2015), and Balsvik, Jensen, and Salvanes (2015)). Charles, Hurst, and Notowidigdo (forthcoming) also show that manufacturing declines since 2000 are associated with higher unemployment and lower employment. Autor, Dorn, and Hanson (2018) show that increased trade competition with China since 1990 led to a decline in marriage rates for young adults, rising teenage and unwed motherhood, and an increase in the share of children living in poverty and single-headed households.

This paper makes three main contributions to this recent literature. First, this paper analyzes the deindustrialization process over the last five decades, and is not limited to the post-1990 period when trade with China began. Most of the trends in the socio-economic outcomes of blacks and whites, along with the trends in their racial gaps, preceded the era of Chinese trade by decades. Second, in contrast to existing studies, this paper examines outcomes for blacks separately from whites, and also whether the decline in manufacturing jobs affected inequality within and between each racial group. Third, this paper analyzes a broad array of labor market and socio-economic outcomes for men, women, and children. Overall, this paper is the first to present evidence for a common cause behind the deterioration for over five decades of many of these outcomes within each racial group, higher inequality in outcomes within each race, and the growing disparities between racial groups over this period of time.

The paper is organized as follows. The next section presents the data and discusses the major labor market trends in the socio-economic outcomes of blacks and whites. Section III describes the empirical model and Section IV presents the results for the role of the manufacturing employment share on the outcomes of black men, women, and children. Section V performs a similar analysis for whites, while Section VI looks at the racial gaps in outcomes explicitly. Section VII examines mortality for blacks and whites and Section VIII concludes.

II. The Data

The analysis uses United States Census data from 1960, 1970, 1980, 1990, and 2000. In addition, the American Community Surveys (ACS) for 2009, 2010, and 2011 are combined and referred to as the "2010" period.[4] For blacks and whites, the male sample is restricted to natives between the ages of 25-55. The female samples include natives between the ages of 25 and 45 in order to focus on the period of life where marriage and fertility are the most relevant.[5] The wage variable is defined as the real annual wage income for the sample of native full-year workers that worked at least 35 hours per week, are not in group quarters, not in school, and not self-employed. The main measure of wage inequality is the ratio between the 90^{th} and 10^{th} percentiles of the log wage distribution.

[4] The data was downloaded from IPUMS (Ruggles et. al., 2010). The downloaded data sets include the ACS for 2009-2011, the 5 percent samples for 1990 and 2000, the 5 percent state file for 1980, the 1 percent fm1 and fm2 files for 1970, and the 5 percent file for 1960.

[5] Outcomes regarding fertility are inferred by survey questions regarding the number of children in the household. Women above the age of 45 may have children that already moved out of the house, and this probability is likely increasing for Census years more distant in the past.

Figure 1 displays the familiar decline in the manufacturing employment share since 1960.[6] For both black and white men, the share of individuals in the manufacturing sector in 2010 is less than half of what it was in 1960 – going from 0.28 to 0.14 for all men and 0.21 to 0.10 for black men. The loss of these jobs represents a significant worsening of economic opportunities – black workers in manufacturing in 1970 earned the third highest average wage of all sectors (out of thirteen broad categories). For white workers, manufacturing ranked as the fifth best paying sector in 1970. However, these rankings do not take into consideration that workers in the manufacturing sector are less educated on average. Adjusting for age and education in a wage regression, manufacturing was the third best paying sector for black and white men in 1970. Although the manufacturing industry wage effect is large and positive for both races after adjusting for age and education, the wage premium for manufacturing work was considerably larger for blacks in 1970 -- relative to the retail sector, the manufacturing premium is 15.7 percent for blacks versus 9.9 for whites. Workers in the manufacturing sector tended to be in the lower-middle part of the economic distribution for black and white men, so the loss of manufacturing work since 1960 represents a steady decline in relatively high-paying jobs for less-educated workers, especially for black men.

As the employment share in manufacturing declined, the convergence of the black-white gap halted, and began to slowly widen in the 1980's (Juhn, Murphy, and Pierce (1991)). Over the same period, employment rates for black men declined steadily, especially after 1980

[6] The manufacturing employment share is computed as the percent of men working at least 20 hours a week in a manufacturing industry according to the 1990 industrial codes among the sample of native men between the ages of 25 and 55 who are not students and not in group quarters. The results throughout the analysis are robust to using alternative sample and work hours restrictions.

(81 percent to 73 percent according to Appendix Table A1). A similar trend, albeit less steep, occurred for white men (93 percent to 86 percent). For both blacks and whites, marriage rates dropped dramatically since the early 1970's (Appendix Figure A1 for men and Appendix Table A2 for women). Quite noticeably, the racial gap in marriage for both men and women widened steadily over this time – a 3.5 percentage point racial gap in men who never married in 1960 rose to 19.4 percentage points in 2010. The racial gaps in wages, marriage, and employment rates either ceased converging or got wider since 1960. This lack of progress is surprising given the dramatic convergence in education levels between blacks and whites during this time period, which can be seen by the descriptive statistics for all the main variables used in the empirical analysis in Appendix Tables A1-A3. For example, there was a 28 percentage point racial difference in men who dropped out of high school in 1960, and this was reduced to 5 percentage points in 2010. A roughly 2.5 years of schooling gap between black and white men in 1960 was reduced to about half of a year in 2010. This progress in educational attainment for blacks relative to whites stands in stark contrast to the trends in the racial gaps in many other socio-economic outcomes.

The last five decades also witnessed a dramatic increase in wage inequality, and Figure 2 shows that this was not unique to the majority, white population. In fact, male wage inequality increased faster for black men since 1970 than it did for whites. Although the sharp increase in wage inequality has received much attention, little attention has been given to the steep inequality trend within the black community, and to the question of whether it is driven by the same factors as the wage inequality trend within whites.

In contrast, dramatic changes in the rate of single-parenthood and the percent of children growing up without both parents have been widely noted. Appendix Figure A2 displays the upward trend in single motherhood for black and white females, along with an increasing racial gap. In 1960, the racial gap in single motherhood was 13.2 percentage points,

compared to 27.1 percentage points in 2010. The racial gap in the percent of children living without both parents was 25.3 in 1960 (Appendix Table A2), which increased to 38.4 in 2010. It is worth noting that the racial gaps in both measures are increasing despite upward trends in both for white women and children.

Overall, the socio-economic trends for several measures point to less-favorable outcomes over time, while inequality within and between racial groups are increasing as well (Appendix Table A3). Examining whether there is a causal link between these trends and the decline of well-paying jobs for less-educated workers in manufacturing is the goal of the rest of the paper. To do this, the empirical strategy will exploit variation across cities and over time. A preliminary analysis in Appendix Figure A3 shows that cities which experienced larger reductions in the manufacturing employment share had the lowest growth in mean wages for black men. A similar effect is found for white men in Appendix Figure A4, but the slope is much smaller. This finding suggests that the decline in manufacturing had a stronger negative impact on blacks relative to whites, resulting in larger racial wage gaps. A similar pattern is also found for marriage rates (men and women), male employment rates, poverty rates, and the percent of children raised without both parents. These findings come from a simple differences-in-differences model with no other controls, but suggest that the decline in manufacturing had a negative impact on whites and an even stronger adverse effect on blacks. The rest of the paper examines the robustness and causal nature of these findings.

III. Empirical Strategy

The empirical strategy to identify the causal effect of the manufacturing employment share on the socio-economic outcomes of blacks or whites is to exploit variation across cities and over time with the following equation:

$$y_{it} = \alpha MFG_{it} + \beta X_{it} + \mu_i + \delta_t + \varepsilon_{it} \quad (1)$$

where y_{it} is a socio-economic measure for blacks or whites in city i in year t, MFG_{it} represents the percent of full-time male workers in the manufacturing sector in city i in year t, X_{it} is a vector of time-varying city-level characteristics (the age composition in the main specification), μ_i is a fixed-effect unique to city i, and δ_t is an aggregate fixed-effect for each year t. Unobserved components of a city's socio-economic outcome are captured by the error term, ε_{it}. Cities are defined by metropolitan areas, and the sample sizes and means of the variables used in the analysis are displayed for each sample year in Appendix Tables A1-A3.

