Black Strikebreakers and Racial Inequality[*]

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January 2026

Abstract

During the late nineteenth and early twentieth centuries, Black Americans faced severe restrictions in employment opportunities and were regularly excluded from industrial work. This reality led some Black workers to engage in the contentious process of strikebreaking. While strikebreaking is a well-documented part of Black labor history, we know very little about the long-term impacts of such events on Black workers' economic outcomes. In this paper, we empirically explore the extent to which Black workers were able to break industrial employment barriers and mitigate racial inequalities through the process of strikebreaking. To do this, we exploit data on the county, year, and industry in which Black strikebreakers were employed. We find that the use of Black strikebreakers in county-industry pairs increased Black labor shares by approximately 5.5 percentage points, a persistent effect lasting at least four decades and spanning many industries. In addition, the wage gap between Black and White workers in 1940 was approximately 6.2% smaller in county-industry pairs in which Black strikebreakers were used.

1 Introduction

During the late nineteenth and early twentieth centuries, Black workers were regularly excluded from industrial work for a variety of reasons including union exclusion, lack of knowledge and educational opportunities, and other labor market conditions and policies stemming from systemic racism (Summers, 1946; Carruthers and Wanamaker, 2017; Margo, 1990; Lang and Manove, 2011; Bayer, Charles and Derenoncourt, 2025).[1] The exclusion of Black workers from these industries likely exacerbated Black-White inequality, as jobs in these industries were often unionized, well-paid, and provided opportunities for upward mobility. It is, therefore, possible that this lack of early representation in industrial production severely limited Black Americans upward mobility just as the United States was emerging as the world's preeminent industrial power.

In this paper, we shed light on this issue by examining a specific context in which Black workers gained entrance to industrial work they had been largely excluded from. Specifically, we examine the historical use of Black workers as strikebreakers in the late nineteenth and early twentieth centuries. Using this historical setting we answer two complementary questions. First, did Black strikebreakers permanently open up industrial opportunities for Black workers in the locations and industries in which they were used? And second, what impact did these Black strikebreakers have on Black-White inequality in the United States?

To examine the extent to which Black strikebreakers were able to break employment barriers and mitigate racial inequalities, we document and then exploit a plausibly exogenous change in the occupation distribution of Black Americans in some locations and industries through their use as strikebreakers. We collected data on the counties, years, and industries in which Black workers were used to break strikes. Whatley (1993)

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[1]In 1900, only 5.5% of industrial workers were Black, compared to 11.5% of the U.S. population. We define industrial workers as those having industry codes in IPUMS (IND1950) corresponding to the broad categories: "mining", "manufacturing", and "transportation, communication, and other utilities" (Ruggles et al., 2021).

and Bonacich (1976) first constructed these data. We verified each of the incidents documented in these articles and updated the list to account for a small number of additional incidents identified through primary source searches. We combined these updated strikebreaking data with census data documenting the racial composition of workers in each county-industry-year cell from the 1870-1940 complete count U.S. Censuses and individual-level labor market outcomes from the 1940 complete count U.S. Census (Ruggles et al. (2021)).

Using these data, we perform a number of empirical exercises to explore if Black strikebreaking affected the labor market outcomes of Black workers. We begin by using a fixed effects framework to exploit location, industry, and timing variation in the use of Black strikebreakers, comparing the racial composition of workers in a given county and industry before and after a strike was broken by Black workers to county-industry pairs that did not experience this phenomenon. In both difference-in-differences and event-study approaches we find that Black strikebreakers increased Black labor shares in county-industry pairs in which they were used by approximately 5.5 percentage points. Subsample analysis suggests the positive relationship between Black strikebreakers and the share of Black workers is present across most of the industries in which Black strikebreakers were employed.

To address concerns that counties experiencing strikes or strikebreaking could be fundamentally different than counties that do not experience these types of labor disputes, we replicate our analysis on a subset of counties that have confirmed labor dispute incidents. This data was initially compiled in reports by the U.S. Commissioner of Labor and included information on strikes occurring between 1881 and 1894. All results have the same sign and are of a similar magnitude when using this set of control counties, suggesting limited impacts of unobservable differences across counties that did and did not experience strikes. Results are also robust to alternative estimation strategies (Callaway and Sant'Anna, 2021; Sun and Abraham, 2021), the inclusion of state-linear time

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trends, and numerous additional robustness checks.

Given that Black-strikebreaking led to a robust and persistent increase in the use of Black workers in associated counties and industries, we next estimate the effect that Black-strikebreaking had on Black-White inequality. Using individual-level data from the 1940 Census, we perform a difference-in-differences style analysis to compare the labor market outcomes of Black and White workers across counties and industries in which Black-strikebreaking incidents did and did not occur. Results suggest that Black strikebreaking increased the wage income of Black workers working in Black-strikebreaking counties and industries by 1940 relative to White workers. More specifically, Black strikebreaking is associated with a 6.2% increase in weekly wage income in 1940. This result suggests that Black-strikebreaking closed the Black-White wage gap by 15.5% in counties and industries in which Black strikebreakers were employed.

We conclude that the use of Black strikebreakers to weaken strikes increased the share of Black workers in locations and industries in which they were used and that Black workers in these locations and industries had higher wage income by 1940. The contribution of our paper is threefold. First, our paper contributes to the literature on Black-White inequality. While this literature is large, much of the historical narrative in economics has focused on the Great Migration and the period after 1940 (Bayer and Charles, 2018; Collins and Wanamaker, 2014; Collins, 2021; Carruthers and Wanamaker, 2017).

Second, this paper contributes to a vast literature about the American labor movement by documenting the impact that Black strikebreakers had on the labor market opportunities and outcomes of Black workers. Whatley (1993) and Bonacich (1976) both document the extent to which Black Americans were used as strikebreakers in the late nineteenth and early twentieth centuries. However, neither paper provides any empirical evidence about the impact of Black strikebreakers on Black Americans' economic outcomes and racial inequality. Rosenbloom (1998) focuses on strikebreaking more gen-

erally and shows that the use of strikebreakers was not correlated with the business cycle and did not vary appreciably by region or city size. Still, employers located outside of the Northeast or in smaller cities were more likely to use replacement workers recruited from other places. Furthermore, he shows that the use of strikebreakers varied considerably across industries. To the best of our knowledge, this would be the first paper to explore the impact of Black strikebreaking on labor market inequalities.

Third, we verify and update the data on Black-strikebreaking incidents in U.S. history. Using various secondary sources, Whatley (1993) compiled a dataset of 141 strikes between 1847 and 1929 in which firms responded by hiring Black strikebreakers, and Bonacich (1976) documented 25 such occurrences in the period from 1916-1934. Since the publication of their papers over 25 years ago, the availability of digital newspaper archives and advanced scholarship allowed us to further review the historical counts of incidents. We verified and made minor updates to this data to account for the years of scholarship that have elapsed since the last time the incidences of Black strikebreaking have been documented.

2   Background Information

Membership in labor unions began to grow drastically in the United States during the later part of the nineteenth century, a trend partially due to the Industrial Revolution's large effects on labor markets.[2] Labor unions organized workers to engage in collective bargaining to protect workers' rights and further their economic interests. For example, unions helped advocate for higher wages, shorter hours, and safer working conditions.

One common mechanism through which unions gained negotiating power with industrialists was through strikes, and there were at least 12,000 strikes in the last two decades of the nineteenth century alone (Currie and Ferrie (2000)). Most unions ex-

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[2]The Industrial Revolution brought workers together in industrial centers, increasing the density of workers and the number of large factories.

cluded Black workers, some by codifying the divide in their constitutions (Summers, 1946), but most by refusing to organize unskilled laborers, which disproportionately consisted of Black, Irish, and Italian immigrants. Ray Marshall writes that, "The general pattern seems to have been for local unions to exclude Negroes wherever they could" (Marshall, 1967, p. 43). Booker T. Washington stated that, "several attempts have been made by the members of labor unions...to secure the discharge of Negroes employed in their trades" (Washington, 1913, p. 757). Racial exclusion allowed unions to control the labor supply by creating an "out-group" to manipulate the price of labor (Moreno, 2010). Moreover, accepting African Americans would undermine the North's implicit and the South's explicit doctrine of White supremacy. As a result, industrial workers, particularly those striking in the late nineteenth and early twentieth centuries, were predominantly White.

The few unions that allowed African Americans to join "drew the color line" by creating parallel structures for Black and White members.[3] In practice, even these unions demonstrated deep-seated discriminatory tendencies as White leadership kept Black members in the least desirable, lowest paid jobs (Wilson, 1989). For example, the Northwest manager of the Knights of Labor (KOL) refused to recruit Black members despite the KOL's relatively progressive outlook on the Eastern seaboard. In the case of the Northern Pacific Railroad Company in Washington state, the Knights of Labor's unwillingness to incorporate Black American laborers into their ranks let strikebreakers easily disrupt the movement. The railroad imported strikebreakers in 1888 to end a strike for higher wages, with company guards and Pinkerton detectives for protection (Hall (2014)). In short, most of the unions that were more progressive on race were rela-

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[3]Only a handful of major unions were biracial: International Longshoremen's Association (ILA), United Mine Workers (UMW), International Workers of the World (IWW), and Knights of Labor (KOL). The UMW was the most visibly integrated. Some scholars claim that, despite providing terrible working and living conditions, it was progressive for its time, allowing Black workers membership and leadership positions with some mixed-race houses for miners (Lewis, 2009). However, Nyden (1977), examining the UMW in West Virginia in the late 1920s, highlighted the organization's racist behavior. Even though UMW strikes were broken regularly by Black strikebreakers, union leaders ignored evidence of discrimination, refused to give jobs to Black members, and rarely promoted African Americans.

tively short-lived. The KOL only became a major labor force around 1884, reached their height in 1886, after which they quickly became irrelevant.[4] Similarly, the IWW saw its peak influence shortly after it was founded, after which it quickly declined.[5]

Excluding Black workers from unions added to the pool of replacement workers who could undermine strikes. Employers were willing to hire Black workers to break strikes organized by White unions, and, as Booker T. Washington noted in 1913, Black laborers were "very willing strikebreakers" (Washington (1913)).[6] Given that during the early 1900s about 90 percent of Black Americans worked in agricultural in the rural Jim Crow South, combined with unions' exclusiveness, strikebreaking presented an opportunity for Black workers to enter racially restricted industries such as steel, meat packing, and railroads (Wilson, 1989). Accordingly, employers started recruiting Black workers from the South as strikebreakers and replacement workers.

Black elites, such as clergymen, businessmen, politicians, and newspaper owners, thought of strikebreaking as a way for Black workers to improve their economic and social standing and encouraged the Black community to steer clear from unions. W.E.B. DuBois condemned unionism, believing that interracial cooperation on class matters was impossible and that Black workers would benefit more by proving their loyalty to their employers (Melcher, 2020). There are likely many factors that contributed to the decision of whether or not Black workers crossed the picket line. Other potential factors that could have influenced this decision include an unawareness of strike conditions when recruited by labor agents or unfamiliarity with trade union principles (Arnesen, 2003). Black Americans interviewed by members of the Chicago Commission on Race Relations expressed distrust of unions because of prejudice in the unions' by-laws that denied them

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[4]The cause of their decline is often attributed to the Haymarket riot.

