Did Racist Labor Policies Reverse Equality Gains for Everyone?

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Abstract

Labor protection policies in the 1950s and 1960s helped many low- and middle-wage white workers in the United States achieve the American Dream. This coincided with historically low levels of inequality across income deciles. After the Civil Rights Act of 1964, many of the policies that had previously helped build the white middle class reversed, especially in states with a larger Black population. Calibrating a labor search model to match unemployment benefits, bargaining power, and minimum wages before and after the Civil Rights Act, I find changing labor policies explain 70 percent of the rise in 90/10 income inequality since the 1960s.

JEL: E24, J78, J64, J30

Keywords: Income Inequality, Segregation, Labor Protections, Unemployment Insurance, Minimum Wage, Bargaining Power, Unions.

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1 Introduction

Income inequality in the United States has been rising since the 1960s. Typical explanations include technological change and competition from abroad (Acemoglu and Restrepo, 2021; Wolcott, 2021). What is puzzling, though, is that comparable countries with similar rates of technological change and competition from abroad have not experienced the same rise in inequality. While the top 10 percent income share in the United State has grown to nearly half, in France, top income shares have declined since the 1960s (Saez, 2021).

One factor that is unique to the U.S. experience is the country was founded on the institutionalization of slavery. Violence, discrimination, and bias towards Black Americans has persisted long after emancipation and is pervasive throughout American society (Kendi, 2016). In a compelling book, McGhee (2021) argues that following forced desegregation in the 1960s, policymakers chipped away at New Deal policies that helped build the white middle class. In other words, racism reduced protections for white and Black Americans alike, and this contributed to rising income inequality for all.

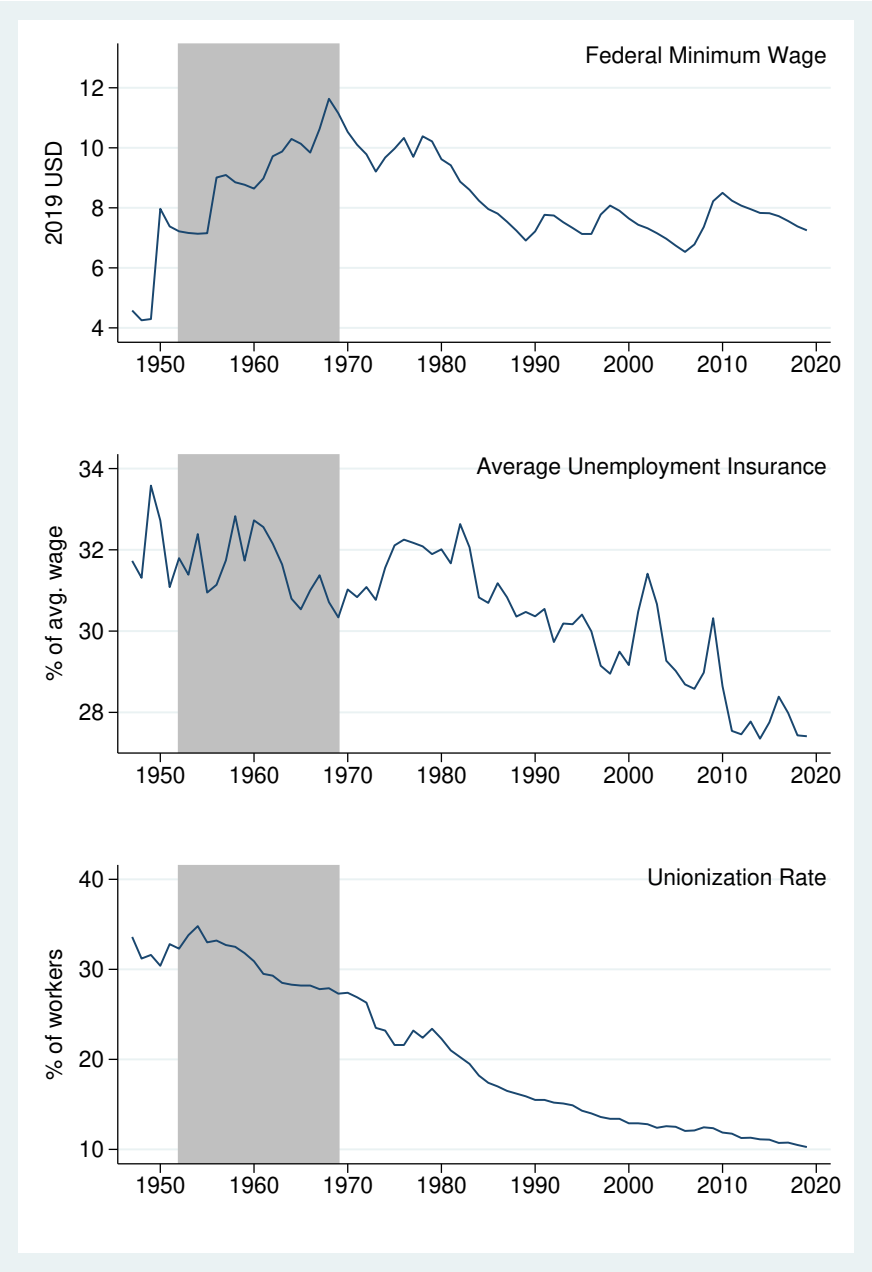
One example of an explicitly racist policymaker opposed to a New Deal program was Senator Harry Byrd of Virginia, who in 1937 wrote the following about Old Age Assistance for all Virginians.

> *[Under this proposed plan] negroes will be placed on the same basis as white people. The result will be that practically all negroes over sixty-five years will be pensioned, receiving from $30.00 to $40.00 per month, and all their children and grandchildren, cousins and aunts will live on them... it will simply mean that nearly all the colored population of the South will stop working.* (Sato, 1991)

Byrd vehemently resisted desegregation, and after *Brown v. Board of Education* advocated for closing public schools over integrating them (MacLean, 2018)—another example of racism harming more than the intended group.