The empirical strategy in equation (1) exploits variation across localities and over time, and relies on the idea that the effects of local labor market shocks are not dissipated by migration flows across areas. The empirical evidence shows that local labor market shocks have long-term effects that are not diffused over time and space.[7] This finding is particularly pronounced for less-educated individuals, who are the ones most likely to be adversely affected by an economic shock (Bound and Holzer (2000)). To the extent that migration decisions mitigate local labor market shocks, this process will bias the results against finding an adverse effect from a shock to the local labor market supply or demand.

The main identifying assumption in equation (1) is that the employment share of workers in the manufacturing sector in city i and year t (MFG_{it}) is not correlated with unobserved determinants of the local level of the socio-economic outcome in year t. Support for this assumption is provided by showing that the results are robust to the inclusion or exclusion of various observed determinants of local economic conditions, as well as using an instrument for the local employment share in manufacturing over time based on the initial industrial composition of workers across cities and the aggregate trends of each industry. The

[7] See Blanchard and Katz (1992), Autor, Dorn, and Hanson (2013), and Amior and Manning (2018).

main idea behind this strategy is that a national decline in a given certain industry will affect areas where this industry was heavily concentrated in the initial period, relative to the rest of the country.

To be specific, the instrument predicts the local manufacturing employment share from two sources of information: (1) the initial composition of workers across industries within manufacturing in locality *i* in the base year t_0 ; and (2) the aggregate employment shares of workers across industries over time for the whole United States. Formally, the predicted employment share is computed by:

$$\widehat{MFG}_{it} = \sum_{j=1}^{J} \pi_{j,i,t_0} \left(P_{j,t} - P_{j,t_0} \right) \quad (2)$$

where π_{j,i,t_0} is the employment share of industry *j* in city *i* in the base year t_0, and $P_{j,t}$ is the national employment share (excluding the workers in city *i*) of industry *j* in year *t* (including the base year t_0).

The national decline in any particular industry is considered to be exogenous to the local factors affecting a particular city's socio-economic trend. This instrument was developed in Bartik (1991) and Blanchard and Katz (1992), and has been used recently to instrument for the local level of manufacturing decline (Charles, Hurst, and Notowidigdo (forthcoming)). Using this instrument is one strategy to support a causal interpretation of the results, in addition to showing robustness to the exclusion or inclusion of additional control variables, looking at alternative outcomes which do not share the same empirical and measurement issues, using different time frames, and using a first-differences specification.[8]

IV. The Impact of Manufacturing on the Socio-Economic Outcomes of Blacks

[8] In unreported results, the results are robust to including controls for union density, firms size, and blue collar employment.

Table 1 shows the main OLS results of equation (1) for the core socio-economic outcomes of black men, women, and children. All of the regressions are weighted by the local population for the given racial group in 1990. Robust standard errors clustered at the metro area are reported in all tables.

The first column in the top panel of Table 1 uses the mean log wage for black men as the outcome of interest. The significant, negative coefficient indicates that a decline in the manufacturing sector decreases the wages of black men. Manufacturing decline also reduces the employment rate (column (2)) and the marriage rate (column (3)) of black men. These findings are robust to starting the sample period in 1960, 1970, 1980, or 1990. To understand the magnitude of these effects, a 15 percentage point decline in the manufacturing employment share reduces wages by 14.7 percent (using the OLS results for the sample starting in 1960), the employment rate by 5.9 percentage points, and the marriage rate by 4.7 percentage points. So, the approximately 15 point decline in the manufacturing share over the last five decades had statistically and economically significant effects on the core outcomes of black men.

The other columns of Table 1 display negative impacts on black women and children in terms of the female marriage rate, female poverty rate, percent single mothers, and the percent of black children who are in poverty or living with only one parent. A 15 percentage point decline in the manufacturing share is predicted to reduce the female marriage rate by 5.6 percentage points, increase female poverty by 10.0 percentage points, increase the rate of single motherhood by 3.5 percentage points, increase the poverty rate of black children by 11.4 percentage points, and increase the number of black children living with one parent by 5.1 percentage points.

Appendix Table A4 replicates the analysis in Table 1, and also shows that the results, both in magnitude and statistical significance, are similar with no city-level controls, or with

and without controls for the local education distribution. These findings support the identifying assumption that the results are not sensitive to the inclusion or exclusion of omitted variables.[9]

The fall in manufacturing employment coincided with the growth in services, and in many cities, a decline in the population due to overall urban decay. The extent to how much of the estimated effect of manufacturing decline is picking up the growth in services is examined in Appendix Tables A4-A6. Adding the employment share in services to the specification, as well as the population, has no effect on the estimated coefficients on the manufacturing share, leading to the conclusion that the main results are indeed picking up the effect of losing manufacturing jobs rather than the shift into services or overall urban decline. In addition, the coefficients on service sector employment in Appendix Table A5 are typically not significant, and in the same direction as manufacturing employment – a pattern which suggests that the increase in service sector employment over time had, if anything, a positive impact on socio-economic outcomes. This stands in stark contrast to the predicted effect of manufacturing decline over time.

Appendix Table A4 also presents results for specifications which include region by year fixed-effects, city-specific time trends, and an interaction between the initial level of manufacturing employment and a linear time trend. The estimates on manufacturing employment are still highly significant for each specification, but the magnitudes are noticeably reduced for some outcomes. The similarity of the results across these different ways of controlling for local time trends shows that the reduction in coefficient size is coming from the idea that places that had an initially high level of manufacturing employment experienced the

[9] The third row of Appendix Table A4 presents standard errors clustered at the sub-region level instead of using the level of aggregation (metro area). This does not affect the conclusions regarding statistical significance.

most dramatic decline in manufacturing and in socio-economic outcomes. These two trends may be causally related to each other, but once this variation is controlled for, the coefficients for some outcomes are reduced somewhat in size but remain statistically significant. These findings show that an important source of variation is coming from the process whereby manufacturing is declining the most in places where it had the most room to fall (i.e. localities with the highest manufacturing employment share in 1960).

Overall, the results for manufacturing are robust to the inclusion or exclusion of demographic controls, the share of employment in services, population size, and local time trends. The stability of the main findings to alternative specifications provides supporting evidence for a causal interpretation of the results. Further support for a causal interpretation is given in Table 1 using the IV strategy outlined above. The first stage is quite strong using the "shift-share" (or "Bartik") instrument for the manufacturing employment share of black men – with F-statistics equal to 93.10, 112.59, 103.84, and 42.89 when starting the sample in years 1960, 1970, 1980, and 1990 respectively. The second stage estimates in Table 1 are very similar in magnitude and significance for IV versus OLS, and also for the different starting years.[10]

[10] In unreported results, the estimates are similar if we use state or state-of-birth as the geographic unit instead of metro areas. The purpose of using state of birth is to try to abstract from the endogenous moving of respondents between locations in response to shifts in the local demand for manufacturing workers – which should bias the results towards zero when using city or state of residence as the geographic unit. To the extent that individuals move in response to manufacturing decline, the main analysis, which uses a sample of individuals according to their current city of residence, will be biased towards zero – against finding an adverse effect on socio-economic outcomes of men, women, and children. This is because a

Table 2 presents a similar analysis for several other socio-economic outcomes for black men. Very significant negative effects are found for the employment rate of non-college men, the poverty rate, welfare participation, divorce rates, and housing values. Insignificant effects are found for the home ownership rate. Overall, these results follow up Table 1 by showing a robust negative impact of manufacturing decline on an array of socio-economic outcomes for black men. Given that the results are robust across so many different outcomes, the findings are unlikely to be due to measurement issues associated with any particular one. Moreover, since the sample of black men is composed of mostly men that are not in the manufacturing sector, it is worth noting that the findings suggest a strong general equilibrium effect of manufacturing decline on all black men.

Table 2 also presents several additional outcomes for black women. The manufacturing employment share for black men is found to have an adverse effect on female wages, house values, teen motherhood, and the probability of being a widow – an indication that manufacturing decline is increasing mortality rates for black men. Insignificant results are found for divorce, and unlike black men, there is no negative impact on the employment rates for black females. This result is perhaps expected since manufacturing decline may negatively

---

person who loses their job or suffers a wage loss could move to another city, and therefore, this move will not show up as a decline in wages or loss of employment in the city which suffered the local labor market shock. Another option is to use a sample of individuals according to their state of birth. However, this will also lead to a bias against finding an adverse effect – a person born in state *i* who loses their job in state *i* due to manufacturing decline, can move and obtain employment in state *j*. This will lead to an overestimate of the employment rate of those born in state *i*, since this person would have not have been employed had they remained in their state-of-birth *i*.

impact the overall labor market, but at the same time, may increase the supply of female labor if they are more likely to be single and independent. Similar to Table 1, the IV estimates in Table 2 are comparable to those using OLS, although perhaps a bit larger in size.