[5]Both of these examples speak more broadly to the difficulty that large, industrial unions, which organize workers across skill and trade lines, had in establishing themselves in the United States.

[6]During the 1870s, strikes shifted focus from basic workers' rights to collective bargaining, on which employers were less willing to compromise (Rosenbloom, 1998). At the same time, employers saw their strength grow with more efficient production, better transportation, and increasing demand with the rise of the middle class. Accordingly, strikebreaking became more common as businesses gained the will and means to resist workers' demands.

membership and any associated benefits (on Race Relations (1923)).[7] Strikebreaking was the first opportunity for Black workers to break into a new industry. Black workers believed that even if they earned less than the union rate, their new wages would usually be higher than they had achieved before. This fact, the Commission concluded, tends to make them feel that they have more to gain through affiliation with such employers than by taking chances on what the unions offer them.

Employers chose Black workers as strikebreakers to channel White strikers' anger onto Black "scabs" and divide the workforce across racial lines. This divide generated negative stereotypes about Black laborers and perpetuated racist views. Newspapers and labor journals called Black Americans a "scab race" and derided Black workers as dumb, lazy, and violent (Noon, 2004). Even when strikebreaking forces were mixed race, no other ethnicity carried such a strong stigma, and Black workers were often blamed for strike failures (Reed, 2014). As a result, violence defined the strikebreaking scene. Strikers attacked strikebreakers, and companies hired private guards to protect their property and specialized detective agencies, like the Pinkertons, to infiltrate labor organizations (Lewis, 2009). Coal mining strikes were especially charged, as strikebreakers were more likely to be brought in and more likely to be attacked. Although there were many instances of strikebreakers being driven out of mines and factories, strikers frequently damaged property and attacked transports of replacement labor before the strikebreakers even arrived at company camps. Striking workers used primitive weapons, firearms, and even dynamite to deter replacement workers. This aggression provoked responses from the police, and if the situation spiraled into further violence, the National Guard. Strikebreakers were attacked more violently and faced more brutality when they were Black.

The evidence from qualitative narratives about the impact of strikebreaking on labor market outcomes is mixed. On the one hand, strikebreaking appeared to provide new

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[7]The Chicago Commission on Race Relations was established in response to the 1919 race riot.

opportunities for Black men. The New Orleans Southwestern Christian Advocate concluded that "Those who have watched the strikes in this country for a decade or more have noted that the result of nearly everyone has been the opening of some new door for the Black laborer" (Arnesen, 2003). However, other records suggest that despite successes made by Black strikebreakers in entering new industries, employers did not keep most on after strikes. Even if the previous White workers were not welcomed back to their jobs, many employers also turned out Black workers (Reed, 2014).

3 Data

In this paper, we use multiple data sources to explore the relationship between Black strikebreaking and labor market outcomes for Black workers. Throughout the remainder of the paper, we differentiate between "counties", "industries", and "county-industry pairs." When discussing counties we are referring to a geographic county and all industries in that (e.g. Allegheny County, PA). When discussing industries, we are referring to an industry, regardless of the county it is located in (e.g. the steel industry). Finally, a county-industry pair refers to a specific county and a specific industry within that county (e.g. the steel industry in Allegheny County, PA).

Our primary dataset documents incidents of Black strikebreaking from 1847 to 1934, identifying county-industry pairs that were impacted by these events. We have a similar dataset spanning from 1881 to 1894 documenting county-industry pairs which experienced any strike, regardless of whether strikebreakers were used, to facilitate comparisons across places and industries that experienced labor disputes. To examine labor market outcomes, we employ county-industry employment data from the 1870 to 1940 complete count U.S. Censuses to analyze how Black strikebreakers affected the racial composition of workers in impacted county-industry pairs. Finally, we turn to individual-level data from the 1940 complete count U.S. Census to compare labor market

outcomes between Black and White workers in county-industry pairs with and without histories of Black strikebreaker use. We elaborate on each of these data sources in the subsections below.

3.1 Black Strikebreaker Data, 1847-1934

The information on when, where, and in which industries Black strikebreakers were used comes two main sources: Whatley (1993) and Bonacich (1976). Whatley's (1993) study of strikes and strikebreakers examined Black laborers' use as strikebreakers from 1847 to 1929 across the country and provided a comprehensive look at Black strikebreaking in the United States. Using various secondary sources composed of scholarly articles and research, Whatley compiled a table of 141 strikes in which firms responded by breaking the strike with Black workers. In his data, he included the each stike's starting year, the industry targeted, and, when possible, he named the firms involved with replacement labor and the state and city where the strike took place. Bonacich's (1976) study included a table of 25 strikes from 1916 to 1934, which allows us to confirm and extend Whatley's sample of Black strikebreaking events through 1934.

An itemized list of strikes in which Black strikebreakers were used in the late nineteenth and early twentieth century is provided in Appendix Tables A1 and A2. We verified and made minor updates to these data sources to account for the years of scholarship that have elapsed since these studies were published.[8] Newly identified instances in which Black strikebreakers were used are documented in Appendix Table A3. We matched each industry in which Black strikebreakers were used to 1950 industry codes from IPUMS to facilitate merging information about when and where Black strikebreakers were used with census data (Ruggles et al., 2025). For example, strikes reported in

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[8]See Appendix A.1 for more details about our data updating process. We utilized digitized newspaper archives to search for additional Black-strikebreaking incidents that previous research could not identify from the search of secondary sources. See Appendix Tables A1, A2, and A3 for our list of Black-strikebreaking incidents.

the "Lumber" industry in the strikebreaking data were assigned to "Sawmills, planing mills, and mill work", "Logging", and "Miscellaneous wood products" in the census data. A complete list of Black striking industries and the corresponding census industry codes we assigned to each strike is displayed in Appendix Table A4.[9]

Panel A of Figure 1 shows the spatial and temporal distribution of Black-strikebreaking events. Contemporaneous accounts claimed that strikebreaking by Black workers was relatively common, but scholars have since shown that these accounts overstated the incidence of Black strikebreaking (Marshall, 1972; Whatley, 1993). Figure 1 confirms this narrative. The use of Black strikebreakers was concentrated in large metropolitan areas in the Rust Belt. Counties are classified by the year of their first Black strike-breaking event with lighter counties having earlier strikebreaking events.

Whatley (1993) argues that his counts of Black strikebreaking incidents are necessarily a lower bound, and we make the same claim of our Black-strikebreaking incidents. We believe that this under-count will, if anything, bias our results toward zero. If Black workers were used as strikebreakers in a county-industry pair that we are not aware of, that county-industry pair will, necessarily, be in our control group and attenuate our results.

3.2 U.S. Commissioner of Labor Strike Data, 1881-1894

Although data on the locations and industries of every strike and the use of strikebreakers (Black or otherwise) is not available over our entire sample of Black-strikebreaking incidents (i.e. 1847-1934), we do have fairly complete data on strikes and strikebreaking between 1881 and 1894. These data were initially compiled in reports by the U.S. Commissioner of Labor. The Bureau of Labor collected a list of strikes from newspaper articles and other publications and sent agents to interview representatives from both sides

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[9]In a robustness check we assign each strike to corresponding occupations rather than corresponding industries. The occupations assigned to various strikes are documented in Appendix Table A5. We elaborate on this when presenting the robustness check.

of the conflict to investigate and gather information about the strike (Rosenbloom, 1998). Currie and Ferrie (2000), Naidu and Yuchtman (2018), and Friedman (1988), among others, digitized the information from these reports. In the end, we use information on 8,159 strikes that occurred between 1881 and 1894.[10] The strikes identified in this dataset are, again, a lower-bound; Bailey (1991) finds that in Terre Haute, Indiana, only about half of the strikes between 1881 and 1894 that are mentioned in local newspapers were contained in the Commissioner of Labor's reports.

We use these data to identify a set of counties that experienced strikes and strike-breaking incidents (regardless of whether Black of non-Black workers were used to break the strike). The county-industry pairs in these labor dispute counties serve as an alternative control group for county-industry pairs that experienced Black strikebreaking events; our baseline control group is all county-industry pairs that did not experience a Black-strikebreaking event. Panel B of Figure 1 highlights counties that have confirmed labor disputes within this data. Similarly to Panel A, labor dispute counties are concentrated in the Midwest and Northeast regions of the country. The lack of comprehensive data on strikes does not pose a problem for our analysis since it simply results in our use of a *subsample* of all counties experiencing a strike as our control group as opposed to the *entire set* of striking counties.

3.3 Census Data

We combine our information about county-industry labor disputes and strikebreaking with two different datasets constructed from the U.S. complete count Censuses.

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[10]We are grateful to Suresh Naidu for sharing these data with us.

3.3.1 County-Industry Data, 1870-1940

We use the U.S. complete count censuses to construct the number of Black and White workers in each county-industry pair from 1870-1940 (Ruggles et al., 2021, 2025).[11] We used industry codes from the 1950 Census to classify industries. For each industry in each county, we document the share of workers that were Black; this variable serves as our primary measure of Black access to industries. As the composition of industries changes substantially across time, and Black and White workers vary in their tendencies to work in certain industries, we begin by dropping all county-industry pairs that are not present over the entire sample period. Focusing on a balanced panel of industries ensures our results are not being driven by the development of new industries that would have had a higher share of Black workers due to segregated labor markets regardless of whether or not Black strikebreakers were used.

Summary statistics and a preview of our empirical results are presented in Table 1. Panel A shows the average Black share of workers in county-industry pairs that did and did not experience a Black strike breaking incident. In this table, "Pre" represents data from 1870, before a vast majority of Black-strikebreaking events occurred, and "Post" represents data from 1940.[12] Panel A utilizes the full set of county-industry pairs in our sample. In this sample, we see that untreated county-industry pairs initially had higher Black shares and experienced a small decrease in Black-share between the "pre" and "post" treatment periods; treated county-industry pairs, however, experienced over a 100% increase in the Black share of workers from the pre to the post period. Comparing the change in the Black share of workers between 1870 and 1940 across Black-strikebreaking county-industry pairs and non-Black-strikebreaking county-industry pairs suggests that Black strikebreaking is associated with an increase in the

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[11]We harmonized county boundaries to match the 1940 county delineation using the crosswalks provided by Ferrara et al. (2021). We do not use data from 1850 and 1860 as 95% of the Black population during this time period was enslaved; any free Black individuals living in the North are unrepresentative of the Black population as a whole.

[12]Out of 139 strikebreaking events, there was only one prior to 1850 and four prior to 1860.