This paper tests the hypothesis that racism reversed equality gains for everyone. It hones in on labor protection policies and uses a two-step approach. First, I examine whether policymakers eroded labor protections after (and because of) the Civil Rights Act. Second, I examine whether these observed policy changes can explain the rise in income inequality since the 1960s.

Figure 1: Declining Labor Protections



Notes: Author's calculations using data from the CPS, FRED, Department of Labor, and Mayer (2004). Civil Rights Movement (1954-1968) shaded in gray.

Figure 1 shows three prominent labor protections precipitously declined after the Civil Rights Movement. The decline in the federal minimum wage and weekly unemployment benefits are policy changes. The decline in the unionization rate is a policy outcome, however, even though union protections increased in the early 20th century, enforcement waned in the 1970s (Logan, 2006). What is more challenging to uncover is the motivation behind theses policy changes. Was racism causing their decline? The timing certainly suggests so. New Deal policies initially excluded agricultural and domestic service workers from the federal minimum wage and unemployment benefits precisely because these occupations were predominately Black (Katznelson, 2005). It was not until after the Civil Rights Movement, these occupations were finally covered (U.S. Department of Labor, 2021a; Price, 1985). Moreover, using state-level regressions, I find that states with a larger Black share of the population were more likely to cut labor protections after the Civil Rights Act of 1964. This empirical evidence is far from a smoking gun. However, together with qualitative evidence documenting policy changes for other public provisions such as closing public pools, parks, and schools instead of desegregating, suggests racially motivated policy changes harming Americans of all races was commonplace following the Civil Rights Movement.

The second part of the paper measures the extent to which declining labor protections contributed to rising inequality. I build and calibrate a search model in the spirit of Diamond (1982), Mortensen (1982), and Price (1985) (DMP henceforth). I augment the model with heterogeneous workers and target the wage distribution, unemployment benefits, bargaining power, and minimum wages before the Civil Rights Act to uncover the model's latent parameters. I then re-estimate the model with the observed changes in labor policy and technological change to uncover how the decline in unemployment benefits, bargaining power, and minimum wages altered the wage distribution. I find the decline in unemployment benefits and worker bargaining power explain 70 percent of the rise in the 90/10 income ratio since the 1960s.

A large literature studies why US wage inequality has been on the rise. Autor et al. (2008) categorize the literature into (1) traditionalist papers positing technological change along with the erosion of labor market institutions are to blame (Katz and Autor, 1999; Goldin and Katz, 2001; Acemoglu, 2002) and (2) revisionist papers positing labor market institutions, especially the minimum wage, are to blame (Freeman, 1992; Card, 1998; Lee, 1999; Card and DiNardo, 2002). Most papers either study a specific factor in isolation, ignore

general equilibrium effects, or do not quantitatively disentangle the drivers.[1] To my knowledge, none of the literature connects policy changes to racism. In this paper, I advance our understanding of income inequality by not only accounting for the general equilibrium effects of policy and technology in a quantitative model, but investigating why the policies contributing to income inequality changed in the first place.

The paper proceeds as follows. Section 2 estimates state-level regressions and details qualitative evidence for the motivations behind declining labor protections. Section 3 builds and estimates a structural model of the labor market to measure the impact of declining labor protections on income inequality. Section 4 concludes.

2 Why Did Labor Protections Decline?

Labor protection policies in the United States have declined since the 1960s, but their decline has not been geographically uniform. Because minimum wage policy and unemployment insurance are largely state-run programs, their levels vary across states.[2] In what follows, I show that, on average, states with a larger Black share of the population have seen their minimum wages and unemployment benefits decline by more. This might reflect a causal relationship, but it also might reflect a third factor causing both variables to decline. To understand the mechanism, I perform a series of empirical tests and augment the analysis with qualitative evidence. It was not uncommon for local governments in the South to provide fewer public provisions after court-ordered desegregation. By extension, racism is likely also behind declining labor protections.

2.1 Data

Minimum Wages. Data for annual state-level minimum wages is from Derenoncourt and Montialoux (2021). The authors build a minimum wage dataset from a 1981 report of the Minimum Wage Study Commission. This dataset improves on previous versions because it starts in 1950 and includes industries other than the ones initially covered by 1938 Fair Labor Standards Act (which excluded agricultural and a subset of service workers). Prior to 1980, minimum wages were differentiated by gender. In the regression analysis, I use

[1] For example, DiNardo et al. (1996) use an Oaxaca decomposition and find unionization rates, worker composition, changes in supply and demand, and the minimum wage, explain the rise in inequality in the 1980s, but state that their "decompositions ignore general equilibrium effects."

[2] In 1938, the U.S. federal government instituted a federal minimum wage applicable to employees involved in interstate commerce. Changes have been made over the years, but aside from the federal wage floor, state governments set their own minimum wage policy.

minimum wages for men but results are similar for women. Many states have a zero entry for their minimum wage or a minimum wage below the mandated federal minimum wage. I use the state-specified minimum wage instead of the effective minimum wage because: (1) the federal minimum wage does not cover all industries, and (2) the state-specified minimum wage likely reflects the state government's desired policy. The dataset runs through 1980 and in future versions of this paper, I will extend the Derenoncourt and Montialoux (2021) dataset through 2000.

Unemployment Insurance. Data for weekly unemployment insurance benefits is from the 2021 Unemployment Insurance Financial Data Handbook published by the BLS. The average weekly amount is the benefits paid for total unemployment during the year divided by the number of weeks for which benefits were paid. I use the annual data from 1950 through 2000.

Racial Composition. Data for the Black share of the U.S. population in 1950 is from a one percent sample of the Census via IPUMS-CPS (Ruggles et al., 2021). Data exists for 48 states because Alaska and Hawaii were not yet states in 1950. Black is assigned to respondents categorized as "Black," "African American," or "Negro" in the U.S. Census.