Recent papers by Goldsmith-Pinkham et. al. (2019) and Borusyak et. al. (2018) have highlighted the identifying assumptions behind the "Bartik" instrument used in Tables 1 and 2. These papers show that the exogeneity of the initial shares of each industry within manufacturing by locality is sufficient to produce consistent IV estimates, but a large enough number of industries within manufacturing used to construct the instrument is also sufficient. In particular, if one large industry within manufacturing (like automobiles, oil, or mining) is dominating the variation in the instrument, the IV estimates could be inconsistent if the dominant industry is non-randomly allocated in the initial period.

The Bartik instrument for the manufacturing employment share in Tables 1 and 2 is constructed with 16 industries within manufacturing, so concerns about a non-randomly allocated, dominant sector are unlikely to be relevant. Appendix Table A6 shows that the main IV results are robust in significance and magnitude to the inclusion of other variables which are varying over time at the local level, and perhaps are correlated with the instrument – the local education distribution and the employment share in services. To examine this issue further, Appendix Table A7 presents the main IV results for blacks using 16 different sets of Bartik instruments -- whereby each one leaves out one of the 16 industries to construct the Bartik instrument. The results in Appendix Table A7 are virtually identical after dropping each particular industry, which indicates that the results are not dependent on one dominant industry. In addition, it is worth emphasizing that the IV results in this paper are not the main empirical strategy, but rather are presented as a useful robustness check.

The idea that manufacturing may affect inequality within black individuals, not just overall levels, is examined in Table 3. The deindustrialization process is not only lowering

average wages, but increasing wage inequality within the local black community as well. A 15 percentage point decline in the manufacturing share is predicted to increase wage inequality among black men by 9.4 log points. The significant effect on the variation of house prices in column (2) implies that the process of deindustrialization is not only lowering outcomes and generating larger gaps between richer and poorer black men, but also creating greater separation between the rich and poor blacks in terms of where they live and perhaps the quality of their neighborhoods and schools.

In columns (3)-(5) of Table 3, manufacturing decline is estimated to increase other measures of inequality within black men – the return to schooling in wages, marriage rates, and employment rates.[11] Manufacturing decline is producing greater heterogeneity in labor market and marriage outcomes between black men of different education levels. A similar pattern is found for the return to education for black females in marriage rates, but not for the education gaps in the probability of being a single mother.

Given the large number of outcomes for the level and variation of socio-economic outcomes used in this analysis, inferences regarding multiple hypothesis testing may be a concern. Appendix Tables A8 and A9 present the p-values for all outcomes after adjusting for multiple hypotheses within each group using the free step-down resampling methodology of Westfall and Young (1993).[12] These tables also present alternative ways of computing p-values for multiple hypotheses following Bonferroni-Holm and Sidak-Holm. The adjusted p-values do not change the main conclusions of the paper – out of 36 coefficients that are significant at

[11] These measures are used as indicators of inequality in socio-economic outcomes, and are not necessarily due to a causal effect of education on each outcome.

[12] See Jones, Molitor, and Reif (2018) for details and for the STATA procedure used in this analysis.

the 10 percent level using conventional methods (robust standard errors clustered at the MA level), only two are insignificant at that level according to all three methods of adjusting the p-values for multiple hypotheses with the same model.

Appendix Table A10 presents estimates from a ten-year first-differences specification, instead of using fixed-effects at the metro level with aggregate time trends. The results are similar in magnitude and significance with this strategy as well.

The analysis in this section shows that manufacturing decline has had a significant and often large adverse impact on many socio-economic outcomes for black men, women, and children. In addition, these effects are largest for those at the lower end of the education and income distribution. As a result, manufacturing decline is increasing inequality with the black community in terms of male wages, male employment rates, marriage rates for black men and women, and housing prices. These findings are robust across OLS and IV specifications, across several different measured outcomes, using different time periods, and the inclusion or exclusion of several metro-area control variables and confounding factors. The next section presents a similar analysis within the white community.

V. The Impact of Manufacturing on the Socio-Economic Outcomes of Whites

Table 4 repeats the previous analysis on the core outcomes for white men, women, and children. Similar to the black population, manufacturing decline is found to have a negative impact across a broad array of outcomes. Specifically, the shrinking manufacturing sector reduces male wages and employment, while increasing the poverty rate for white women, the rate of single motherhood, and child poverty. The results point to negative impacts from the

manufacturing trend on marriage rates and the percent of white children in a single parent household, but these findings are not robust across specifications.[13]

Table 5 extends the list of outcomes for white men, and shows that manufacturing decline has a negative impact on wages, poverty levels, welfare participation, and house values for white men. (The OLS coefficients are not as significant as the IV results.) Manufacturing decline has little impact on home ownership and divorce rates – which may be due to the positive selection of those that choose to get married as marriage rates decline in response to changes in the industrial structure.

For white women, Table 5 shows that the shrinking manufacturing employment share of white men is reducing their wages and house values. The coefficients suggest a negative impact on teen motherhood and welfare participation, but these findings are not robustly significant across specifications. Similar to black women, the decline in the manufacturing sector had a positive impact on the employment rates of white women, most likely by lowering their marriage rates and causing them to be more self-reliant.

[13] The first stage is quite strong using the shift-share instrument for the manufacturing employment share of white men – with F-statistics equal to 77.79, 100.38, 176.84, and 95.44 when starting the sample in years 1960, 1970, 1980, and 1990 respectively. In unreported findings, the results in Table 4 are robust to the inclusion or exclusion of the demographic controls for age and education, as well as adding the following variables as potential confounding factors: union concentration, firm size, the employment share of white men in services, and the employment share of white men in blue-collar occupations. Also, similar findings are found when using state or state-of-birth as the geographic unit of analysis instead of metro areas.

The effect of manufacturing on inequality within whites is examined in Table 6. The decline in manufacturing has a negative impact on wages at both ends of the distribution, but a stronger impact at the bottom tail – leading to higher male wage inequality for white men. These results are similar to those in Gould (2019). A smaller manufacturing sector is also found to increase the return to schooling for male wages, marriage rates, and employment (not robust to IV). Regarding white women, the trend in manufacturing employment increases the return to schooling for marriage rates and for the rate of single motherhood. Again, the general pattern pointing to a negative impact for so many socio-economic measures is unlikely to be due to measurement issues idiosyncratic to each outcome.

Overall, the findings for whites are quite similar to those found for blacks – manufacturing decline is leading to adverse socio-economic outcomes for white men, women, and children. In addition, the manufacturing trend is increasing inequality in outcomes as well. These results are generally robust to OLS and IV, using different time periods, and including or excluding other controls and potentially confounding factors. In addition, these findings are robust to controlling for the testing of multiple hypotheses with the same specification (Appendix Tables A8 and A9), and to using a first differences specification (Appendix Table A10). The next section examines if the impact is larger for blacks versus whites.

VI. The Differential Impact of Manufacturing on Blacks Versus Whites

This section performs a similar analysis but uses the black-white gap in socio-economic outcomes instead of using the levels of the same outcomes for whites or blacks separately. The idea is to test whether manufacturing employment has a differential impact on blacks versus whites – which may be expected since blacks are much less educated than whites for historical reasons, and the manufacturing sector in general boosted the overall demand for labor for all workers in the lower to middle part of the education distribution, regardless of whether they worked in the manufacturing sector or not. For these reasons, it is possible that the

disappearance of high wage jobs for less-educated workers had a larger general equilibrium impact on blacks relative to whites, despite the employment share trends in manufacturing being quite similar across races (Figure 1). Evidence for a larger impact on less-educated individuals was presented in previous tables looking within blacks and within whites, so this section examines whether this pattern extends to looking across racial groups with different levels of schooling.