Black share of workers in "treated" county-industry pairs. More specifically, the Black share of workers in treated county-industry pairs increased by 7.7 percentage points relative to the Black share in untreated county-industry pairs.

Panel B limits our sample to county-industry pairs that experienced a Black strike-breaking event or were in a county that experienced a verified strike from the US Commissioner of Labor data, and Panel C limits our sample even further by utilizing only counties that experienced a strike involving the use of replacement works (Black or non-Black). While both sets of county-industry pairs experienced increases in the share of Black workers, the increase in treated counties is significantly larger than the increase in untreated counties. These summary statistics imply that Black-strikebreaking county-industry pairs experienced a 6 percentage point increase in the share of Black workers compared to the trend in untreated county-industry pairs, an analysis which we formalize below.

3.3.2 Individual Level Data, 1940

In addition to the racial composition of county-industry pairs between 1870 and 1940, we also use individual level data from the 1940 full count Census (Ruggles et al., 2021, 2025). For each individual in the 1940 Census, we know their county of residence and the industry in which they worked. Using this information, we can identify which individuals worked in a county-industry pair that previously experienced a Black-strikebreaking event. We also have information on individuals' race, age, marital status, employment status, educational attainment, annual wage income, and weeks worked. We restrict the full count sample to men between the ages of 25 and 70 who were employed, wage workers, and worked more than 40 weeks in the prior year (1939).[13] We further restrict

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[13]Self employed workers (i.e. non-wage workers) did not report annual income in the 1940 Census, which is why we focus on wage workers. This restriction is not hugely important in our setting since we are primarily interested in industrial workers who worked for wages. Restricting the sample to men who worked at least 40 weeks in the prior year ensures that the individuals in our sample are not loosely attached to the labor force.

to only men who were working in an industry that used Black strikebreakers at least once over the period 1847-1934 (regardless of whether the county they lived in used Black strikebreakers).[14] Using this sample, we compute weekly wages, which we define as annual wage income divided by weeks worked.

Summary statistics for our individual-level sample are shown in Table 2, broken down by race and treatment status. Black workers in Black-strikebreaking county-industry pairs earned about 62.8% of the income of their White counterparts whereas Black workers in counties that did not experience a Black strikebreaking event earned only 54% of White workers' income. Weeks worked averaged about 51 across White and Black workers, highlighting that annual income differences are due to differences in wages as opposed to differences in the number of weeks worked. These results provided suggestive evidence that Black workers in Black-strikebreaking counties were potentially made better off as a result of Black strikebreakers. We formalize this analysis below.

4 Empirical Specification

In this section, we outline the empirical strategy we use to explore the effect of Black strikebreakers on the labor market outcomes of Black workers. In the first subsection, we discuss a difference-in-differences framework which uses our county-by-industry data to explore the impact of Black strikebreakers on the share of Black workers across time. The second subsection documents the empirical methods we will use to explore the long-run effects of Black strikebreaking on individual workers in the 1940 Census.

4.1 County-by-Industry Specification

We use an empirical framework that exploits variation in both the use and timing of Black strikebreakers to document how the share of Black workers in a given county-

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[14]We show robustness to using workers from all industries, whether or not the industry used Black strikebreakers.

industry pair changes in response to the employment of Black strikebreakers. Our difference-in-differences specification is:

$$y_{kct} = \kappa_{kc} + \lambda_t + \beta bsb_{kct} + \epsilon_{kct} \tag{1}$$

where k indexes industries, c indexes counties, and t indexes census year. Thus, y_{kct} is the share of workers in industry k in county c in census year t that are Black and bsb_{kct} is a binary variable indicating if industry k in county c had made use of Black strikebreakers by year t. κ_{kc} is a set of county-by-industry fixed effects and λ_t is a set of census year fixed effects. Standard errors are clustered at the county-level.

As the share of Black workers could change as the result of a change in either the number of Black workers (the numerator) or the total number of workers (the denominator), we also estimate Equation 1 using the number of Black workers in a given county-industry pair as the dependent variable. Given that the number of Black workers is a count variable and many observations take on a value of zero, we utilize a Poisson pseudo-maximum likelihood (PPML) approach to estimate Equation (1) when using the count of Black workers as the dependent variable.

The difference-in-differences framework assumes that untreated units are a valid counterfactual for treated units in the post-treatment period and that there are no anticipation effects. Accordingly, we also estimate an event study framework to explore the pre-trends assumption and potential dynamic treatment effects:

$$y_{kct} = \kappa_{kc} + \lambda_t + \sum_{j=-6}^{-2} \beta_j bsb_{kct} 1(t - t_{kc}^* = j) + \sum_{j=0}^{6} \beta_j bsb_{kct} 1(t - t_{kc}^* = j) + \epsilon_{kct} \tag{2}$$

This specification is similar to Equation 1 except we now allow the effect of Black strikebreaking to vary across time. In this specification, $1(t - t_{kc}^* = j)$ are event-year dummy variables which equal one when the year of observation, t, is j decades from the first

use of Black strikebreakers in that county-industry pair, t_{kc}^*.[15] We estimate Equation 2 with the full set of event-year dummy variables ranging from -6 to 6, but only report on the coefficients from -3 to 3, as these event-time dummies are estimated for *most* county-industry pairs and still provide a look at pre- and post-trends for 30 years prior to and after the treatment. We, again, cluster standard errors at the county-level.

One potential concern with this analysis is that counties that experience strikes or strikebreaking incidents are fundamentally different from those that do not. As such, we explore the robustness of our results to various subsamples of the data. We limit our set of control county-industry pairs to only those counties that experienced a labor dispute in the U.S. Commissioner of Labor Strike data. We next limit the set of control county-industry pairs further by only including counties from the U.S. Commissioner of Labor Strike data that both experienced a labor dispute and for which replacement workers were hired. This restriction controls for any time-invariant differences that make counties more or less susceptible to strikes or strikebreaking incidents.

Another concern with this analysis is that fixed effect frameworks with staggered treatment timing are subject to bias that results from using already treated units as a control group for not yet treated units (Goodman-Bacon, 2021). In particular, dynamic treatment effects invalidate the use of already treated units as a counterfactual for not yet treated units (Goodman-Bacon, 2021). As such, we provide robustness checks that utilize methods in which estimates are obtained from comparisons which do not use already treated units as a control (Sun and Abraham, 2021; Callaway and Sant'Anna, 2021).

We preform numerous additional robustness checks, including using only Black strikebreaking events that overlap with the US Commissioner of Labor Strikes data (1881-1894), focusing only on the post-1910 period as industry was imputed from occupation

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[15]To be more precise, we define the event-time dummy variables to be $1(\text{floor}(\frac{t-t_{kc}^*}{10}) = j)$. For example, if a county-industry pair experiences its first Black strikebreaking event in 1905, the 1900 Census observation will be event-year -1, the 1910 Census observation will be event-year 0, the 1920 Census observation will be event-year 2, etc.

in censuses prior to 1910, and adding controls to account for any changes in the share of Black workers due to changes in the percent of urban populations. These and other robustness checks are discussed in Section 5.1.

4.2 Individual Specification

After establishing that Black strikebreaking increased Black representation in various industries, we then use individual-level data from the 1940 Census to explore how Black strikebreaking impacted the labor market outcomes of Black workers in 1940. We focus our analysis on individuals' weekly wage income, but also explore changes in both annual income (the numerator of weekly wages) and the number of weeks worked (the denominator of weekly wages). Our primary control group is individuals (Black or White) working in an industry that used Black strikebreakers (regardless of whether the county-industry pair they are employed in used Black strikebreakers).[16] We estimate the following regression equation, which evaluates differences in the labor market outcomes of White and Black workers employed in county-industry pairs that experienced Black strikebreaking and those in employed in county-industry pairs that did not experience a Black strikebreaking:

$$y_{ikc} = \beta_1 bsb_{kc} + \beta_2 Black_{ikc} + \beta_3 bsb_{kc} * Black_{ikc} + X_i * \xi' + \gamma_{kc} + \epsilon_{ikc} \qquad (3)$$

where i indexes an individual, k indexes an industry, and c indexes a county. Thus, y_{ikc} is an outcome for individual i who works in industry k in county c, bsb_{kc} is a binary variable indicating if industry k in county c had any incidents of Black strikebreakers by 1940, and $Black_{ikc}$ is a binary variable indicating if individual i is Black. X_i is vector of individual characteristics which includes a full set of fixed effects for age, years of schooling, and marital status. Each specification includes either a control for being employed

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[16]All results are quantitatively and qualitatively similar if we use the full sample of industries as opposed to only workers in industries that employed Black strikebreakers.

in a county-industry pair that experienced a Black-strikebreaking event (i.e. bsb_{kc}) or a full-set of county-by-industry employment fixed effects (i.e. γ_{kc}). Standard errors are clustered at the county level. Our coefficient of interest is β_3 which identifies the effect of being a Black worker in a county-industry pair that has previously experienced a strike in which Black strikebreakers were employed. Furthermore, $|\beta_3/\beta_2| * 100$ documents the percentage change in the Black-White wage gap as a result of Black-strikebreaking.

The estimates from Equation 3 measure, to some extent, persistence since some county-industry pairs experienced a Black strikebreaking event several decades prior to us observing weekly wages in 1940. To better understand if the results from Equation 3 are driven by earlier or later Black strikebreaking events, we modify Equation 3 to include a set of dummy variables that indicate whether a county-industry pair experienced a Black strikebreaking event during a certain time period. We then interact these indicators with the Black worker indicator. In particular, we estimate:

$$
\begin{aligned}
y_{ikc} = \beta_1 bsb_{kc}^{<1881} + \beta_2 bsb_{kc}^{1881-1900} + \beta_3 bsb_{kc}^{1901-1920} + \beta_4 bsb_{kc}^{>1920} + \\
+ \beta_5 Black_{ikc} + \beta_6 bsb_{kc}^{<1881} * Black_{ikc} + \beta_7 bsb_{kc}^{1881-1900} * Black_{ikc} \\
+ \beta_8 bsb_{kc}^{1901-1920} * Black_{ikc} + \beta_9 bsb_{kc}^{>1920} * Black_{ikc} + X_i * \xi' + \gamma_{kc} + \epsilon_{ikc}
\end{aligned}
\tag{4}
$$

In this equation, bsb_{kc}^t indicates whether a Black strikebreaking event took place in county-industry pair kc between the years given by t. To ensure enough Black strikebreaking events in each time period, we use the following time groupings in the analysis: 1880 or earlier, 1881-1900, 1901-1920, 1921 or later. The coefficients of interest are β_6, β_7, β_8, and β_9 which document the labor market effects of being a Black worker in a county-industry pair that experienced a Black strikebreaking event in time period t. All controls remain the same and we, again, cluster standard errors at the county-level.

5 Results

In this section, we document and discuss the results of our analysis. Section 5.1 focuses on the results from our county-by-industry specification, documenting a change in the racial composition of workers in county-industry cells in which Black strikebreakers were used. Section 5.2 documents the effect that Black strikebreaking had on Black-White inequality in 1940.