2.2 State-Level Regressions

The 1963 March on Washington for Jobs and Freedom—ending with Dr. Martin Luther King Jr.'s "I Have a Dream" speech—broadcasted demands for equal opportunities in the labor market and beyond. A year later, the Civil Rights Act of 1964 outlawed discrimination based on race in hiring, promoting, and firing. Economic historian, Gavin Wright argues that, "[The] long-entrenched industry tradition changed abruptly following enactment of the Civil Rights Act of 1964." A stark example is the textile industry. In South Carolina just 0.04 percent of textile workers were Black in 1960. That abruptly changed after 1964, and by the 1970s, nearly 20 percent of textile workers were Black (Wright, 2013). After the Civil Rights Act, middle class occupations opened up to Black workers. Butler et al. (1989) finds that shifts from lower to higher paying occupations account for the wage growth of Black Americans in the 1960s.

The Civil Rights Act also prohibited discrimination for federally funded programs. Both the federal minimum wage and unemployment insurance excluded agricultural and a subset of service workers at their inception in the 1930s precisely because theses occupations were predominately Black. Often refereed to as a devil's bargain, southern senators opposed these

protections for Black workers and northern senators opposed discriminating explicitly on the basis of race (Katznelson, 2005). In the decade after the Civil Rights Act, both of these New Deal programs were amended to cover agricultural and service workers.

The year 1964 was a watershed (Wright, 2013). For this reason, I compare labor policies before and after 1964. Before 1964, the majority of Black workers were excluded from middle class jobs and labor protections. After 1964, Black workers had more access to middle class jobs and labor protections. Figure 1 reveals it was precisely then that labor protections for everyone declined. Moreover, the following regressions show that states with a larger Black share saw the largest erosion their labor protections.

Let $Y_{s,t}$ represent the nominal state minimum wage or weekly unemployment benefits in state s at year t. The empicial specification is then,

$$Y_{s,t} = \alpha + \beta \left(BlackShare_{s,1950} \times \mathbb{1}\{Post1963\} \right) + \gamma BlackShare_{s,1950} + \delta \mathbb{1}\{Post1963\} + \epsilon_{s,t}$$

where $BlackShare_{s,1950}$ is the Black share of the population in state s at year 1950; $\mathbb{1}\{Post1963\}$ equals one if the year is after 1963; and $\epsilon_{s,t}$ is the residual. The coefficient of interest β measures the association between a state's Black share and labor policies before and after 1963.

Table 1 displays the results. The odd columns are the full 48-state sample. The even columns are a restricted sample of the 11 former confederate states. Columns (1) and (2) reveal that post-1963, states with a one percentage point larger Black share had a 2 cent lower nominal minimum wage. This is a large and statistically relationship. The average hourly minimum wage for the full sample is only 64 cents and for the South is only 27 cents. In other words, a one percentage point increase in the southern Black share is associated with a seven percent decline in the minimum wage.

Columns (3) and (4) of Table 1 reveal that post-1963, states with a one percentage point larger Black share had a 41 cent smaller weekly unemployment benefit in the full sample and a 66 cent smaller benefit in the South. This relationship is also large and statistically significant. Average weekly benefits are less than $100 for both samples.

Is it possible the full-sample relationships are because the South simultaneously had a larger Black population and more libertarian political views unrelated to race? To test this, I exclude the 11 former Confederate states and the results do, in fact, disappear. However, as shown in columns (2) and (4), if I only include the 11 former Confederate states, results are

Table 1: State-level Regression Results

VARIABLES	(1) Min. Wage	(2) Min. Wage	(3) UI Benefit	(4) UI Benefit
$ShareBlack \times Post1963$	-0.0202***	-0.0222***	-0.408***	-0.656**
	(0.00214)	(0.00404)	(0.109)	(0.281)
$BlackShare$	-0.00697***	-0.000947***	-0.192***	0.0115
	(0.000740)	(0.000325)	(0.0154)	(0.0319)
$Post1963$	1.083***	1.045***	88.79***	94.73***
	(0.0434)	(0.150)	(1.844)	(8.611)
Constant	0.212***	0.0567***	27.54***	20.68***
	(0.0178)	(0.0168)	(0.288)	(0.935)
Mean	0.644	0.271	87.58	76.73
Observations	1,488	341	2,448	561
R-squared	0.352	0.198	0.363	0.368
Sample	All	South	All	South

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

similar to the full-sample, suggesting the relationship is driven by what was happening *within* the South, not just because the South, on average, has a larger Black population. The Civil Rights Act forced desegregation on the South. Desegregation, to some extent, already existed outside the South (Wright, 2013). Federally mandated desegregation targeting the South is likely why southern states were the ones to chip away at their labor polices. Moreover, Black shares were smaller in the North and northern backlash from the Great Migration likely resulted in other policy changes such as shifts from infrastructure and education spending to police spending. (Derenoncourt, 2022).

It was not uncommon in the 1950s and 1960s for local governments to close public facilities after desegregation. McGhee (2021) describes city governments throughout the country filling in public swimming pools—a once favored pastime among white Americans—because of desegregation. Wright (2013) writes about city governments closing public parks after court-ordered desegregation. MacLean (2018) details a nearly successful campaign in Virginia to close public schools rather than integrate after *Brown v. Board of Education*. Even though the Virginia campaign was unsuccessful, some counties went without public education for a decade. Given these examples of policymakers forgoing public provisions in response to Black Americans now having access, it is at least plausible a similar response, either consciously

or unconsciously, permeated labor policy.

As a corollary, policy changes in the opposite direction appear to reduce the Black-white gap. Derenoncourt and Montialoux (2021) and Wursten and Reich (2021) find increases in the minimum wage disproportionately *helped* Black workers.

3 Structural Model of Income Inequality

The goal of this section is to build a tractable model of the labor market capturing the conditions workers face when choosing whether or not to work, and the conditions firms face when choosing whether or not to hire. For simplicity, the model only includes two labor force statuses, employment (e) and unemployment (u), and $M > 1$ types of workers. To capture the empirical observation that job openings and job seekers simultaneously exist, I build a DMP model where a friction in the labor market prevents job openings and job seekers from perfectly matching up. For the application at hand, it is important to use a model where unemployment exists in equilibrium so I can test how changes in unemployment insurance affect the labor market. I augment the standard model with heterogeneous workers so the model generates measures of income inequality comparable to the data.