The main treatment variable in this analysis is defined as the employment share of all men (white or black) in the manufacturing sector, as opposed to the race-specific measures used in previous tables. Table 7 presents the OLS and IV results for the racial gap in core outcomes for men, women, and children. The black-white gaps are defined as the differences in mean outcomes between the two races for each city and year. The results in Table 7 show that the decline in manufacturing significantly increases the black-white gaps in male wages, male employment rates, male marriage rates, female marriage rates, female poverty rates, child poverty rates, and the percent of children living with one parent. Less robust results are also found for the rate of single motherhood. Using a first-differences specification in Appendix Table A10, manufacturing decline is found to significantly increase racial gaps for each of the eight core outcomes.

The magnitudes of these coefficients are substantial. A 15 percentage point decline in the manufacturing share is predicted to increase the racial gap by: 0.13 in log male wages, 4.3 percentage points in male employment, 4.9 percentage points in male marriage rates, 5.8 percentage points in female marriage rates, 9.6 percentage points in female poverty rates, 2.4 percentage points in single motherhood, 9.4 percentage points in child poverty, and 4.4

percentage points in the rate of children living with only one parent.[14] Some of these magnitudes are quite large compared to the trends in the racial gaps – most notably the outcomes regarding wages, employment, and poverty (Appendix Tables A1-A3).

Table 8 presents the extended list of outcomes for men. Again, the manufacturing trend increases the racial gap for men in: the employment rate of non-college men, poverty rates, welfare participation, divorce, and house values. According to the OLS coefficient for the full sample (the IV coefficients tend to be larger), a 15 percentage point drop in the manufacturing share is predicted to increase racial gaps by: 4.3 percentage points in the employment rate of non-college men, 10.2 percentage points in the poverty rate, and 22 percent in house values. These findings suggest that the deindustrialization process is not only lowering outcomes within each racial group, and increasing inequality within groups, but is making white and black men more dissimilar in their socio-economic conditions – including the value of their houses which could be indicative of greater geographic segregation.

Table 8 also presents the extended list of outcomes for the racial gaps among women. The findings in this table are not as robust and clear as in previous tables, but generally suggest that the decline in manufacturing increased the racial gap in female wages, the probability of being a widow, and house values. Although Table 7 showed strong effects on the racial gap in female poverty and marriage rates, these findings are not as prominent and robust for other measures of female racial gaps in Table 8. This pattern may be consistent with the idea that the disproportionate effect of manufacturing decline on blacks relative to whites is most acute for the group directly affected by the deindustrialization trend.

[14] The coefficients vary across OLS and IV, and across time periods. To be consistent in these calculations, the OLS coefficients for the entire sample period (1960-2010) are used in the discussion.

Table 9 examines whether manufacturing shifts have a differential impact on black inequality relative to white inequality. In previous tables, the deindustrialization process is found to increase inequality within blacks and within whites. The estimates in Table 9 suggest that this impact is roughly similar within both groups. For most outcomes, the trend in manufacturing is not significantly increasing inequality faster within blacks relative to whites, although there is some evidence that this was the case for the variance in house values. This finding suggests that spatial polarization induced by deindustrialization, inferred from the higher variation in housing prices, is larger for blacks relative to whites. Significant results are found for the return to education in male employment – manufacturing decline creates larger inequality in terms of employment rates within black men relative to white men. Overall, Table 9 suggests that the effects on inequality are similar for blacks and whites for most outcomes, but with some evidence that the effect on black inequality is larger for housing prices and male employment rates.

VII. The Impact of Manufacturing on Child and Adult Mortality

This section analyzes the effect of manufacturing on mortality rates for whites and blacks using data from the Compressed Mortality File from the National Center for Health Statistics. The data contain mortality rates at the county level for several age groups (less than a year, 1-4, 5-9, 10-14, 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+) and by race. The data is available from 1970 onwards and contain population by race for each age group, county, and year. Mortality rates were constructed for each cell defined by race, gender, age group, county, and year – and this variable was matched to the variables constructed from the Census data at the metro area level. Cells with the number of deaths less than ten were

defined as missing in certain years, so this truncation is performed for all years for the sake of comparability.[15]

Since the main treatment variable, the manufacturing employment share, is defined at the metro area, all regressions are clustered at the metro area but include fixed-effects for each county, age group, and year. Regressions are run separately by gender. The top panel of Table 10 presents the estimates on premature mortality (death between the ages 10 and 64) for whites and blacks. The results reveal a very sharp difference between blacks and whites – a smaller manufacturing share increases mortality for blacks, but not for whites. This finding is robust to using OLS or IV, and similar for men and women. The OLS coefficient of -11.13 implies that a 15 percent drop in the manufacturing share increases the death rate by 1.67 individuals per one thousand black men. In contrast, the mortality rate of white men and women do not significantly respond to changes in the manufacturing share.

The different pattern for blacks and whites is estimated explicitly in the last two columns which use the black-white difference in the mortality rate as the outcome of interest. The OLS and IV coefficients are similar to those obtained for blacks, which is consistent with the idea that there is no effect on the mortality rate for whites.

In the bottom panel of Table 10, the analysis is repeated using the mortality rates of children (ages 0 to 9) as the outcome. The results for children are very different than those for adults. Compared to black adults, the effects on black children are much larger in magnitude. Even more striking, the effects are marginally significant for black and white children – girls and boys. However, the estimates are larger for black children relative to white children, and this is generally confirmed in the black-white difference in mortality results in the last two columns.

[15] Results for the unadjusted rates are very similar.

A decline in manufacturing should not have a direct impact on children. However, given the results in previous tables, it is clear that there has been a large adverse impact on black and white adults in terms of their wages, marital status, single versus co-parenting status, income, employment, poverty status, housing values, etc. In short, the decline in manufacturing has had a strong impact on the family structure, family income, and neighborhood environment that children are facing. The results in Table 10 are consistent with the idea that the deindustrialization process is changing the quality of the family environment, neighborhood, and perhaps schools in ways that are leading to more deaths at a very young age.

VIII. Conclusion

The disappearance of high-paying jobs in the manufacturing sector over the last five decades represents a significant deterioration in the job prospects of less-educated men. This paper analyzed how this process affected a myriad of socio-economic indicators for white and black men, women, and children -- and whether the effect was larger for less-educated individuals within the white and black communities, and whether this trend increased racial gaps.

The evidence shows that the decline in manufacturing employment is responsible for a significant deterioration in socio-economic outcomes for whites and blacks, higher inequality within each group, and larger racial gaps. As expected, the negative effects are larger for less-educated individuals – this is true within racial groups and across racial groups, since blacks have historically been much less educated than whites. The stronger negative impact on blacks is consistent with the hypothesis in Wilson (1996) that the loss of high paying jobs for relatively less educated men can have wide-ranging repercussions on outcomes not directly related to the labor market – such as marriage rates, single parenthood, house values, poverty rates for adults and children, mortality rates for adults, and even mortality rates for children.

An extensive series of robustness checks are performed. In particular, the results are consistent with and without additional controls for potentially confounding factors at the locality level (the education composition, the size of the service sector, and population size). The results are very similar with OLS or using the "shift-share" instrument for the local manufacturing employment rate. The coefficients are generally not sensitive to starting the sample in 1960 or later, and are consistently stronger for less-educated individuals as predicted by the idea that this group was the most directly affected by the loss of manufacturing jobs. Finally, it is notable that a very broad and consistent pattern emerges across many different socio-economic outcomes for men, women, and children for both races. This robust pattern indicates that the overall findings are not due to the potential measurement issues that are associated with any particular one. Moreover, for all these measures, there are no results pointing to a positive effect of manufacturing decline on the socio-economic levels for blacks or whites.

Overall, the shrinking of the manufacturing employment share is found to increase inequality within blacks and whites, while generating wider racial gaps for a myriad of socio-economic outcomes. This process is not only driving a wedge between the two races in outcomes, but the results on housing prices could be indicative of stronger racial segregation in terms of the types of houses, neighborhoods, and local schools where they live.

Not only is manufacturing decline having a negative impact on the black and white adult population, the results for child mortality suggest that there are negative intergenerational effects as well. If this pattern is indicative of a widening gap in other child outcomes due to deindustrialization, the effects of manufacturing decline on inequality within and between groups could reverberate into the next generation. However, the increasing returns to schooling due to manufacturing decline provide larger incentives to go to college, which could potentially help close the racial gap in education and other outcomes. In recent decades, however, the

racial gap in education is trending in a different direction than the racial gap in other socio-economic outcomes.