5.1 County-by-Industry Results

Table 3 presents our first set of results and shows that the share of Black workers in county-industry cells increase after the use of Black strikebreakers . Each column shows the results of Equation 1 with differing control groups. Column (1) uses the full set of county-industry pairs outlined in Section 3. Column (2) uses only county-industry pairs in counties that experienced a strike between 1881-1894. Lastly, in Column (3) we use county-industry pairs in counties that experienced *any* strikebreaking events as our counterfactual for county-industry pairs that experienced *Black* strikebreaking events. Our preferred specification is Column (3) which suggests that the Black share of workers employed in county-industry pairs that experienced a strike broken by Black workers increased by 5.5 percentage points. This effect is quite large, as the average county-industry pair that would go on to experience a Black strikebreaking event consisted of only about 5.2% Black workers (see Table 1). This effect is also similar, although slightly smaller in magnitude, to the effect documented in Table 1 which directly compared differences in pre and post-treatment means across county-industry pairs that did and did not experience Black strikebreaking events.

Since the changes in the share of Black workers could be driven by changes in either the number of Black workers (the numerator) or the total number of workers (the denominator), Panels A and B of Appendix Table A6 replicate the specifications in Table

3 using the total number of workers and the number of Black workers as the dependent variables, respectively. This analysis uses a Poisson pseudo-maximum likelihood (PPML) estimation approach to account for the count nature of the dependent variables. These results suggest that county-industry pairs that experienced Black strikebreaking experienced increases in both the total number of workers and the number of Black workers. When taken together with the findings in Table 3, we conclude that the number of Black workers grew disproportionately as the result of Black strikebreaking when compared to the growth in the total number of workers.

Table 4 shows that our main empirical results in Table 3 are robust to a variety of different estimating techniques, time period restrictions, and controls. To address concerns about potential bias in difference-in-difference estimators with staggered treatment timing and heterogeneous treatment effects, Column (1) of Table 4 reports the estimated coefficients from the Sun and Abraham estimation procedure and Column (2) presents results from the Callaway and Sant'Anna estimation procedure (Sun and Abraham (2021), Callaway and Sant'Anna (2021)). In Column (3), we add state-linear time trends to address any potential concerns that state-level trends are driving our results. To address any concerns about labor disputes being fundamentally different across our relatively large sample period, in Column (4) we only use Black strikebreaking events that occurred between 1881 and 1894. In other words, we dropped any county-industry pairs that experienced a Black-strikebreaking event outside of the period 1881-1894, since our data from the Commissioner of Labor on all strikebreaking events covers only 1881 through 1894. In Column (5), we expand our analysis to include 1850 and 1860, data we initially dropped as the majority of the Black population was enslaved during this period. In Column (6) we limit our sample to only census years from 1910-1940 to alleviate any concerns stemming from census industries being imputed from occupations in all censuses prior to 1910. In Column (7), we drop the requirement of a balanced panel. In Column (8), we control for the percent of each county that is urban to verify

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that the increase in Black worker share is not driven by Black workers disproportionately moving into large urban counties. As some of our Black-strikebreaking events, such as longshoring and truck driving, align more closely with occupations than industries, in Column (9) we replicate our analysis using occupation codes from the 1950 Census as opposed to industry codes. Our units of observation for this specification are county-occupation pairs (rather than county-industry pairs) and treatment is defined based on assigning information on Black-strikebreaking events to 1950 occupation codes.[17] Across all specifications, we estimate positive and statistically significant results that are roughly similar to those presented in Table 3.[18]

We also document the dynamic effects of treatment on Black worker shares using an event study framework as outlined in Equation (2); these results are presented in Figure 2. We plot the coefficients from multiple regression specifications, including results derived using the estimation technique outlined in Sun and Abraham (2021) to address any bias associated with two-way fixed effects estimators. We also present a specification which restricts the sample to only county-industry pairs where the industry is one that, at some point, experienced a Black strikebreaking event. In all specifications, there are no differences in pre-trends across county-industry pairs that would eventually experience a strike broken by Black strikebreakers and those that would not. The event studies reveals that Black strikebreaking led to sustained increases in Black labor shares, with effects visible in the census immediately following the Black strikebreaking event and lasting up to four decades.

Panels A and B of Appendix Figure A1 replicate Figure 2 using the total number of workers and the total number of Black workers as dependent variables. These fig-

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[17]See Appendix Table A5 for information on how occupations codes were assigned to each of Black-strikebreaking event.

[18]Appendix Table A7 replicates these specifications using the total number of workers and the number of Black workers as dependent variables. Most specifications result in positive and statistically significant coefficients. In addition to the specifications discussed above, we add two additional specifications to this Appendix table. In Columns (10) and (11) we use ordinary least squares (OLS) estimation with $\log(y+1)$ and $\log(y)$ as our dependent variables as opposed to using the Poisson pseudo-maximum likelihood estimation approach. Results are qualitatively and quantitatively similar across specifications.

ures both show a slight pre-trend with an increase in the total number of workers and the number of Black workers in the county-industry pairs that would eventually experience Black-strikebreaking events, particularly when using the Sun and Abraham (2021) method. In other words, county-industry pairs that would eventually experience Black-strikebreaking events were growing more quickly (in terms of number of workers) than those that would not, but the *share* of Black workers across these two sets of county-industry pairs was trending similar for 30 years leading up to a Black-strikebreaking event, as documented by the constant pre-trend in Figure 2. After a Black-strikebreaking event occurs, we see a further increase in the total number of workers and the number of Black workers.

Lastly, we explore if these results are being driven by only a few industries, or if the effect is widespread across many industries that experienced a Black strikebreaking event. Figure 3 plots coefficient estimates from a set of regressions that focus on a single industry at a time.[19] In other words, we estimate Equation (1) separately for each industry in which Black strikebreakers were used. The dotted vertical line represents the coefficient estimate from Column (1) of Table 3. Each industry, with the exception of the coal industry, has a positive relationship between Black strikebreaking and the share of Black workers employed, with many of the estimates being statistically significant. The lack of a racial change in the composition of workers in the coal industry in counties that experienced Black strikebreaking is particularly interesting, as these strikes were notorious for being some of the most violent labor disputes. The largest effects seem to be in longshoring and the textile industry.

Taken together, these results suggest that Black strikebreaking increased access for Black workers in the county-industry pairs in which the strikes occurred. Our most conservative specification suggests that county-industry pairs that experienced Black strikebreaking events saw an increase in the share of Black workers by approximately

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[19]Appendix Figure A2 shows the analogous figure using the number of Black workers as the dependent variable.

2.6 percentage points, implying a 50% increase in Black labor share from the 1870 pre-Black strikebreaker level of 5.2% (see Table 1).

5.2 Individual Level Results

We now turn to an analysis of individual-level outcomes in 1940. We explore differences in the wages of White and Black workers across county-industry pairs that experienced Black strikebreaking events and those that did not. In this section, our main counterfactual is workers in industries that experienced Black strikebreaking events, but working in a county that did not experience such an event. Our main results are presented in Table 5, which provides estimates of Equation (3).

The dependent variable in Columns (1) and (2) is the log of an individuals annual income. The dependent variable in Columns (3) and (4) is the number of weeks worked. Lastly, the dependent variable in Columns (5) and (6) combines the previous two measures to document the log of weekly wages. Odd columns in this table include a control for if a given county-industry pair experienced a Black-strikebreaking event, while even columns use a full set of county-by-industry fixed effects. The main coefficients of interest are those associated with the *Black*Black Strikebreaker County-Industry* which document the effect of being a Black worker in a county-industry pair that experienced a Black-strikebreaking event between 1847 and 1934.

Columns (1) and (2) suggest that Black workers in Black-strikebreaking county-industry pairs had incomes that were approximately 6.2% higher than their Black counterparts in non-Black-strikebreaking county-industry pairs in 1940. In other words, the wage gap between Black and White workers was about 16% smaller in county-industry pairs that experienced a Black strikebreaking event than in similar county-industry pairs that did not experience a Black strikebreaking event. Columns (3) and (4) show that this result is not driven by a change in the number of weeks worked by Black workers in Black-strikebreaking county-industry pairs. If anything, these workers were able to earn

higher annual wages by working fewer weeks, although the later results are not statistically significant. Taken together, Columns (5) and (6) show that Black strikebreaking is associated with a 6.2% increase in the weekly wages of Black individuals working in county-industry pairs in which Black strikebreakers were used.

This analysis necessarily limits our sample to individuals observed in the 1940 Census, as this was the first census that collected information on wage income. As our data on Black strikebreaking events spans between 1847 and 1934, the previous results are estimating the combined effect of Black strikebreaking events that occurred between 5 and 90 years ago. Breaking these results down further by exploring heterogeneity based on when the Black strikebreaking event occurred provides insights into how persistent these effects are across time. Figure 4 shows the results from Equation (4), which allows the labor market effects of being a Black worker in a county-industry pair that experienced Black strikebreaking to vary based on when the strikebreaking event took place.[20] These results suggest that Black-strikebreaking events that occurred post-1900 had the largest effects on Black wages in 1940; however, the positive and marginally insignificant coefficient for the pre-1880 period provides suggestive evidence that effects of Black strikebreaking events persisted for over 50 years after the event took place.

We believe it is reasonable to restrict our sample of men to only those working in industries that experienced a Black strikebreaking event sometime during our study period. However, in Appendix Tables A9 and A10 we demonstrate the robustness of our results to using all men between the ages of 25 and 70 who were employed, wage workers, and worked more than 40 weeks in the prior year (1939). This larger sample provides results that are both qualitatively and quantitatively similar to the results presented in Tables 5 and Appendix Table A8.

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[20]The associated regression results are presented in Appendix Table A8.

6 Conclusion

Even before taking controversial roles as strikebreakers, Black workers faced persistent discrimination. Black workers were paid less than White workers, and exclusionary unions limited the labor market options of Black workers by denying them entry or suppressing their role and power within institutions and industries. Strikebreaking provided an opportunity to gain access to such industries and was not restricted by class or other social barriers. It provided an opportunity to achieve upward mobility for working-class individuals. While strikebreaking allowed Black workers to enter industries where they were categorically refused work, it exposed them to violence and sometimes threatened their lives.

In this paper, we empirically explore the extent to which Black strikebreakers improved the labor market opportunities of Black workers. To do so, we update a previously constructed dataset that documents the use of Black strikebreakers. Using this dataset, combined with complete count census data from 1870-1940 and the location of labor disputes between 1881-1894, we find that Black strikebreaking increased access to the strikebreaking industry in counties where the strike occurred. Results are robust to a comparison that includes only county-industry pairs that had a confirmed strike or strikebreaking incident and to various additional robustness checks. Furthermore, we find decreases in the Black-White wage gap in county-industry pairs that experienced Black strikebreaking.