3.1 Racial Composition of the Wage Distribution

The structural model is intended to represent the entire U.S. labor market. The estimated parameters for job separations, productivity, unemployment benefits, minimum wages, bargaining power represent those for the aggregate economy. In other words, the model does not explicitly model race. One might wonder: without accounting for race, could the increase in U.S. inequality be driven by compositional changes instead of policy changes? For instance, what if the growing share of Black Americans—who are disproportionately disadvantaged and discriminated against—is the reason behind increasingly unequal incomes?

Table 2 shows that even though Black Americans make up a larger share of the workforce today, they are less concentrated at the bottom of the income distribution.[3] Black workers went from occupying 25 percent of the first decile in the 1960s to only 15 percent in the 2000s. Black workers also went from occupying just 0.2 percent of the top decile in the 1960s to 5 percent in the 2000s. Table 2 looks similar when computing non-white shares of the income distribution. Table 2 displays the inverse when calculating white shares. Notably,

[3]The CPS top codes survey respondents so Table 2 is unable to accurately capture the top of the wage distribution.

Table 2: Black Share of the Income Distribution

	Hourly Earnings Percentile										
Years	10	20	30	40	50	60	70	80	90	100	Total
1962–1963	.25	.14	.11	.09	.06	.05	.05	.03	.02	.002	.08
2005–2006	.15	.15	.15	.15	.12	.12	.10	.09	.07	.05	.12

Notes: Author's calculations using data from the CPS. Income deciles are calculated for individuals who worked full-time and at least 48 weeks in the calendar year. Salary and wage income is then divided by 50 weeks and 40 hours and adjusted by the CPI to convert to real hourly earnings. Black workers are respondents identifying as "Black/Negro".

white workers make up a larger share of the bottom decile in the 2000s than in the 1960s. Assuming Black workers are disadvantaged relative to white workers, racial composition cannot not explain the rise of inequality across income deciles. Because of this, and to only include the necessary components for the question at hand, I do not explicitly model race. Instead, the model tests whether policy changes (plausibly motivated by racism) reversed equality gains for everyone.

Before turning to the mechanics of the model, I will highlight that if labor protections disproportionately help the very bottom of the income distribution, then their currently low levels hurt white worker just as much as, if not more than, Black workers, given the large share of white workers at the bottom.

3.2 Model Environment

Time is discrete and indexed by $t \in \{0, 1, 2, ..., \infty\}$.

Workers. Workers are heterogeneous in their endowed productivity. I consider an economy populated by M types of workers indexed by $x_m \in \{x_1 < x_2 < ... < x_M\} > 0$. Endowed productivity is permanent and perfectly observable to employers.[4] I ex-ante sort workers into submarkets based on their endowment. Therefore, the aggregate labor market is organized into M submarkets indexed by worker endowment x. In each submarket there is a measure $M(x)$ of infinitely lived workers of type x (with $\sum_x M(x) = 1$) who are either employed $e(x) \in [0, 1]$ or unemployed $u(x) \in [0, 1]$. The total population is then

[4]When calibrating the model in Section 3.6, I focus on ability deciles such that there are $M = 9$ types of ability levels in the economy.

$\sum_x \big(e(x) + u(x)\big)M(x) = 1$. Since there are as many submarkets as there are endowed productivity levels, there is no crowding out between workers with different endowments. This choice simplifies the model so that a firm's expected value of meeting a worker does not depend on who is in the unemployment pool, which is a plausible assumption if the job application process effectively screens candidates.

Each worker is endowed with one unit of labor. For simplicity, on-the-job search is ruled out. Workers have risk-neutral preferences and discount future payoffs at rate $\beta \in (0, 1)$.

Firms. The economy is populated by an infinite mass of identical and infinitely lived employers who either produce output $y(x)$, or post job vacancies $v(x)$ aimed at a specific worker type x. Employers have risk-neutral preferences and also discount the future by β. I assume directed search following Moen (1997) and Menzio and Shi (2010), such that firms target a specific submarket x to post a vacancy and only post in one submarket at a time.

Production Technology. The production technology has two inputs: (1) a worker's endowed productivity and (2) aggregate productivity. Think of endowment x as a measure of a worker's background. Where did they grow up? What was the quality of their primary education? Did their family income or wealth allow for unpaid apprenticeships, extra curricular activities, and network opportunities that enhanced their productivity? Were they able to make riskier career moves because they did not have school debt to pay off? Think of aggregate labor productivity as human capital investment and technological advancement. Output per employed worker at time t for submarket x is then:

$$y_t(x) = Ax, \tag{1}$$

where aggregate labor productivity is $A \geq 1$.

Matching Technology. Markets are frictional. In each submarket x there exists a constant returns to scale matching technology:

$$m_t\big(u_t(x), v_t(x)\big) = \phi(x) u_t(x)^{\alpha} v_t(x)^{1-\alpha}, \tag{2}$$

where $\alpha \in (0, 1)$ and $\phi(x)$ is the submarket-specific matching efficiency. Let $\theta_t(x) = \frac{v_t(x)}{u_t(x)}$ denote market tightness in submarket x at time t. The job finding rate is then $f(n_t(x), v_t(x)) = \frac{m_{jt}(x)}{u_t(x)} = \phi(x)\theta_t(x)^{1-\alpha}$, which I denote $f_t(\theta)$ from now on to save on notation. Similarly, the job filling rate is $q(u_t(x), v_{jt}(x)) = \frac{m_t(x)}{v_t(x)} = \phi(x)\theta_t(x)^{-\alpha}$, which I denote $q_t(\theta)$.

Bargaining Power. Because markets are frictional, a surplus exists from a firm-worker match. I assume workers take home a share $\pi(x) \in (0, 1)$ of that surplus, where

$$\pi(x) = p_0 + p_1 m_x. \tag{3}$$

Bargaining power $\pi(x)$ is weakly increasing in endowed productivity ranking $m \in [1, M]$ because higher skilled workers tend to have more bargaining power (Cahuc et al., 2006; Dumont et al., 2012). When estimating the model, I assume different values for p_0 and p_1 before and after the Civil Rights Act to reflect the decline in unionization rates and other evidence of shifting bargaining power across skills.