References

Altonji, Joseph, and Rebecca Blank, "Race and Gender in the Labor Market," in *Handbook of Labor Economics*, eds. Orley Ashenfelter and David Card, (1999), Elsevier Science.

Amior, Michael, and Alan Manning, "The Persistence of Local Joblessness," *American Economic Review*, 108 (7) (2018), 1942-1970.

Autor, David H., David Dorn, and Gordon H. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," *American Economic Review*, 103(6) (2013), 2121-2168.

Autor, David H., David Dorn, and Gordon H. Hanson, "Untangling Trade and Technology: Evidence from Local Labor Markets," *Economic Journal*, 125 (May 2015), 621–646.

Autor, David H., David Dorn, and Gordon H. Hanson, "When Work Disappears: Manufacturing Decline and the Falling Marriage-Market Value of Young Men," *American Economic Review: Insights*, 1 (2) (2019), 161-178.

Autor, David H., Lawrence F. Katz, and Melissa S. Kearney, "Trends in U.S. Wage Inequality: Revising the Revisionists," *Review of Economics and Statistics*, 90(2) (2008), 300-323.

Balsvik, Ragnhild, Sissel Jensen, and Kjell G. Salvanes, "Made in China, sold in Norway: Local labor market effects of an import shock," *Journal of Public Economics*, 127 (2015), 137-144.

Bartik, Timothy J., "Who Benefits From State and Local Economic Development Policies," W.E. Upjohn Institute for Employment Research: Kalamazoo, Michigan, 1991.

Bayer, Patrick, and Kerwin Charles, "Divergent Paths: A New Perspective on Earnings Differences Between Black and White Men Since 1940," *Quarterly Journal of Economics*, 133 (3) (2018), 1459–1501.

Black, Dan, Amelia Haviland, Seth Sanders, and Lowell Taylor, "Why Do Minority Men Earn Less? A Study of Wage Differentials among the Highly Educated," *The Review of Economics and Statistics*, 88.2 (2006), 300-313.

Blanchard, Olivier, and Lawrence F. Katz, "Regional Evolutions," *Brookings Papers on Economic Activity*, 23(1) (1992), 1-76.

Bluestone, Barry, "Deindustrialization and Unemployment in America," *Review of Black Political Economy*, 17(2) (1988), 29–44.

Borghans, Lex, Bas Ter Weel, and Bruce A. Weinberg, "People Skills and the Labor-Market Outcomes of Underrepresented Groups," *Industrial & Labor Relations Review*, 67 (2014), 287-334.

Borusyak, Kirill, Peter Hull, and Xavier Jaravel, "Quasi-Experimental Shift-Share Research Designs," NBER Working Paper No. 24997 (2018).

Bound, John, and Richard B. Freeman, "What Went Wrong? The Erosion of Relative Earnings and Employment Among Young Black Men in the 1980s," *The Quarterly Journal of Economics*, 107 (1) (1992), 201-232.

Bound, John, and Harry J. Holzer, "Industrial Structure, Skill Levels, and the Labor Market for White and Black Males," *Review of Economics and Statistics* 75 (1993), 387–396.

Bound, John, and Harry J. Holzer, "Demand Shifts, Population Adjustments, and Labor Market Outcomes during the 1980s," *Journal of Labor Economics*, 18(1) (2000), 20-54.

Brown, Charles, "Black-White Earnings Ratios Since the Civil Rights Act of 1964: The Importance of Labor Market Dropouts," *Quarterly Journal of Economics*, 99(1) (1984), 31-44.

Carneiro, Pedro, James J. Heckman, and Dimitriy V. Masterov, "Understanding the Sources of Ethnic and Racial Wage Gaps and Their Implications for Policy," In *Handbook of Employment Discrimination Research: Rights and Realities*, eds. Nelson R., Nielsen L., 99–136. New York: Springer, 2006.

Chandra, Amitabh, "Labor-Market Dropouts and the Racial Wage Gap: 1940-1990," *American Economic Review*, 90(2) (2000), 333- 338.

Charles, Kerwin Kofi, and Jonathan Guryan, "Prejudice and Wages: An Empirical Assessment of Becker's *The Economics of Discrimination*," *Journal of Political Economy*, 116 (5) (2008), 773–809.

Charles, Kerwin Kofi, Erik Hurst, and Matthew J. Notowidigdo, "Housing Booms, Manufacturing Decline, and Labor Market Outcomes," *Economic Journal*, forthcoming.

Donohue, John, and James J. Heckman, "Continuous versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks," *Journal of Economic Literature*, 29(4) (1991), 1603-43.

Fryer, Roland, "Racial Inequality in the 21st Century: The Declining Significance of Discrimination" *Handbook of Labor Economics*, 4 (2011), 855-971.

Fryer Roland G., Paul S. Heaton, Steven D. Levitt, Keven M. Murphy, "Measuring Crack Cocaine and Its Impact," *Economic Inquiry*, 51 (3) (2013), 1651-1681.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift, "Bartik Instruments: What, When, Why, and How," Working Paper, May 2019.

Gould, Eric, "Explaining the Unexplained: Residual Wage Inequality, Manufacturing Decline, and Low-Skilled Immigration," *Economic Journal*, 129 (619) (2019), 1281–1326.

Heckman, James J, "Skill formation and the economics of investing in disadvantaged children," *Science* 312 (5782) (2006), 1900-1902.

Jaynes, Gerald D., "The Labor Market Status of Black Americans: 1939-1985," *Journal of Economic Perspectives*, 4(4) (1990), 9-24.

Jones, Damon., David Molitor, and Julian Reif, "What Do Workplace Wellness Programs Do? Evidence from the Illinois Workplace Wellness Study," National Bureau of Economic Research Working Paper No. 24229 (2018).

Juhn, Chinhui, "Decline of Male Labor Market Participation: The Role of Declining Market Opportunities," *Quarterly Journal of Economics*, 107(1) (1992), 79-121.

Juhn, Chinhui, "Labor market dropouts and trends in the wages of black and white men," *Industrial and Labor Relations Review*, 56 (2003), 643–62.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce, "Accounting for the Slowdown in Black-White Wage Convergence," in *Workers and Their Wages: Changing Patterns in the U.S.* American Enterprise Institute (1991), 107-43.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce, "Wage Inequality and the Rise in Returns to Skill," *Journal of Political Economy*, 101 (3) (1993), 410-442.

Lang, Kevin, and Michael Manove, "Education and Labor Market Discrimination," *American Economic Review*, 101 (2011), 1467-1496.

Margo, Robert A., "Explaining Black-White Wage Convergence, 1940-1950," *Industrial and Labor Relations Review*, 48 (3) (1995),470-481.

Neal, Derek A. and William R. Johnson, "The Role of Premarket Factors in Black-White Wage Differences," *Journal of Political Economy*, 104 (5) (1996), 869-95.

Murray, Charles, "Coming Apart: The State of White America, 1960-2010," New York: Crown Forum (2012).

Parsons, Donald O., "The Decline in Male Labor Force Participation," *Journal of Political Economy*, 88(1) (1980), 117-134.

Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. Integrated Public Use Microdata Series: Version 3.0 [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor]. 2010.