These results are largely consistent across industries where Black strikebreaking occurred, with the coal industry being a notable exception. In coal-mining counties that experienced Black strikebreaking, we observe no significant change in the racial composition of coal workers. This divergence may be explained by the particularly violent nature of labor disputes in coal mining, which could have deterred long-term Black employment in the industry. The exceptionally high levels of violence documented in coal strikes may also help explain why Black strikebreaking events occurring between

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1881-1900, a period when many coal industry strikes took place, failed to produce the wage gap reductions observed in other time periods. These findings suggest that while strikebreaking served as a pathway for Black workers to enter previously inaccessible industries, the associated benefits of doing so depended on the level of hostility and violence they encountered.

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Figures and Tables

Figure 1: The Geography of Labor Disputes with and without Black Strikebreakers

(a) Occurrences of Black Strikebreaking (1847-1934)
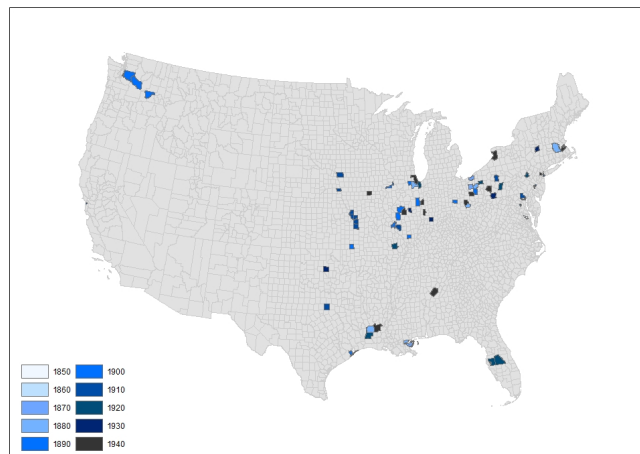
(b) Occurrences of Other Labor Disputes (1881-1894)
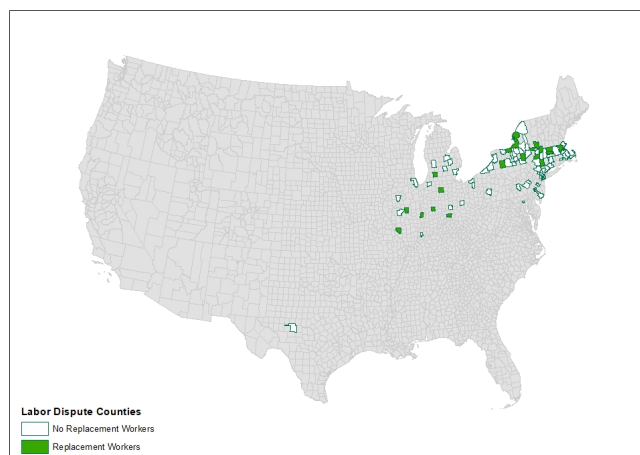
Notes: Panel A identifies counties in which at least one industry experienced a strike in which Black strikebreakers were employed, with darker shaded counties experiencing these events later in the sample period. The data was obtained from Whatley (1993) and Bonacich (1976) and was verified and expanded upon as outlined in Appendix A.1. See Tables A1, A2, and A3 in the Appendix for our list of Black-strikebreaking incidents. Panel B illustrates labor disputes between 1881 and 1894 documented by the U.S. Commissioner of Labor. Outlined counties experienced a strike in which no replacement workers were hired whereas shaded counties experienced a strike in which replacement workers were hired.

Figure 2: Event Studies of Black Strikebreaking and Black Industry Shares
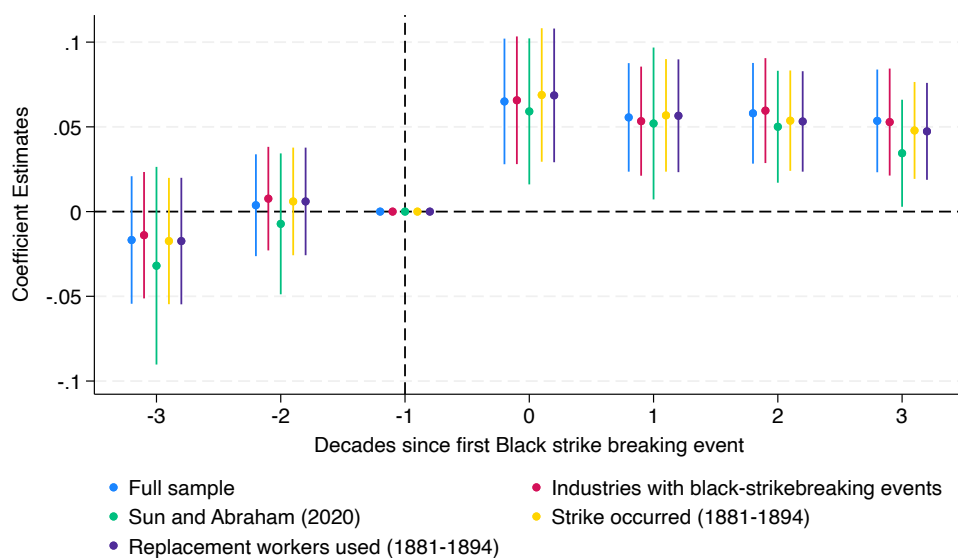
Notes: This figure plots the coefficients and 95% confidence intervals of the estimated β's from Equation (2). All regressions include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each unit of observation is a county-industry pair and data ranges from 1870-1930. Included are specifications that use various subsets of county-industry pairs as a control group for county-industry pairs that experienced Black-strikebreaking. Such control groups include the full balanced sample of untreated county-industry pairs, only counties in which a confirmed labor dispute occurred, only counties in which a labor dispute occurred and replacement workers were used, and only county-industry pairs aligning with Black-strikebreaking industries. We also include specifications that use the estimation procedure outlined in Sun and Abraham (2021).

Figure 3: Black Strikebreaking and Share Black of Workers by Industry
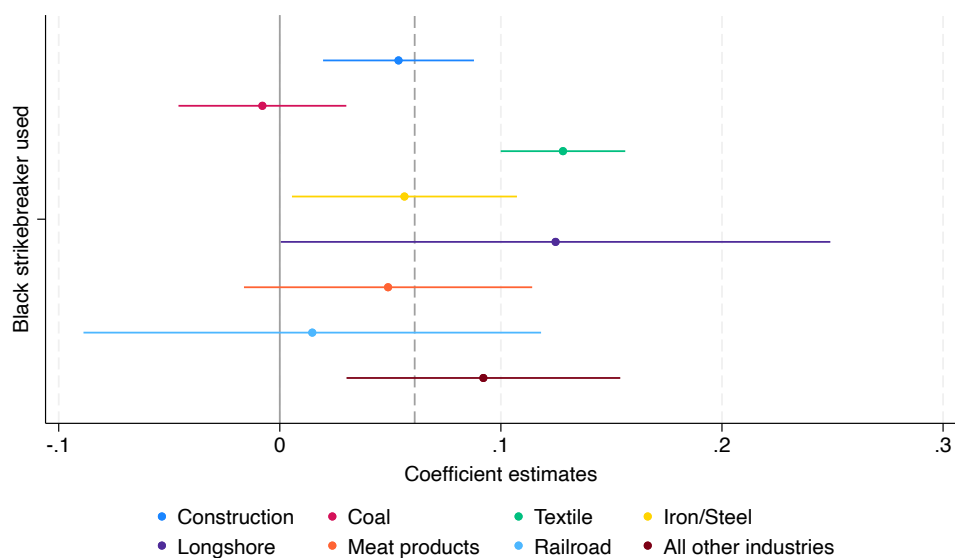
Notes: This figure plots coefficients and 95% confidence intervals associated with the β coefficient in Equation (1) estimated separately for industries that frequently employed Black-strikebreakers. All regressions include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each unit of observation is a county-industry pair and data ranges from 1870-1930.

Figure 4: Impact of Black Strikebreaking on Black Wages in 1940
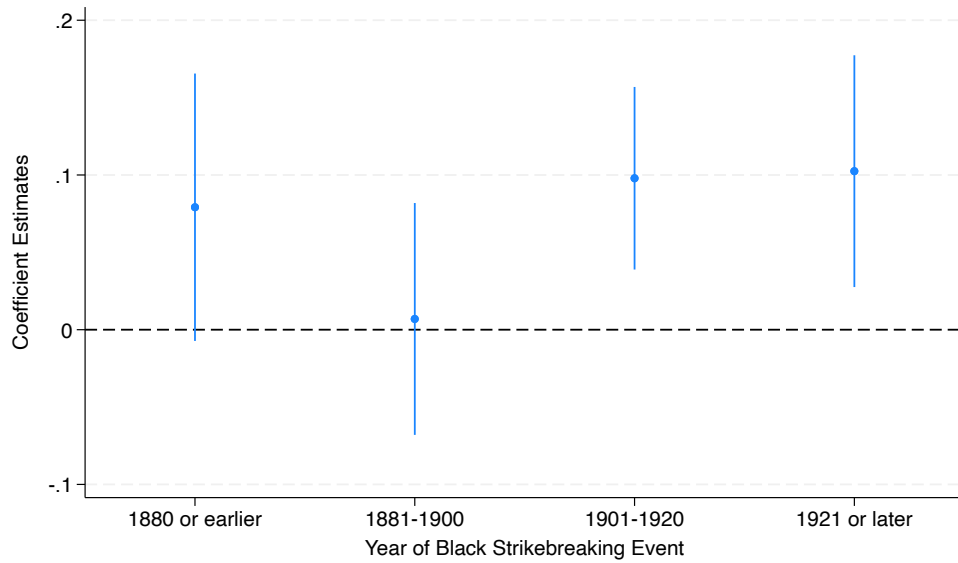
Notes: This figure plots the coefficients and 95% confidence intervals associated with the μ_t coefficients in Equation (4). The dependent variable is logged weekly wages. All regressions include controls for age fixed effects, years of schooling fixed effects, marital status (fixed effects), as well as county-by-industry fixed effects. The estimation sample includes men between the ages of 25 and 70 from the full count 1940 Census. Standard errors are clustered at the county-level.