Minimum Wage. In this economy, there is a wage floor. Let $\bar{\omega}$ be the minimum hourly wage any firm pays a worker. Namely, $\omega(x) \geq \bar{\omega}$.

Timing. Employers post job vacancies and unemployed workers search for jobs given the model parameters next period. Unemployed workers meet firms at time t and if profitable, produce output at $t + 1$.

3.3 Equilibrium

Firm's Problem. Let $V_t(x)$ be the value to a firm of posting a vacancy for a worker with endowment x.

$$V_t(x) = -\kappa + \beta\Big[q_t(\theta) J_{t+1}(x)\Big], \tag{4}$$

where κ is the cost of posting a vacancy. $J_{t+1}(x)$ is a firm's surplus next period from matching with a worker in submarket x. Firm surplus this period equals:

$$J_t(x) = y_t(x) - \omega_t(x) + \beta\Big[(1 - \delta) J_{t+1}(x)\Big], \tag{5}$$

where $\omega_t(x) \geq \bar{\omega}$ such that the endogenously determined wage in each submarket x must be at least as great as the minimum wage $\bar{\omega}$. The parameter δ is the exogenous separation rate. Here, all workers separate from their job at rate δ. The separation rate is exogenous because "endogenizing" it with a stochastic process would unnecessarily complicate the model and not help identify why workers separate.

Worker's Problem. On the worker side, the value of being matched with a job is the

discounted value of retaining that match or entering the unemployment pool next period,

$$W_t(x) = \omega_t(x) + \beta\Big[(1-\delta)W_{t+1}(x) + \delta U_{t+1}(x)\Big], \tag{6}$$

The value of being unemployed $U_t(x)$ is defined by the following condition:

$$U_t(x) = b + \beta\Big[f_t(\theta)W_{t+1}(x) + (1-f_t(\theta))U_{t+1}(x)\Big], \tag{7}$$

where b is the flow value of unemployment benefits. In the U.S. unemployment benefits depend on the claimer's previous wage. However, because the weekly maximum is small, most full-time workers in the U.S. receive the maximum allocated amount. This means that in practice unemployment benefits are largely constant across income levels. This is also the mechanism through which changes in unemployment benefits have distributional consequences. A decline in the weekly benefit of a flat amount hurts workers at the bottom of the income distribution more because their outside option as a share of their wage fell by more than workers at the top of the income distribution.

Nash Bargaining. Workers and firms in each submarket negotiate a contract dividing match surplus according to the Nash bargaining solution, where previously defined $\pi(x)$ is the worker's bargaining weight. Total match surplus is calculated by adding up firm value $J_t(x)$ and worker value $W_t(x)$ minus values of the outside options $V_t(x)$ and $U_t(x)$. Let $S_t(x) = \max\{J_t(x) + W_t(x) - V_t(x) - U_t(x), 0\}$ denote total match surplus in submarket x. Workers receive $\pi(x)S_t(x)$ from a match and firms receive $(1-\pi)S_t(x)$. The worker and firm will agree to continue the match if $S_t(x) > 0$, otherwise they will separate, in which case $S_t(x) = 0$.

Free Entry. I assume an infinite number of firms are free to enter each submarket and post vacancies, thereby pushing down the value of posting a vacancy to zero. Free entry implies $V_t(x) = 0$, $\forall t, x$.

3.4 Steady State

The following subsection derives three expressions summarizing the steady-state equilibrium, namely, the job creation curve, wage equation, and minimum wage condition. To simplify notation, let any steady state variable $Z_t = Z_{t+1} = Z$ for the remainder of the paper.

Job Creation Curve. In steady state, combining equation (4), equation (5), and the free

entry condition yields:

$$y(x) - \omega(x) - \frac{\kappa(\beta^{-1} + \delta - 1)}{q(\theta)} = 0. \tag{8}$$

The DMP literature refers to this expression as the job creation curve. If the firm had no hiring costs, κ would be zero and equation (8) would be the standard condition where the marginal product equals the wage. In DMP models, nonzero vacancy posting costs cut into total surplus, and under Nash bargaining, that cut translates into lower wages.

Steady State Wages. Under Nash bargaining and free entry, equations (1)-(6) endogenously determine wages:

$$\omega(x) = \Big(1 - \pi(x)\Big)b + \pi(x)\Big(y(x) + \kappa\theta\Big), \tag{9}$$

$$\text{where } \omega(x) \geq \bar{\omega}. \tag{10}$$

Workers benefit from a tight labor market and are rewarded for helping firms save on hiring costs. They also enjoy a share of the output and unemployment benefits b.[5] Equation (10) specifies that wages for all submarkets must be at least as great as the minimum wage $\bar{\omega}$.

Equations (8), (9), and (10) determine the steady-state equilibrium.

3.5 Comparative Statics

It is relatively straightforward to intuit how a change in the minimum wage affects the income distribution. It is less straightforward to intuit how a change in unemployment benefits or bargaining power affects the income distribution. In what follows, three propositions highlight the mechanisms at play and how declining minimum wages, unemployment benefits, and bargaining power can all, in theory, increase income inequality.

Proposition 1. *Income ratio* $\frac{\omega(x_H)}{\omega(x_L)}$ *where* $L, H \in [1, 9]$ *and* $L < H$ *is decreasing in* $\bar{\omega}$ *if* $\omega(x_L) < \bar{\omega}$ *and* $\omega(x_H) > \bar{\omega}$.

Proof.

1. Equation (10) and $\omega(x_L) < \bar{\omega} \implies \omega(x_L) = \bar{\omega}$

2. $\frac{\partial \omega(x_H)/\omega(x_L)}{\partial \bar{\omega}} = -\frac{\omega(x_H)}{\bar{\omega}^2}$

[5] See Pissarides (2000) for a derivation of steady state wages.

3. $\omega(x) \geq 0, \forall x \implies \frac{\omega(x_H)}{\omega(x_L)} < 0$

□

Proposition 1 shows that any decile income ratio—for example the 90/10—is decreasing in minimum wage $\bar{\omega}$ if the minimum is binding for submarket x_L but not for x_H. A binding minimum wage means wages in submarket x_L equal the minimum wage. When the minimum wage increases, wages for x_L also increase but wages for x_H are unaffected, thereby reducing income inequality. When the reverse happens and a binding minimum wage *decreases*, income inequality increases.