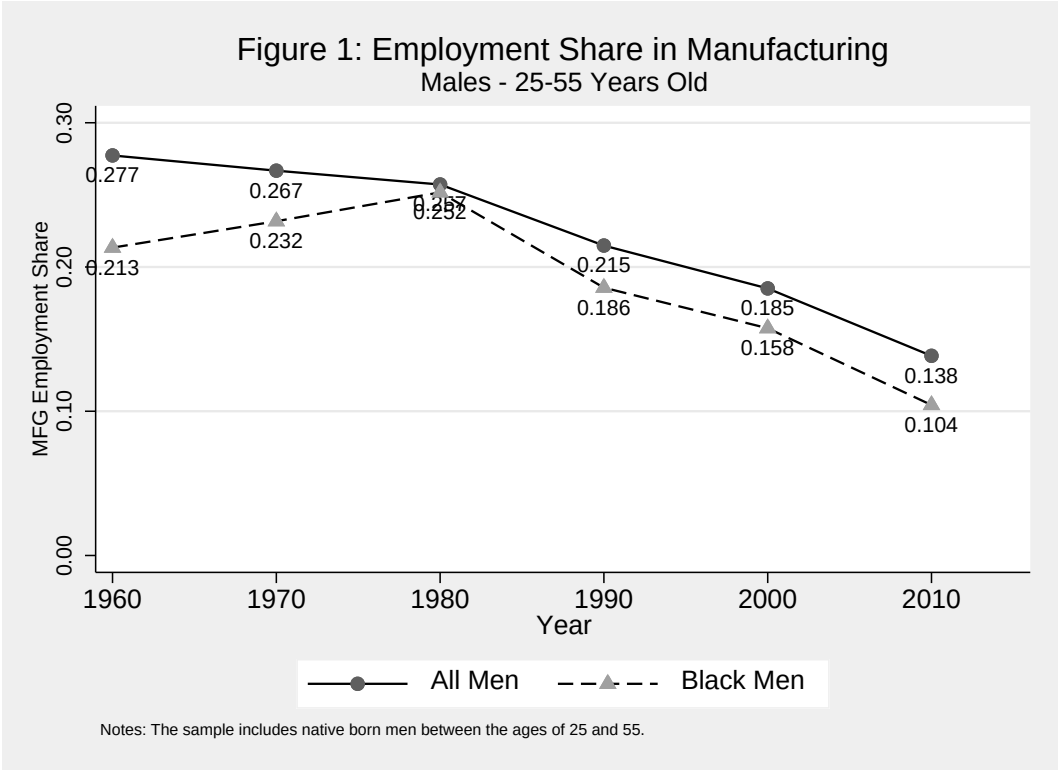
Smith, James P., and Finis R. Welch, "Black-White Male Wage Ratios: 1960-70," *American Economic Review*, 67 (3) (1977), 323-338.

Smith, James P., and Finis R. Welch, "Black Economic Progress After Myrdal," *Journal of Economic Literature*, 27 (2) (1989), 519-564.

Western, Bruce, and Becky Pettit, "Black-White Wage Inequality, Employment Rates, and Incarceration," *American Journal of Sociology*, 111 (2) (2005), 553-578.

Westfall, Peter H, and S. Stanley Young, "Resampling-based multiple testing: Examples and methods for p-value adjustment," John Wiley & Sons, 1993.

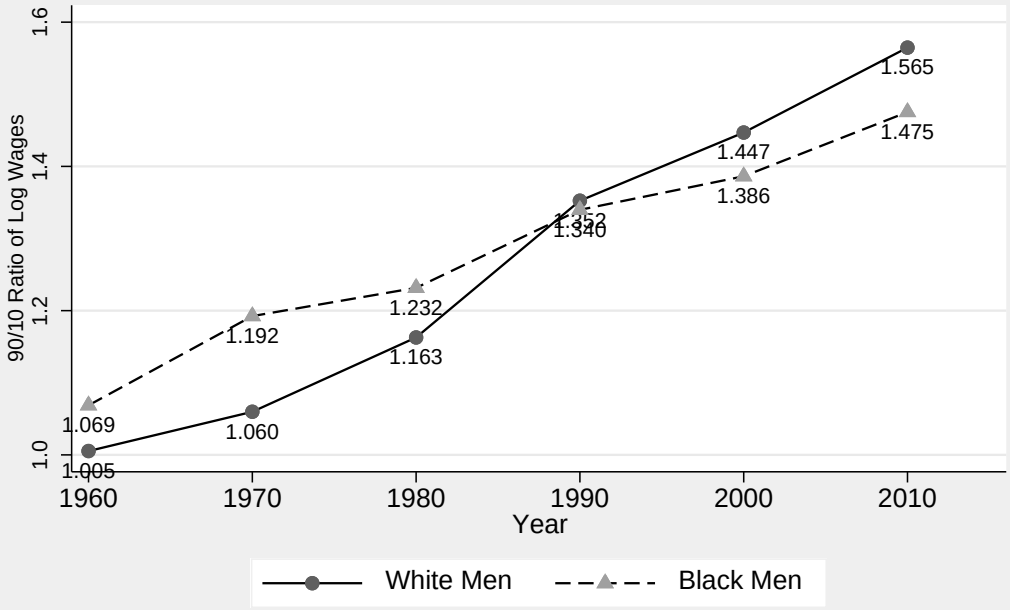
Wilson, William J., "When Work Disappears : The world of the New Urban Poor," New York : Knopf. 1996.



Notes: The sample includes native born men between the ages of 25 and 55.

Figure 2: 90/10 Wage Ratio for Men

Males - 25-55 Years Old



Notes: The sample includes native born men between the ages of 25 and 55.

Table 1: OLS and IV Results by Metro Area for Core Outcomes of Blacks

	Coefficient on % Manufacturing (Black Men)							
	Black Men			Black Women			Black Children	
Starting Year	Mean Log Wage (1)	Employment Rate (2)	Percent Never Married (3)	Percent Never Married (4)	Percent Poor (5)	Percent Single Mothers (6)	Percent Poor (7)	Percent with One Parent (8)
				OLS with Different Starting Years				
1960	0.982***	0.399***	-0.315***	-0.376***	-0.668***	-0.234***	-0.758***	-0.340***
	(0.110)	(0.041)	(0.039)	(0.041)	(0.096)	(0.038)	(0.091)	(0.057)
1970	1.024***	0.465***	-0.318***	-0.355***	-0.511***	-0.208***	-0.615***	-0.330***
	(0.107)	(0.039)	(0.045)	(0.043)	(0.058)	(0.039)	(0.070)	(0.058)
1980	0.995***	0.463***	-0.284***	-0.298***	-0.390***	-0.168***	-0.462***	-0.282***
	(0.123)	(0.038)	(0.040)	(0.036)	(0.056)	(0.049)	(0.065)	(0.073)
1990	1.019***	0.613***	-0.232***	-0.162**	-0.342***	-0.153**	-0.346***	-0.185*
	(0.274)	(0.080)	(0.066)	(0.065)	(0.100)	(0.063)	(0.103)	(0.100)
				IV with Different Starting Years				
1960	1.607***	0.277***	-0.295***	-0.437***	-0.715***	-0.304***	-0.912***	-0.538***
	(0.204)	(0.078)	(0.105)	(0.101)	(0.189)	(0.072)	(0.162)	(0.107)
1970	1.396***	0.410***	-0.315***	-0.360***	-0.583***	-0.296***	-0.759***	-0.492***
	(0.173)	(0.069)	(0.111)	(0.098)	(0.114)	(0.072)	(0.114)	(0.096)
1980	1.344***	0.376***	-0.324***	-0.404***	-0.417***	-0.240***	-0.528***	-0.409***
	(0.189)	(0.058)	(0.057)	(0.053)	(0.100)	(0.066)	(0.113)	(0.123)
1990	1.645***	0.490***	-0.473***	-0.368***	-0.268	-0.216**	-0.344	-0.369
	(0.373)	(0.132)	(0.154)	(0.119)	(0.180)	(0.102)	(0.212)	(0.265)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 2: More Outcomes for Black Men and Women 1960-2010

	Coefficient on % Manufacturing (Black Men)								
	Mean Log Wage	Employment Rate of Non-College	Poverty	Welfare Recipients	Divorced	Widowed	Home Owner	Log House Value	Teen Motherhood
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Black Men				
OLS	0.982***	0.408***	-0.635***	-0.126***	-0.104**	-0.030***	0.129	1.825***	
	(0.110)	(0.041)	(0.075)	(0.016)	(0.043)	(0.007)	(0.154)	(0.332)	
IV	1.607***	0.274***	-0.748***	-0.098***	-0.152*	-0.008	0.283	2.565***	
	(0.204)	(0.087)	(0.153)	(0.019)	(0.082)	(0.010)	(0.297)	(0.627)	
					Black Women				
OLS	0.924***	0.155*	-0.668***	-0.062	-0.005	-0.051***	0.124	1.718***	-0.055**
	(0.146)	(0.085)	(0.096)	(0.057)	(0.052)	(0.013)	(0.168)	(0.328)	(0.026)
IV	1.324***	-0.175	-0.715***	0.065	-0.033	-0.076***	0.238	2.247***	-0.074**
	(0.298)	(0.124)	(0.189)	(0.074)	(0.108)	(0.024)	(0.307)	(0.597)	(0.036)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text.