Table 1: Black Share Before and After the use of Black Strikebreakers

	Pre (1870)	Post (1940)	**Difference**
Panel A: All county-industry pairs			
No Black strikebreaking (N=77941)	0.086	0.081	0.005***
			(0.001)
Black strikebreaking (N=50)	0.052	0.124	-0.072***
			(0.027)
Difference	0.034	-0.043*	0.077***
	(0.029)	(0.024)	(0.000)
Panel B: County-industry pairs in counties with strikes			
No Black strikebreaking (N=6234)	0.015	0.026	-0.011***
			(0.000)
Black strikebreaking (N=50)	0.052	0.124	-0.072***
			(0.027)
Difference	-0.037***	-0.098***	0.061***
	(0.008)	(0.008)	(0.000)
Panel C: County-industry pairs in counties using replacement workers			
No Black strikebreaking (N=5462)	0.015	0.027	-0.012***
			(0.001)
Black strikebreaking (N=50)	0.052	0.124	-0.072***
			(0.027)
Difference	-0.037***	-0.097***	0.060***
	(0.008)	(0.008)	(0.000)

Notes: This table displays the average share of Black workers for treated and untreated observations across the pre and post-treatment period. Our unit of observation is a county-industry pair. The "Pre" column presents data from 1870, before most counties experienced a Black-strikebreaking event. The "Post" column presents data from 1940, the last year in our sample. The third column presents the differences between the pre and post-treatment periods. Each panel presents data separately for "treated" and "untreated" county-industry pairs, as well as the differences by treatment status within a given year. The difference of these differences is also presented along with the results from a difference in means test (t-test). Panel A uses all non-treated county-industry pairs as a control group, Panel B uses only non-treated county-industry pairs in counties that experienced a strike between 1881 and 1894 as a control group, and Panel C uses only non-treated county-industry pairs in counties that experienced a strike that resulted in the use of replacement workers between 1881 and 1894 as a control group.

$* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$

Table 2: Individual level summary statistics - 1940 complete count Census

	Black strikebreaking county-industry			Non-Black strikebreaking county-industry		
	Black	White	Difference	Black	White	Difference
	(1)	(2)	(1)-(2)	(4)	(5)	(3)-(4)
Annual income (1939)	962.36	1538.17	-575.81***	732.52	1367.66	-635.14***
Weeks worked (1939)	50.64	50.79	-0.015***	50.70	50.60	0.10***
Weekly wage	19.01	30.27	-11.26***	14.46	26.97	-12.51***
Observations	45681	328894		337195	3350030	

Notes: This table displays summary statistics for our main dependent variables in our 1940 individual-level analysis. The sample includes men between the ages of 25 and 70 from the full count 1940 Census. Only men in an industry in which Black strikebreakers were used are included. Results are presented separately for white and Black men across "treated" and "untreated" county-industry pairs, as well as the difference across these subsets. The stars next to the differences represent the results from a difference in means test (t-test).

$* = p < 0.10$

$** = p < 0.05$

$*** = p < 0.01$

Table 3: Black Strikebreaking and Black Industry Shares

	(1)	(2)	(3)
Black Strikebreaker	0.061***	0.055***	0.055***
	(0.013)	(0.013)	(0.013)
Observations	545937	43988	38584
Mean of dep. var.	.095	.024	.024
Median of dep. var.	0	.002	.002
Only Black-strikebreaking industries	X	X	X
Only counties with strikes (1881-1894)		X	X
Only counties using replacement workers (1881-1894)			X

Notes: This table presents the estimated β coefficient and associated standard errors from Equation (1). Each observation represents a county-industry-year cell. The outcome variable is the share of workers in a given industry, county, census year that are Black. Years range from 1870-1940. All columns include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level.

$* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$

Table 4: Black Strikebreaking and Black Industry Shares - Robustness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Black Strikebreaker	0.043***	0.026*	0.026***	0.027***	0.043***	0.049**	0.053***	0.047***	0.057***
	(0.010)	(0.015)	(0.009)	(0.002)	(0.009)	(0.020)	(0.012)	(0.007)	(0.019)
Observations	43988	43770	43988	43662	44210	25020	67689	43785	67179
Mean of dep. var.	.024		.024	.023	.02	.028	.021	.023	.027
	Sun & Abraham (2021)	Callaway & Sant'Anna (2021)	State linear TT	Occurring between 1881-1894	1850-1940	1910-1940	Unbalanced panel	Percent urban	Occupation codes

Notes: This table presents the estimated β coefficient and associated standard errors for various robustness checks to Equation (1). In Columns (1)-(8) each observation represents a county-industry-year cell; in Column (9), each observation represents a county-occupation-year cell. The outcome variable is the share of workers in a given industry, county, census year that are Black. Years range from 1870-1940. All columns include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each robustness check is outlined in detail in Section 5.1.

$* = p < 0.10$

$** = p < 0.05$

$* * * = p < 0.01$

Table 5: Income, weeks worked, and wages

	Log(Annual Income)		Weeks worked		Log(Weekly Wage)	
	(1)	(2)	(3)	(4)	(5)	(6)
Black * Black Strikebreaker	0.084***	0.062**	-0.329	-0.040	0.091***	0.062**
County-Industry	(0.031)	(0.025)	(0.232)	(0.116)	(0.033)	(0.026)
Black	-0.447***	-0.398***	0.355***	0.079***	-0.454***	-0.399***
	(0.014)	(0.008)	(0.040)	(0.018)	(0.014)	(0.008)
Black Strikebreaker County-Industry	0.168***		0.191		0.164***	
	(0.016)		(0.139)		(0.017)	
Observations	4061800	4061800	4061800	4061800	4061800	4061800
County-industry FE		X		X		X

Notes: This table presents the β coefficients and associated standard errors from Equation (3). The sample includes men between the ages of 25 and 70 from the 1940 full count Census. Only men working in an industry that employed Black strikebreakers are included in the sample. The outcome variable is logged annual income in Columns (1) and (2), the number of weeks worked in Columns (3) and (4), and the log of weekly wage income in Columns (5) and (6). Odd columns control for whether or not the county-industry pair previously experienced a Black-strikebreaking event whereas even columns control for a full set of county-by-industry fixed effects. All regressions include controls for age fixed effects, years of schooling fixed effects, and marital status fixed effects. Standard errors are clustered at the county level.
$* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$

Appendix

A.1 Data on Black Strikebreakers

To fact check the data provided by Whatley (1993) and Bonacich (1976), we returned to the original source material using the citations specified in the published data tables. This involved finding hard copies of books when possible, and otherwise locating digital copies of articles or out-of-print texts. These came through open-access databases such as JSTOR and ProQuest. Although the majority of the data provided by Whatley and Bonacich was verifiable, there were four strikes we were not able to verify, most of which was due to the original source material not being available and the information not being corroborated by any other author. We altered the citations for seven strikes because other sources offered more complete information on the strikes. In all, after fact-checking, 131 of the 141 strikes cited by Whatley and Bonacich could be verified with reasonable confidence.

After vetting the existing lists of strikebreaker usages, we searched for additional strikes not included in the original data to create the most comprehensive collection of Black strikebreaking possible. Within the sources cited by Whatley and Bonacich we discovered 17 more instances of strikebreaking that they had overlooked or omitted. Many of these strikes were concurrent and may have been omitted under the impression that they were all part of one larger movement, but because we are concerned with location, all strikes that occurred in the same year and industry but in different cities were returned to the data set. After examining these articles, we searched a variety of online archives for additional strikes that had not fallen under the purview of Whatley and Bonacich's sources. These included both historical newspapers and peer-reviewed studies. While we used several books in physical and electronic format, none of them contained information on new strikes and so were discarded.

Using the search term "strikebreaker" paired with each of the terms "Black," "negro,"

and "colored" generated the most relevant articles. The term "replacement worker" was not included because it was not specific enough to strikebreakers and because it was less commonly used. We searched a variety of online archives and databases, focusing on contemporary newspapers from 1850 to 1930. America's Historical Newspapers, an archive compiling thousands of issues from hundreds of newspapers across the U.S., provided ten articles. These articles are typical one or two paragraphs long, detailing strikebreakers who were victims of crime or who committed crimes, as well as where and for whom they worked. JSTOR generated the most scholarly research on additional Black strikebreaking, with six new studies' data to be incorporated. These studies were typically focused on a single industry or a single major strike. ProQuest Historical Newspapers, which provides access to 14 historical newspapers from major cities across the United States yielded two additional articles. Finally, Access World News offered only one additional article. Because of their purpose, America's Historical Newspapers, ProQuest Historical Newspapers, and Access World News all had very similar archives of American newspapers and journals and all three covered the entirety of the time period we are considering. All together, the searches of these four databases discovered 18 additional sources (including 13 newspaper articles) that detailed 29 additional strikes.

These additional data were incorporated to create a final data set composed of 131 verified strikes from Whatley and Bonacich's data, together with the 17 strikes discovered in the original sources and the 29 found in additional searches of archives. These 177 distinct and verified strikes form the basis of our examination of Black strikebreakers from 1850 to 1930.

Figure A1: Event Studies of Black Strikebreaking, Total Number of Workers, and Number of Black Workers
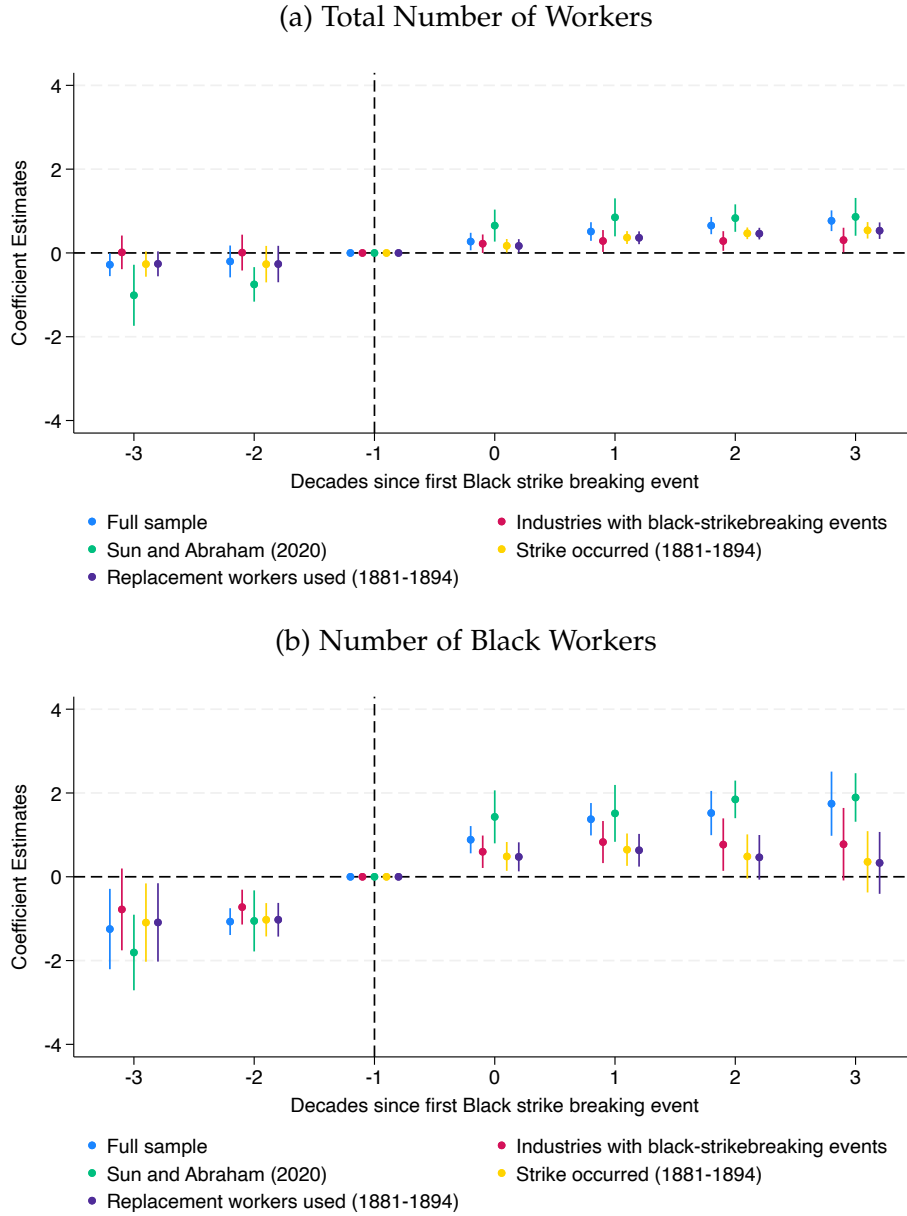
(a) Total Number of Workers

(b) Number of Black Workers

Notes: This figure plots the coefficients and 95% confidence intervals of the estimated β's from Equation (2), where the dependent variable is the total number of workers in a county-industry pair in Panel (a) and the number of Black workers in Panel (b). All regressions include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each unit of observation is a county-industry pair and data ranges from 1870-1940. Included are the same specifications as outlined in Figure 2.