Proposition 2. *Income ratio* $\frac{\omega(x_H)}{\omega(x_L)}$ *where* $L, H \in [1, 9]$ *and* $L < H$ *is decreasing in* b *if* $\frac{\omega(x_9)}{\omega(x_\xi)} < \frac{\pi(x_H)}{\pi(x_L)}$.

Proof.

1. $\frac{\partial \omega(x_H)/\omega(x_L)}{\partial b_0} = \frac{\omega(x_H)\pi(x_L) - \omega(x_L)\pi(x_H)}{\omega(x_L)^2}$
2. $\frac{\omega(x_H)}{\omega(x_L)} > \frac{1-\pi(x_H)}{1-\pi(x_L)} \implies \frac{\omega(x_H)/\omega(x_L)}{\partial b_0} < 0$

□

Proposition 2 shows that any decile income ratio greater than one is decreasing in unemployment benefits b if the income ratio is greater than the ratio between firm bargaining power. Recall, $\big(1 - \pi(x)\big)$ is the share of surplus going to the firm. For intuition, suppose $\pi(x_H) = 1$. This means the ratio between firm bargaining power is zero and Proposition 2 would imply that wage inequality is always decreasing in unemployment benefits. When the reverse happens and the unemployment benefits *decreases*, income inequality increases.

Proposition 3. *Income ratio* $\frac{\omega(x_H)}{\omega(x_L)}$ *where* $L, H \in [1, 9]$ *and* $L < H$ *is decreasing in* p_0 *if* $\frac{b}{Ax_L - b + \kappa\theta} + \frac{-b}{Ax_H - b + \kappa\theta} < (H - L)p_1$

Proof.

1. $\frac{\partial \omega(x_H)/\omega(x_L)}{\partial p_0} = \frac{\omega(x_L)\big(Ax_H - b - \kappa\theta\big) - \omega(x_L)\big(Ax_L - b - \kappa\theta\big)}{\omega(x_L)^2}$

2. $\frac{b}{Ax_L - b + \kappa\theta} + \frac{-b}{Ax_H - b + \kappa\theta} < (H - L)p_1 \implies \frac{\partial \omega(x_H)/\omega(x_L)}{\partial p_0} < 0$

□

Proposition 3 shows that any decile income ratio greater than one is decreasing in bargaining power parameter p_0 if $\frac{b}{Ax_L - b + \kappa\theta} + \frac{-b}{Ax_H - b + \kappa\theta} < (H - L)p_1$. For intuition, suppose labor productivity A equals zero. This means the second step of the proof would reduced to $L < H$. Since by definition $L < H$, all income ratios are decreasing in bargaining power parameter p_0. When the reverse happens and the bargaining power parameter *decreases*, income inequality increases.

3.6 Calibration

The goal of this section is to calibrate the structural model to match the U.S. income distribution at its historical low, right before the Civil Rights Act. In doing so, I recover a set of latent parameters. I then use those latent parameters and policy changes from Figure 1 to predict the recent post-Civil Rights era income distribution. The difference between the predicted and actual income distribution sheds light on the extent to which policy changes increased income inequality.

I choose two periods to calibrate the model: (1) 1962–1963 because this is before the Civil Rights Act of 1964 and CPS data starts in 1962, and (2) 2005–2006 because this is many decades after the Civil Rights Act, to allow time for policy changes, but is in a similar part of the business cycle. Notably, both periods averaged a 6 percent unemployment rate and 6 percent annual growth rate.

Table 3 lists the estimated parameters I supply to the model. The top panel contains parameters from the literature I assume do not change over time. I calibrate the model to match monthly observations and accordingly set the discount rate to 0.9967. The job separation rate δ from Shimer (2012) is the average monthly transition rate from 1960–2004. Labor market tightness is from Wolcott (2021) which calculates the ratio of vacancies to unemployed workers for the 1970s and 2000s for different skill levels. Estimates hover around 2.5. Parameter M designates the number of productivity types (i.e. submarkets). I choose $M = 9$ such that they split the population into 10 deciles. The other parameter values for matching elasticity α and vacancy posting costs κ are standard in the literature, and results are not sensitive to their values.

Table 3: Parameter Estimates for 1962–63 and 2005–06 Steady States

Parameter	Explanation	Value	Source
β	discount factor	0.9967	monthly rate
δ	separation rate	0.036	Shimer (2012)
θ	labor market tightness	2.5	Wolcott (2021)
M	number of submarkets	9	$10^{\text{th}} - 90^{\text{th}}$ percentile
α	matching elasticity	0.5	Petrongolo and Pissarides (2001)
κ	vacancy posting cost	0.4	Pissarides (2009)
$\bar{\omega}_{t=62}$	minimum wage, 2019 USD	10	Figure 1
$\bar{\omega}_{t=05}$	minimum wage, 2019 USD	7	Figure 1
$b_{t=62}/\hat{\omega}_{t=62}$	UI as share of average wage	0.31	Figure 1
$b_{t=65}/\hat{\omega}_{t=65}$	UI as share of average wage	0.30	Figure 1
$p_{0,t=62}$	bargaining power intercept	0.4	Svejnar (1986)
$p_{0,t=05}$	bargaining power intercept	0.2	Cahuc et al. (2006)
$p_{1,t=62}$	bargaining power coefficient	0	normalization
$p_{1,t=05}$	bargaining power coefficient	0.02	Cahuc et al. (2006))
$A_{t=62}$	aggregate labor productivity	1	normalization
$A_{t=05}$	aggregate labor productivity	2.5	Department of Labor

Notes: The top panel lists parameters from the literature that are assumed not to change over time. The bottom panel lists parameters whose values change overtime. Subscript $t = 62$ indicates data averaged over 1962–1963 and subscript $t = 05$ indicates data averaged over 2005–2006. Parameter $\hat{\omega}$ is the empirical average wage.