Table 3: Inequality within Black Men and Women

	Coefficient on % Manufacturing (Black Men)						
	Black Men					Black Women	
			Return to Education			Return to Education	
Starting Year	90/10 Ratio in Log Wage	Standard Deviation of Log House Values	Log Wages	Never Married	Employment Rates	Never Married	Single Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			OLS with Different Starting Years				
1960	-0.627***	-0.444***	-0.027	0.036***	-0.080***	0.040***	-0.013
	(0.136)	(0.140)	(0.017)	(0.010)	(0.013)	(0.008)	(0.010)
1970	-0.740***	-0.404**	-0.044**	0.037***	-0.085***	0.051***	-0.026**
	(0.159)	(0.174)	(0.018)	(0.011)	(0.013)	(0.008)	(0.011)
1980	-0.685***	-0.258	-0.074***	0.028**	-0.067***	0.043***	-0.014
	(0.153)	(0.189)	(0.022)	(0.013)	(0.014)	(0.010)	(0.014)
1990	-0.022	-0.138	-0.096**	0.036	-0.053**	0.001	-0.025
	(0.278)	(0.180)	(0.046)	(0.024)	(0.023)	(0.021)	(0.030)
			IV with Different Starting Years				
1960	-0.770***	-0.490**	-0.077**	0.058***	-0.077***	0.075***	-0.016
	(0.258)	(0.212)	(0.031)	(0.018)	(0.028)	(0.013)	(0.015)
1970	-0.671**	-0.226	-0.080**	0.052***	-0.088***	0.076***	-0.013
	(0.289)	(0.261)	(0.032)	(0.016)	(0.022)	(0.012)	(0.016)
1980	-0.752**	-0.117	-0.132***	0.048***	-0.047*	0.084***	0.015
	(0.306)	(0.224)	(0.041)	(0.019)	(0.027)	(0.016)	(0.018)
1990	0.750	-0.299	-0.208	0.114**	0.001	0.080*	0.036
	(0.797)	(0.355)	(0.131)	(0.048)	(0.053)	(0.044)	(0.056)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 4: OLS and IV Results by Metro Area for Core Outcomes of Whites

	Coefficient on % Manufacturing (White Men)							
	White Men			White Women			White Children	
Starting Year	Mean Log Wage	Emloyment Rate	Percent Never Married	Percent Never Married	Percent Poor	Percent Single Mothers	Percent Poor	Percent with One Parent
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				OLS with Different Starting Years				
1960	0.203	0.113***	0.003	-0.043	-0.189***	-0.055	-0.308***	-0.077
	(0.139)	(0.024)	(0.047)	(0.049)	(0.032)	(0.036)	(0.066)	(0.051)
1970	0.316**	0.138***	0.004	-0.016	-0.133***	-0.079*	-0.187***	-0.082
	(0.146)	(0.030)	(0.044)	(0.053)	(0.034)	(0.042)	(0.056)	(0.051)
1980	0.515***	0.172***	-0.056	-0.054	-0.145***	-0.085**	-0.150**	-0.077
	(0.163)	(0.040)	(0.044)	(0.056)	(0.040)	(0.041)	(0.064)	(0.056)
1990	0.736***	0.295***	-0.128**	-0.122*	-0.250***	-0.109***	-0.237**	-0.028
	(0.199)	(0.067)	(0.058)	(0.069)	(0.058)	(0.042)	(0.092)	(0.063)
				IV with Different Starting Years				
1960	0.755***	0.054*	0.113*	0.093	-0.179***	-0.144**	-0.218**	-0.095
	(0.280)	(0.029)	(0.058)	(0.067)	(0.049)	(0.063)	(0.085)	(0.083)
1970	0.820***	0.082***	0.094	0.157**	-0.173***	-0.212***	-0.239***	-0.202**
	(0.297)	(0.031)	(0.068)	(0.079)	(0.048)	(0.072)	(0.084)	(0.092)
1980	1.047***	0.106**	0.016	0.112	-0.155***	-0.226***	-0.195**	-0.254**
	(0.276)	(0.041)	(0.064)	(0.071)	(0.047)	(0.064)	(0.095)	(0.103)
1990	0.923***	0.063	-0.069	0.097	-0.207***	-0.206**	-0.176	-0.205
	(0.319)	(0.086)	(0.111)	(0.116)	(0.066)	(0.090)	(0.134)	(0.165)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 5: More Outcomes for White Men and Women 1960-2010

	Coefficient on % Manufacturing (White Men)								
	Mean Log Wage	Employment Rate of Non-College	Poverty	Welfare Recipients	Divorced	Widowed	Home Owner	Log House Value	Teen Motherhood
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					White Men				
OLS	0.203	0.142***	-0.141***	-0.027***	0.072*	0.004	-0.137	0.557	
	(0.139)	(0.025)	(0.026)	(0.009)	(0.040)	(0.002)	(0.106)	(0.344)	
IV	0.755***	0.058	-0.104***	-0.027*	0.041	0.006	-0.008	1.275*	
	(0.280)	(0.037)	(0.035)	(0.014)	(0.072)	(0.005)	(0.198)	(0.664)	
					White Women				
OLS	0.022	-0.008	-0.189***	-0.004	0.048	0.001	-0.128	0.516	-0.067***
	(0.122)	(0.042)	(0.032)	(0.016)	(0.038)	(0.004)	(0.108)	(0.334)	(0.021)
IV	0.488**	-0.253***	-0.179***	0.002	0.012	-0.008	-0.037	1.215*	-0.053
	(0.234)	(0.070)	(0.049)	(0.028)	(0.071)	(0.006)	(0.183)	(0.657)	(0.036)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text.

Table 6: Inequality within White Men and Women

	Coefficient on % Manufacturing (White Men)						
	White Men					White Women	
			Return to Education			Return to Education	
Starting Year	90/10 Ratio in Log Wage	Standard Deviation of Log House Values	Log Wages	Never Married	Employment Rates	Never Married	Single Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			OLS with Different Starting Years with Different Starting Years				
1960	-0.633***	-0.122	-0.027*	0.014***	-0.016**	0.033***	0.013***
	(0.140)	(0.083)	(0.014)	(0.005)	(0.007)	(0.005)	(0.004)
1970	-0.531***	0.053	-0.027	0.022***	-0.022**	0.042***	0.011*
	(0.143)	(0.108)	(0.019)	(0.006)	(0.009)	(0.006)	(0.005)
1980	-0.604***	-0.070	-0.057***	0.025***	-0.028**	0.043***	0.013**
	(0.156)	(0.100)	(0.022)	(0.007)	(0.011)	(0.008)	(0.006)
1990	-0.535*	-0.291**	-0.059*	0.023*	-0.047***	0.028*	0.022*
	(0.287)	(0.118)	(0.034)	(0.012)	(0.017)	(0.015)	(0.012)
			IV with Different Starting Years with Different Starting Years				
1960	-0.575**	-0.003	-0.037*	0.028***	-0.007	0.052***	0.013*
	(0.228)	(0.113)	(0.020)	(0.010)	(0.008)	(0.010)	(0.008)
1970	-0.621**	0.096	-0.052**	0.038***	-0.009	0.055***	0.016*
	(0.254)	(0.147)	(0.026)	(0.012)	(0.010)	(0.011)	(0.009)
1980	-0.514*	-0.023	-0.105***	0.047***	-0.016	0.054***	0.024**
	(0.267)	(0.116)	(0.035)	(0.015)	(0.011)	(0.014)	(0.010)
1990	-0.039	-0.116	-0.064	0.065**	0.003	0.053**	0.055**
	(0.634)	(0.180)	(0.089)	(0.031)	(0.021)	(0.023)	(0.023)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local population size (men and women between the ages of 25 and 55) in 1990 for the race used in the sample. All regressions include fixed-effects for each year and geographic area (metro area), as well as demographic controls for age for the corresponding gender and race. The age demographics are for adult males (ages 25-55) for the male sample, and adult females (ages 25-45) for the female and child samples. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 7: Black-White Gaps for Core Outcomes