Figure A2: Black Strikebreaking and the Number of Black Workers by Industry
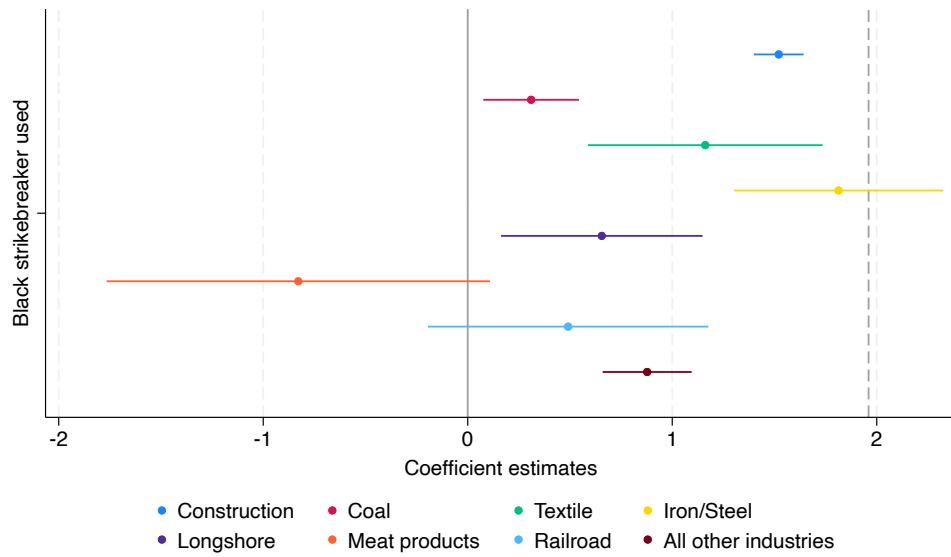
Notes: This figure plots coefficients and 95% confidence intervals associated with the β coefficient in Equation (1) estimated on various subsamples of data corresponding with common Black-strikebreaking industries. The dependent variable is the number of Black workers in a county-industry pair. All regressions include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each unit of observation is a county-industry pair and data ranges from 1870-1940. The set of control county-industry pairs used in this analysis is limited to counties in which a strike occurred between 1881 and 1894. PPML is used for the estimation.

Table A1: Strikes in Which Blacks Were Used as Strikebreakers, 1847-1899

Year	Industry	Location	Year	Industry	Location
1847	Iron/Steel	Richmond			
1853	Railroad	-	1886	Metal Trades	Springfield
1855	Longshore	New York	1886	Railroad Shop	St. Louis
1856	Longshore	New York	1886	Railroad	Western Arkansas
1862	Railroad	-	1887	Hotel	Chicago
1863	Longshore	New York	1887	Longshore	New York
1863	Longshore	Albany	1888	Coal/Iron	Pittsburgh
1863	Longshore	Boston	1888	Coal	Roslyn
1863	Longshore	Buffalo	1889	Coal/Iron	Pittsburgh
1863	Longshore	Chicago	1889	Coal/Iron	Pittsburgh
1863	Longshore	Cleveland	1889	Coal	Punxsutawney
1863	Longshore	Detroit	1891	Coal	Newcastle/Franklin
1865	Building	New Orleans	1891	Coal	Mystic
1866	Ship Caulking	Boston	1892	Iron/Steel	Homestead
1870	Steel	Pittsburgh	1892	Coal	-
1874	Coal	Hocking Valley	1893	Railroad	Birmingham
1874	Coal	Brazil	1893	Coal	Weir City
1874	Coal	Freeburgh	1894	Coal	-
1874	Coal	Clay County	1894	Railroad	Chicago
1874	Coal	Massilon	1894	Meat Packing	Chicago
1875	Coal	-	1895	Coal	-
1875	Iron/Steel	Pittsburgh	1895	Coal	Southern West Virginia
1875	Iron/Steel	Pittsburgh	1895	Longshore	New York
1877	Coal	Braidwood	1895	-	Chicago
1878	Iron/Steel	Pittsburgh	1895	Railroad	Birmingham
1878	Iron/Steel	Sharpsburgh	1896	Coal	-
1878	Coal	Coal Creek	1896	Machine Works	Cleveland
1880	Coal	Ohio Tuscaras Valley	1896	Coal	Weir City
1880	Coal	Monroe County	1898	Iron/Steel	Chicago
1880	Coal	Rapid City	1898	Coal	Pana
1880	Coal	Springfield	1898	Coal	Virden
1884	Coal	Hocking Valley	1898	Coal	Carterville
1886	Coal	Grape Creek	1899	Coal	Carterville
1886	Coal	Joliet	1899	Coal	Weir City
1886	Coal	Lemon	1899	Iron/Steel	Birmingham
1886	Coal	Coshocton	1899	Longshore	New York
1886	Meat Packing	Chicago	1899	Iron/Steel	Sharpsburgh

Notes: This table reproduces the information about Black-strikebreaking incidents between 1847 and 1899 as given in Whatley (1993) and Bonacich (1976).

Table A2: Strikes in Which Blacks Were Used as Strikebreakers, 1900-1934

Year	Industry	Location	Year	Industry	Location
1900	Building	Chicago			
1900	Longshore	Baltimore	1918	Hotel	Chicago
1900	Iron/Steel	Philadelphia	1919	Food	Argo
1901	Longshore	San Francisco	1919	-	Detroit
1901	Steel	Pittsburgh	1919	Longshore	Tampa
1902	Coal	-	1919	Longshore	San Francisco
1903	Longshore	New Orleans	1919	Meat Packing	Chicago
1904	Meat Packing	Chicago	1919	Phosphate	-
1904	Meat Packing	St. Joseph	1919	Steel	widespread
1904	Meat Packing	Sioux City	1919	Railroad	-
1904	Meat Packing	Omaha	1919	Building	New York
1904	Meat Packing	Kansas City	1919	Corn Refining	Chicago
1904	Meat Packing	Fort Worth	1920	Garment	Chicago
1904	Coal	Birmingham	1920	Restaurant	Chicago
1905	Trucking	Chicago	1921	Meat Packing	Chicago
1906	Longshore	Brooklyn	1921	Garment	Philadelphia
1907?	Longshore	New Orleans	1921	Meat Packing	Chicago
1907	Longshore	New York	1921	Metal Trades	Detroit
1907	Steel	Connellsville	1921	Meat Packing	widespread
1909	Railroad	-	1922	Coal	Pennsylvania
1909	Steel	McKees Rocks	1922	Railroad	widespread
1910	Trucking	New York	1922	Railroad Shop	Chicago
1911	Building	Washington	1923	Brick Making	Newark
1911	Lumber	-	1923	Longshore	New Orleans
1911	Railroad	widespread	1924	Coal	-
1912	Lumber	Merryville	1925	Coal	N. West Virginia
1916	Railroad	Chicago	1925-1930	Paper Box/Fur/	New York
1916	Garment	Chicago		Garment Laundry	
1916	Longshore	Baltimore	1926	Fig/Date Packing	Chicago
1916	Meat Packing	E. St. Louis	1927	Coal	Western PA
1917	Aluminum	E. St. Louis	1927	Coal	-
1917	Garment	Chicago	1928	Coal	Ohio
1917	Sugar Refining	Philadelphia	1929	Longshore	Boston
1918	Garment	Chicago	1934	Coal	Birmingham

Notes: This table reproduces the information about Black-strikebreaking incidents between 1900 and 1934 as given in Whatley (1993) and Bonacich (1976).

Table A3: Newly Identified Strikes in Which Blacks Were Used as Strikebreakers, 1847-1934

Year	Industry	Location	Year	Industry	Location
1875	Coal		1916	Paper Makers	Nyack
1878	Railroad		1916	Steel	Youngstown
1880	Coal	Pittsburgh	1916		New York City
1890	Coal	Dana	1916	Longshore	Seattle
1892	Coal	North W.V.	1916	Longshore	San Francisco
1894	Railroad	Chicago	1917	Railroad	Tulsa
1895		New York City	1919	Steel	Homestead
1898	Longshore	Galveston	1919	Steel	Buffalo
1899	Coal	Ardmore	1919	Steel	Youngstown
1899	Coal		1919	Steel	Chicago
1901	Steel	Chicago	1919	Steel	Pittsburgh
1902	Longshore	New Orleans	1919	Steel	Gary
1904	Meat Packing	Kansas City	1919	Steel	Donora
1904	Stablemen	San Francisco	1919	Steel	Johnstown
1908	Coal	Birmingham	1920		San Francisco
1910	Coal	Latrobe	1920	Longshore	Philadelphia
1910		New York City	1920	Longshore	New York City
1911		New York City	1921	Railroad	
1911	Phosphate	Charleston	1922	Packing	Fort Worth
1912	Railroad	New Orleans	1922	Meat Packing	Oklahoma City
1912	Waiters	New York City	1922	Coal	
1912	Coal	Paint Creek and Cabin Creek	1923	Screwman	New Orleans
1912	Firemen	Florida East Coast	1925	Coal	Pittsburgh
1913	Coal	Denver	1927	Longshore	New York

Notes: This table documents the newly identified Black-strikebreaking incidents not previously documented by Whatley (1993) or Bonacich (1976). The data collection process is discussed in section A.1 of the Appendix.