The bottom panel of Table 3 contains parameters I assume change between steady states. The federal minimum wage in 2019 US dollars is from Figure 1. If the federal minimum wage of $10 in 1962-63 covered all workers, it would have affected the first decile of workers who made $8 an hour or less. Not all workers, however were covered by the federal minimum wage. Agricultural and domestic service workers, who made up 20 percent of the first decile, were excluded.[6] I assume $8 per hour was the prevailing wage in the absence of a minimum wage. This is a conservative estimate because the minimum wage likely pushed up more of the distribution, but it is difficult to know what wages would have been in the absence of a minimum wage. The real minimum wage of $7 in 2005-06 did not affect a worker on the cusp of the first decile who made $10 per hour.[7]

Using data from Figure 1, I choose a value of unemployment benefits such that they equal 31 percent of the average wage in the 1960s and 30 percent in the 2000s. Because real wages increased over this period, the hourly rate I supply the model in the 1960s is $10 and in the 2000s is $12 (both are in 2019 USD).[8] If unemployment benefits remained 31 percent of the average wage, they would have resulted in an hourly rate of $13. Therefore, relative to a counterfactual world of $13, unemployment benefits fell to $12 in the 2000s.

For the 1960s, I assume workers of all types have bargaining power equal to 40 percent of surplus, which is within the range of estimates provided by Svejnar (1986) for the mid 1950s to late 1970s. For the 2000s, Cahuc et al. (2006) estimates low-skilled bargaining power ranges from 0 to 20 percent and high-skilled bargaining power ranges from 20 to 40 percent. The affine function composed of intercept p_0 and coefficient p_1 produce values near this range. I choose conservative estimates such that the variance of bargaining power across deciles is small. With larger estimates, shifts in bargaining power would have a larger effect on income inequality. For example in the 2000s, the first decile's bargaining power is 22 percent and the ninth decile's bargaining power is 38 percent. Unionization rates over this period declined by a third. It is at least plausible bargaining power also declined by a third. Intercept p_0 changes from 40 to 20 percent such that the median decile's bargaining power declines by a third. These estimates are also consistent with evidence from Dumont et al. (2012) who finds bargaining power for low-skilled workers declined while that for high-skilled

[6]The gap between actual wages and the wage floor could also reflect measurement error in the computed hourly wage for surveying respondent's salary's and usual hours worked.

[7]Clemens and Strain (2022) find state and local minimum wage increases in the 2000s did effect minimum wage workers, but most of the their wage gains were driven by career progression and increases in labor demand. Since I group all workers in the first decile together, the federal minimum wage, on average, is not binding for this group.

[8]I convert weekly estimates to hourly by assuming full-time employment by dividing by 40 hours.

workers has remained constant.

According to the Bureau of Labor Statistics, nonfarm labor productivity increased 2.5 times between 1962–63 and 2005–06. I normalize aggregate labor productivity to one for the earlier period and set it to 2.5 for the latter period.

The first step of the calibration procedure is to uncover the model's latent parameters, namely, the vector of endowed productivities $x_m \in \{x_1 < x_2 < ... < x_M\}$ and the vector of productivity-specific matching efficiencies $\phi(x)$ by calibrating the model to match wages in 1962-63. Equations (8) and (9) are two equations, for a given x, from which I can back out the two latent parameters. The first panel of Figure 2 is the result. The wages generated for each decile exactly match estimates from the CPS.

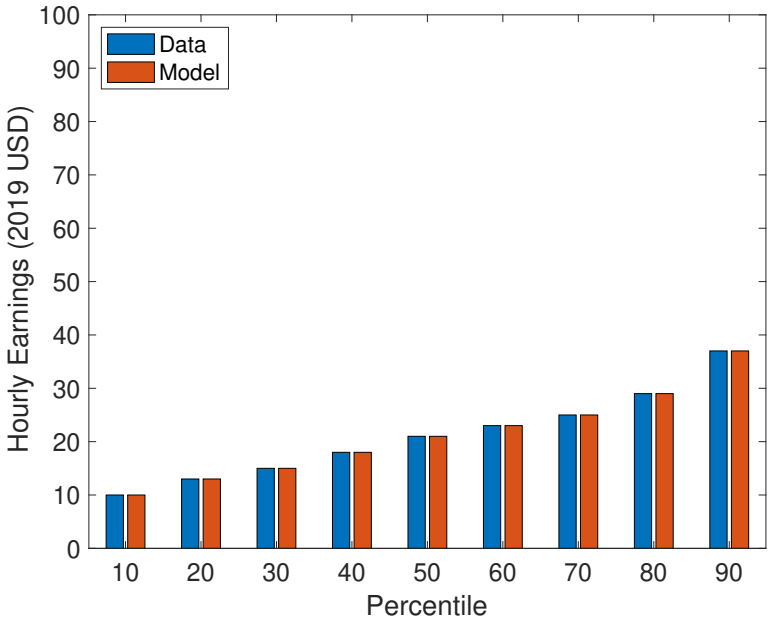
The second step of the calibration procedure is to use the recovered endowed productivity parameters from step one to predict the wage distribution. To do this I recalibrate the model, swapping in productivity parameters for wages so that for each x I still have two equations (equations (8) and (9)) and two unknowns (matching efficiency and wage). I can then recover the vector of matching efficiencies $\phi(x)$ and the vector of predicted wages $\omega(x)$. The new set of labor policies and aggregate productivity from the bottom panel of Table 3 for 2005-06 are also incorporated in this optimization problem. These new parameter values are the reason the wage distribution changes between steady states.

The bottom panel of Figure 2 is the main result. I do not target the 2005-06 wage distribution, and despite overshooting the levels, the model matches the rise in inequality remarkably well. The ratio between the top and bottom end of the distribution increased between the 1960s and 2000s. This can be seen from the shape of the bars. While the shape across percentiles of the first panel is linear, the shape across percentiles of the second period is exponential, suggesting policy changes combined with productivity growth explain rising inequality.