	Coefficient on % Manufacturing (All Men)							
	Black-White Gap for Men			Black-White Gap for Women			Black-White Gap for Children	
	Log Wage	Employed	Never Married	Never Married	Poor	Single Mother	Percent Poor	Percent with One Parent
Starting Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				OLS with Different Starting Years				
1960	0.888***	0.284***	-0.325***	-0.386***	-0.638***	-0.162***	-0.624***	-0.290***
	(0.129)	(0.048)	(0.055)	(0.050)	(0.130)	(0.041)	(0.103)	(0.067)
1970	0.809***	0.377***	-0.325***	-0.393***	-0.453***	-0.085*	-0.499***	-0.233***
	(0.152)	(0.062)	(0.067)	(0.057)	(0.114)	(0.044)	(0.118)	(0.076)
1980	0.520***	0.316***	-0.200***	-0.304***	-0.293***	-0.062	-0.361***	-0.234***
	(0.126)	(0.048)	(0.072)	(0.060)	(0.094)	(0.042)	(0.109)	(0.085)
1990	0.408*	0.381***	0.005	-0.040	-0.207	-0.076	-0.250	-0.221*
	(0.207)	(0.094)	(0.081)	(0.092)	(0.172)	(0.087)	(0.169)	(0.129)
				IV with Different Starting Years				
1960	1.117***	0.275***	-0.400***	-0.557***	-0.714***	-0.186***	-0.880***	-0.532***
	(0.214)	(0.070)	(0.112)	(0.091)	(0.208)	(0.065)	(0.198)	(0.131)
1970	0.999***	0.477***	-0.436***	-0.552***	-0.666***	-0.154	-0.786***	-0.437***
	(0.266)	(0.108)	(0.144)	(0.102)	(0.207)	(0.094)	(0.225)	(0.144)
1980	0.775***	0.350***	-0.322**	-0.507***	-0.476***	-0.121*	-0.554***	-0.373***
	(0.225)	(0.081)	(0.132)	(0.091)	(0.166)	(0.070)	(0.178)	(0.095)
1990	0.543*	0.363***	-0.148	-0.327**	-0.171	-0.021	-0.203	-0.294
	(0.305)	(0.131)	(0.206)	(0.151)	(0.231)	(0.106)	(0.282)	(0.217)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local black population size (men and women between the ages of 25 and 55) in 1990. All regressions include fixed-effects for each year and geographic area (metro area). The Black-White Gap is estimated as the mean difference between whites and blacks within a Metro Area for each year. Each regression controls for the differences in the mean age demographics between blacks and whites. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 8: Black-White Gaps for Men and Women in Other Outcomes 1960-2010

	Coefficient on % Manufacturing (All Men)								
	Black-White Gap within Metro Area for Men								
	Mean Log Wage	Employment Rate of Non-College	Poverty	Welfare Recipients	Divorced	Widowed	Home Owner	Log House Value	Teen Motherhood
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Men				
OLS	0.888***	0.289***	-0.682***	-0.096***	-0.124***	-0.031***	0.183*	1.464***	
	(0.129)	(0.045)	(0.111)	(0.024)	(0.038)	(0.011)	(0.102)	(0.317)	
IV	1.117***	0.264***	-0.777***	-0.121***	-0.201***	-0.012	0.200	1.987***	
	(0.214)	(0.071)	(0.174)	(0.032)	(0.075)	(0.013)	(0.159)	(0.467)	
					Women				
OLS	0.975***	0.217**	-0.638***	0.003	-0.011	-0.059***	0.179	1.471***	0.023
	(0.218)	(0.104)	(0.130)	(0.080)	(0.040)	(0.014)	(0.112)	(0.352)	(0.041)
IV	1.051***	0.096	-0.714***	0.076	-0.055	-0.073***	0.174	1.653***	-0.015
	(0.389)	(0.149)	(0.208)	(0.095)	(0.070)	(0.025)	(0.165)	(0.474)	(0.066)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local black population size (men and women between the ages of 25 and 55) in 1990. All regressions include fixed-effects for each year and geographic area (metro area). The Black-White Gap is estimated as the mean difference between whites and blacks within a Metro Area for each year. Each regression controls for the differences in the mean age demographics between blacks and whites. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text.

Table 9: Black-White Gap in Inequality Measures

	Coefficient on % Manufacturing (All Men)						
	Black-White Gap for Men					Black-White Gap for Women	
			College Gap			College Gap	
Starting Year	90/10 Ratio in Log Wage	Standard Deviation of Log House Values	Log Wages	Never Married	Employment Rates	Never Married	Single Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			OLS with Different Starting Years				
1960	0.282	-0.484***	0.014	0.020	-0.069***	0.010	-0.018
	(0.307)	(0.183)	(0.019)	(0.016)	(0.016)	(0.011)	(0.015)
1970	0.038	-0.533***	0.002	0.018	-0.069***	0.015	-0.028
	(0.397)	(0.193)	(0.026)	(0.018)	(0.018)	(0.014)	(0.020)
1980	0.082	-0.184	0.001	0.008	-0.043**	0.012	-0.028
	(0.327)	(0.216)	(0.031)	(0.020)	(0.021)	(0.018)	(0.023)
1990	0.358	0.153	-0.044	0.042	-0.008	-0.034	-0.032
	(0.320)	(0.272)	(0.065)	(0.038)	(0.031)	(0.027)	(0.043)
			IV with Different Starting Years				
1960	0.048	-0.645**	-0.027	0.031	-0.082***	0.027	-0.032
	(0.496)	(0.273)	(0.034)	(0.024)	(0.031)	(0.017)	(0.020)
1970	-0.023	-0.435	-0.032	0.025	-0.102***	0.039*	-0.037*
	(0.587)	(0.326)	(0.043)	(0.024)	(0.029)	(0.020)	(0.022)
1980	-0.091	-0.156	-0.039	0.014	-0.042	0.047**	-0.014
	(0.480)	(0.292)	(0.052)	(0.028)	(0.033)	(0.024)	(0.025)
1990	0.851	-0.529	-0.116	0.057	0.035	0.006	-0.026
	(0.649)	(0.514)	(0.123)	(0.072)	(0.056)	(0.046)	(0.056)

Notes: Each coefficient represents a separate regression using the dependent variable indicated in the column heading and using a sample with the starting year indicated in the row heading. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. Observations are weighted by the local black population size (men and women between the ages of 25 and 55) in 1990. All regressions include fixed-effects for each year and geographic area (metro area). The Black-White Gap is estimated as the mean difference between whites and blacks within a Metro Area for each year. Each regression controls for the differences in the mean age demographics between blacks and whites. The instrument for percent manufacturing for each race is the "shift-share" variable described in equation (2) in the text. The base year for the construction of the instrument is equal to the starting year of the sample.

Table 10: Effect of MFG on the County Mortality Rate

	Coefficient on % Manufacturing (Black, White, or All Men) at the Metro Area Level					
	Blacks		Whites		Black-White Gap	
	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
Men (Age 10-64)	-11.132***	-16.044***	0.098	-0.700	-10.316**	-20.899***
	(2.525)	(4.965)	(0.681)	(1.039)	(4.020)	(7.871)
Women (Age 10-64)	-8.680***	-9.925***	0.156	0.008	-10.354***	-15.521***
	(2.071)	(3.539)	(0.577)	(0.947)	(2.873)	(4.467)
Boys (Age 0-9)	-28.163***	-31.524***	-5.989	-12.345*	-16.190*	-26.138*
	(6.776)	(11.164)	(4.186)	(6.688)	(8.879)	(15.751)
Girls (Age 0-9)	-36.264***	-51.556***	-8.736**	-12.162*	-26.824**	-48.183***
	(8.762)	(12.954)	(3.843)	(6.346)	(10.746)	(13.449)

Notes: Each coefficient comes from a separate regression. The treatment variable is defined as the percent of men in manufacturing for each respective race, with both races used in the "black-white" regressions. Robust standard errors clustered by geographic area (metro area) are in parentheses. Significance levels are indicated by: *** for the 1% level, ** for the 5% level, and * for the 10% level. The unit of observation is at the age-group and county level, and each observation is matched to the employment share in manufacturing (for black men for the black sample, white men for the white sample, and all men for the "black-white" gap samples) at the metro area by year level. Each regression specification includes fixed-effects for each year, age group (age 0, 1-9, 10-14, 15-19, 20-24, 25-34, 35-44, 45-54, and 55-64), and county, along with demographic controls for age at the metro area level. The age demographics are for adults between the ages of 25-55 in the corresponding race and gender group, and the differences between the two racial groups for the "black-white" regressions for the respective gender. Observations are weighted by the county population size in 1990 for the race used in the sample, and for the black population in the "black-white" gap regressions. The mortality rates are adjusted be consistent over time by dropping any observation with less than 10 fatalities. The mortality data for each year was taken from the "Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File on the CDC WONDER Online Database."