Table A4: Industry Codes assigned to Strikebreaking Industries

Striking Industry	1950 Industry Code (IND1950)	1950 Industry Description
Brick making	318	Structural clay products
Coal	216	Coal mining
	477	Miscellaneous petroleum and coal products
Construction	246	Construction
Corn Refining	409	Grain-mill products
	419	Miscellaneous food preparations and kindred products
Garment	436	Knitting mills
	437	Dyeing and finishing textiles, except knit goods
	438	Carpets, rugs, and other floor coverings
	439	Yarn, thread, and fabric mills
	446	Miscellaneous textile mill products
	448	Apparel and accessories
	449	Miscellaneous fabricated textile products
Hotel	836	Hotels and lodging places
Iron/Steel	336	Blast furnaces, steel works, and rolling mills
	337	Other primary iron and steel industries
Longshore	527	Warehousing and storage
	546	Water transportation
Lumber	306	Logging
	307	Sawmills, planing mills, and mill work
	308	Miscellaneous wood products
Meat products	406	Meat products
Railroad	506	Railroads and railway express service
Truck	526	Trucking service

Notes: This table documents the authors' assignment of strikebreaking industries to 1950 industry codes from IPUMS (Ruggles et al., 2021).

Table A5: Occupation Codes assigned to Strikebreaking Industries

Striking Industry	1950 Occupation Code (OCC1950)	1950 Occupation Description
Coal	650	Mine operatives and laborers
Construction	510	Carpenters
	511	Cement and concrete finishers
	513	Cranemen, derrickmen, and hoistmen
Garment	675	Spinners, textile
	684	Weavers, textile
Iron/Steel	641	Furnacemen, smeltermen and pourers
	642	Heaters, metal
Longshore	940	Longshoremen and stevedores
Lumber	674	Sawyers
	950	Lumbermen, raftsmen, and woodchoppers
Railroad	203	Conductors, railroad
	541	Locomotive engineers
	542	Locomotive firemen
	553	Mechanics and repairmen, railroad and car shop
	624	Brakemen, railroad
	681	Switchmen, railroad
Truck	683	Truck and tractor drivers

Notes: This table documents the authors' assignment of strikebreaking industries to 1950 occupation codes from IPUMS (Ruggles et al., 2021).

Table A6: Black Strikebreaking and Number of Black Workers

	(1)	(2)	(3)
	Panel A: Total number of workers		
Black Strikebreaker	0.683***	0.441**	0.431**
	(0.179)	(0.179)	(0.177)
Observations	545937	43785	38381
Mean of dep. var.	959.405	3159.149	3455.293
Median of dep. var.	33	160.009	180
	Panel B: Number of Black workers		
Black Strikebreaker	1.960***	1.180***	1.160***
	(0.266)	(0.325)	(0.324)
Observations	397383	38024	33586
Mean of dep. var.	150.731	146.186	160.114
Median of dep. var.	1	1	1.965
Only Black-strikebreaking industries	X	X	X
Only counties with strikes (1881-1894)		X	X
Only counties using replacement workers (1881-1894)			X

Notes: This table presents the estimated β and associated standard errors from Equation (1). Each observation represents a county-industry-year cell. The outcome variable in Panel A is the total number of workers in a given industry, county, census year, and the outcome variable in Panel B is the number of black workers in a given industry, county, census year. Years range from 1870-1940. All columns include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. PPML is used for the estimation.

$* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$

Table A7: Black Strikebreaking and Number of Black Workers - Robustness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
					Panel A: Total number of workers						
Black Strikebreaker	1.158***	0.533***	0.364***	1.478***	0.575***	0.167	0.419**	0.436**	0.797***	0.705**	0.682**
	(0.214)	(0.202)	(0.085)	(0.085)	(0.220)	(0.147)	(0.182)	(0.179)	(0.178)	(0.282)	(0.282)
Observations	43988	43770	43785	43662	44210	25020	67407	43785	67179	43785	43785
Mean of dep. var.	5.185	3159.149	3159.149	3115.344	3229.314	4102.513	2340.544	3159.149	963.40	5.177	5.14
					Panel B: Number of Black workers						
Black Strikebreaker	2.007***	1.728***	0.915***	1.300***	1.099***	0.697**	1.156***	1.180***	0.747***	2.345***	1.950***
	(0.267)	(0.388)	(0.157)	(0.182)	(0.304)	(0.336)	(0.313)	(0.323)	(0.229)	(0.254)	(0.302)
Observations	43988	38009	38024	37901	39746	20884	51610	38024	51534	43785	22896
Mean of dep. var.	1.374	146.186	146.186	142.57	124.538	227.478	119.425	146.186	57.83	1.363	2.312
	Sun & Abraham (2021)	Callaway & Sant'Anna (2021)	State linear TT	Occurring between 1881-1894	1850-1940	1910-1940	Unbalanced panel	Percent urban	Occupation codes	Log(y+1)	Log(y)

Notes: This table presents the estimated β and associated standard errors for various robustness checks to Equation (1). Each observation represents a county-industry-year cell. The outcome variable is the share of workers in a given industry, county, census year that are Black. Years range from 1870-1940 in all columns except columns (5) and (6). In column (5) the years range from 1850-1940 and in column (6) they range from 1910-1940. All columns include census year fixed effects and county-by-industry fixed effects. Standard errors are clustered at the county-level. Each robustness check is outlined in detail in Section 5.1. PPML is used for the estimation in columns (1)-(9). OLS is used for the estimation in columns (10) and (11).

$* = p < 0.10$

$** = p < 0.05$

$*** = p < 0.01$

Table A8: Incomes, weeks worked, and wages - by decade of strikebreaking event

	Log(Annual Income)		Weeks worked		Log(Weekly Wage)	
	(1)	(2)	(3)	(4)	(5)	(6)
Black * Black Strikebreaker	0.059	0.078*	0.193	-0.049	0.055	0.079*
1880 or earlier	(0.059)	(0.045)	(0.190)	(0.097)	(0.059)	(0.044)
Black * Black Strikebreaker	0.049	0.012	0.354	0.248**	0.041	0.007
1881-1900	(0.038)	(0.038)	(0.334)	(0.113)	(0.040)	(0.038)
Black * Black Strikebreaker	0.121***	0.101***	0.053	0.145	0.120***	0.098***
1901-1920	(0.032)	(0.029)	(0.222)	(0.102)	(0.034)	(0.030)
Black * Black Strikebreaker used	0.060	0.104***	-1.185	0.082	0.084*	0.102***
1921 or later	(0.057)	(0.033)	(0.854)	(0.268)	(0.046)	(0.038)
Black	-0.491***	-0.412***	-0.000	-0.173	-0.490***	-0.409***
	(0.038)	(0.037)	(0.342)	(0.118)	(0.039)	(0.037)
Observations	4061800	4061800	4061800	4061800	4061800	4061800
County-industry FE		X		X		X

Notes: This table presents the β coefficients and associated standard errors from Equation (4). The sample includes men between the ages of 25 and 70 from the 1940 full count Census. Only men working in an industry that employed Black strikebreakers are included in the sample. The outcome variable is logged annual income in Columns (1) and (2), the number of weeks worked in Columns (3) and (4), and the log of weekly wage income in Columns (5) and (6). Odd columns control for whether or not the county-industry pair previously experienced a Black-strikebreaking event whereas even columns control for a full set of county-by-industry fixed effects. All regressions include controls for age fixed effects, years of schooling fixed effects, and marital status fixed effects. Standard errors are clustered at the county level.

$* = p < 0.10$

$** = p < 0.05$

$*** = p < 0.01$

Table A9: Income, weeks worked, and wages; only Black-strikebreaking industries

	Log(Annual Income)		Weeks worked		Log(Weekly Wage)	
	(1)	(2)	(3)	(4)	(5)	(6)
Black * Black Strikebreaker	0.200***	0.058**	-0.212	-0.052	0.205***	0.059**
County-Industry	(0.034)	(0.025)	(0.236)	(0.118)	(0.036)	(0.026)
Black	-0.552***	-0.400***	0.212***	0.055***	-0.556***	-0.401***
	(0.020)	(0.010)	(0.025)	(0.012)	(0.020)	(0.010)
Black Strikebreaker County-Industry	0.164***		-0.232*		0.169***	
	(0.019)		(0.132)		(0.021)	
Observations	13348651	13348651	13348651	13348651	13348651	13348651
County-industry FE		X		X		X

Notes: This table presents the β coefficients and associated standard errors from Equation (3). The sample includes men between the ages of 25 and 70 who were employed, wage workers, and worked more than 40 weeks in the prior year (1939). The outcome variable is logged annual income in Columns (1) and (2), the number of weeks worked in Columns (3) and (4), and the log of weekly wage income in Columns (5) and (6). Odd columns control for whether or not the county-industry pair previously experienced a Black-strikebreaking event whereas even columns control for a full set of county-by-industry fixed effects. All regressions include controls for age fixed effects, years of schooling fixed effects, and marital status fixed effects. Standard errors are clustered at the county level. $* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$

Table A10: Incomes, weeks worked, and wages - by decade of strikebreaking event; only Black-strikebreaking industries

	Log(Annual Income)		Weeks worked		Log(Weekly Wage)	
	(1)	(2)	(3)	(4)	(5)	(6)
Black * Black Strikebreaker	0.129***	0.074*	0.175	-0.064	0.126***	0.075*
1880 or earlier	(0.047)	(0.044)	(0.175)	(0.099)	(0.047)	(0.043)
Black * Black Strikebreaker	0.011	0.014	0.322	0.255**	0.004	0.008
1881-1900	(0.034)	(0.038)	(0.330)	(0.115)	(0.034)	(0.038)
Black * Black Strikebreaker	0.206***	0.097***	0.166	0.143	0.202***	0.094***
1901-1920	(0.028)	(0.031)	(0.219)	(0.101)	(0.029)	(0.032)
Black * Black Strikebreaker used	0.081	0.103***	-1.062	0.078	0.103**	0.101***
1921 or later	(0.059)	(0.033)	(0.836)	(0.276)	(0.046)	(0.038)
Black	-0.559***	-0.415***	-0.112	-0.202*	-0.557***	-0.410***
	(0.036)	(0.038)	(0.336)	(0.119)	(0.035)	(0.039)
Observations	13348651	13348651	13348651	13348651	13348651	13348651
County-industry FE		X		X		X

Notes: This table presents the β coefficients and associated standard errors from Equation (4). The sample includes men between the ages of 25 and 70 who were employed, wage workers, and worked more than 40 weeks in the prior year (1939). The outcome variable is logged annual income in Columns (1) and (2), the number of weeks worked in Columns (3) and (4), and the log of weekly wage income in Columns (5) and (6). Odd columns control for whether or not the county-industry pair previously experienced a Black-strikebreaking event whereas even columns control for a full set of county-by-industry fixed effects. All regressions include controls for age fixed effects, years of schooling fixed effects, and marital status fixed effects. Standard errors are clustered at the county level. $* = p < 0.10$
$** = p < 0.05$
$*** = p < 0.01$