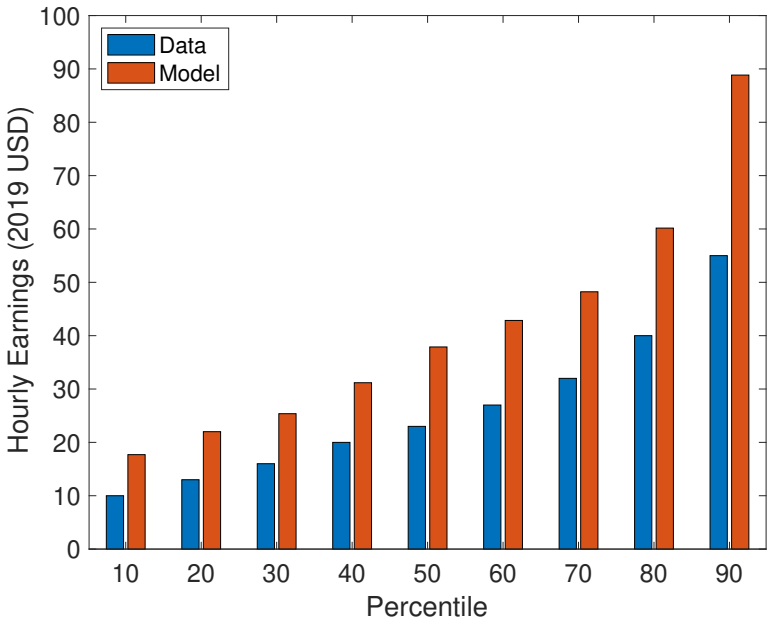
The model-generated wages in 2005-06 overshoot the data because aggregate labor productivity increased by 2.5 fold, and although actual wages increased over this period, their growth was more muted. Unemployment benefits falling from 31 to 30 percent of wages counteracts some of the labor productivity growth, but also affects the distribution, as shown in Proposition 2. Had unemployment benefits remained at 31 percent, the model would have predicted less dispersion. The decline in bargaining power intercept p_0 and increase in coefficient p_1 reduced low-wage bargaining power by more than high-wage bargaining power, contributing

Figure 2: Income Deciles Before and After the Civil Rights Act

1962–1963



2005–2006



Notes: Author's calculations using data from the CPS and FRED. Data for 1962-63 is targeted by the model. Note that the hourly earnings for the 10^{th} decile is the minimum wage instead of the observed wage. Data for 2005–06 is not targeted and should be used to evaluate the model's success.

Table 4: 90/10 Income Inequality Ratio

	Data	Full Model	UI Off	Bargaining Off	Min Wage Off
1962–63	3.7	3.7	3.7	3.7	3.7
2005–06	5.5	5.0	2.5	4.9	5.5
Difference	1.8 pp	1.3 pp	1.2 pp	-1.2 pp	1.2 pp
Accounts for	100%	73%	64%	-65%	73%

Notes: Top panel is the ratio between the 90^{th} percentile and 10^{th} percentile of income earners, in terms of hourly wage. Data is from the CPS. Full model has all channels turned on. The last three columns are the model with individual channels turned off. The difference is the percentage point change in the 90/10 ratio from 1962-63 to 2005-06. The last row is the share of the observed change in the 90/10 ratio accounted for by the model. The wage data for the 10^{th} percentile in 1962-63 is the federal minimum wage.

to an increase in dispersion. Since the 1960s minimum wage of $10 is not binding for a 2000s worker on the cusp of the first decile, minimum wages do not affect any of the reported deciles in the counterfactual analysis to follow.

To highlight a popular measure of income inequality, Table 4 lists the 90^{th} to 10^{th} percentile wage ratio (i.e. the 90/10 ratio) in the data, full model, and counterfactual models. The ratio calculated from the data increases from 3.7 to 5.5. It is important to note that 3.7 is calculated from comparing average wages of the 90^{th} percentile to the minimum wage. As discussed in Section 3.6, bottom decile wages in the 1960s fell below the federal minimum wage because some occupations were excluded. In order to isolate the effect of a level change in the minimum wage from a change in the coverage, I use the federal minimum wage in 1962-63 as the benchmark.

The second column of Table 4 shows that the full model, with all of its channels turned on, predicts the 90/10 ratio increased from 3.7 to 5.0 and accounts for 73 percent of the observed increase. The counterfactual exercises in the last three columns reveal what would have happened to the 90/10 ratio if each policy lever was individually turned off. Because of non-linearity, there are interesting interactions between the channels. Had unemployment benefits as a share of wages remained at its 1960s value, the model would only account for 64 percent of the rise in the 90/10 ratio. Had bargaining power remained at 40 percent of surplus for all workers, the 90/10 ratio would have fallen, not increased. Had the minimum wage stayed at $10 an hour, the model would still account for 73 percent of the rise in the 90/10 ratio. Minimum wages appear to have no effect because the counterfactual minimum wage of $10 was not binding for the first decile in the 2000s. This counterfactual minimum

wage would still effect some workers, say in the first percentile (instead of the first decile), but that in turn does not impact the 90/10 ratio. Autor et al. (2008) similarly concludes the minimum wage is a poor explanation for the rise in income inequality since the 1960s because the 90/50 ratio also increased. Since minimum wages are nonbinding for the median worker, they would not influence the 90/50 ratio.

To summarize, the decline in bargaining power was the largest driver of wage inequality, followed by the decline in unemployment benefits. This is consistent with DiNardo et al. (1996) who study unionization rates in the 1980s without a general equilibrium model and conclude deunionization was an important contributor to inequality. It is also consistent with a more recent literature documenting the rise in monopsony power and the role firm bargaining power plays for stagnating wages of low-wage workers (Azar et al., 2020; Yeh et al., 2022).

4 Conclusion

In the 1950s and 1960s, income inequality was at historic lows, but the moment was short-lived. Immediately after the Civil Rights Act, policymakers began chipping away at New Deal programs that had benefited the white middle class. I show these policy changes were likely driven by racism and the desire to exclude Black workers, but their effects were widespread. Calibrating a labor search model to estimates of the minimum wage, unemployment benefits, and bargaining power, I find racially motivated policy changes explain most of the rise in income inequality since the 1960s.

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