

Comments and Discussion

COMMENT BY

NICOLE FORTIN Sixty years after the passage of the Civil Rights Act, we will remember 2020 not only as the start of the COVID-19 pandemic but also because of the waves of protest against anti-Black racial injustice that followed the death of George Floyd at the hands of the police. For many economists, it was not difficult to acknowledge the existence of racism in law enforcement and the justice system. Economists have long been aware of this type of anti-Black discrimination and studied its extent and origin (Rehavi and Starr 2014; Goncalves and Mello 2021).

However, in terms of discrimination in the labor market, many are doubtful because it does not make economic sense according to Becker's (1957) taste-based theory of discrimination. Firms leave money on the table when they discriminate against Black workers by not employing them. Nevertheless, numerous papers, starting with Bertrand and Mullainathan (2004) experimenting with correspondence resumes, have found that job applicants with Black-sounding names received significantly lower callback rates than job applicants with white-sounding names. More recently, in a much larger experiment, Kline, Rose, and Walters (2021) found that company-specific racial gaps in contacts with applicants are negatively correlated with firm profitability: more profitable firms are less biased against Black applicants.¹ Reducing biases against minority groups may reap economic benefits.

Buckman, Choi, Daly, and Seitelman take this point further by asking how much aggregate output would be gained if differences in labor market

1. The authors find that the contact gaps are highly concentrated in particular companies: 23 out of 108 Fortune 500 US employers are responsible for nearly half of lost contacts to Black applicants in the experiment.

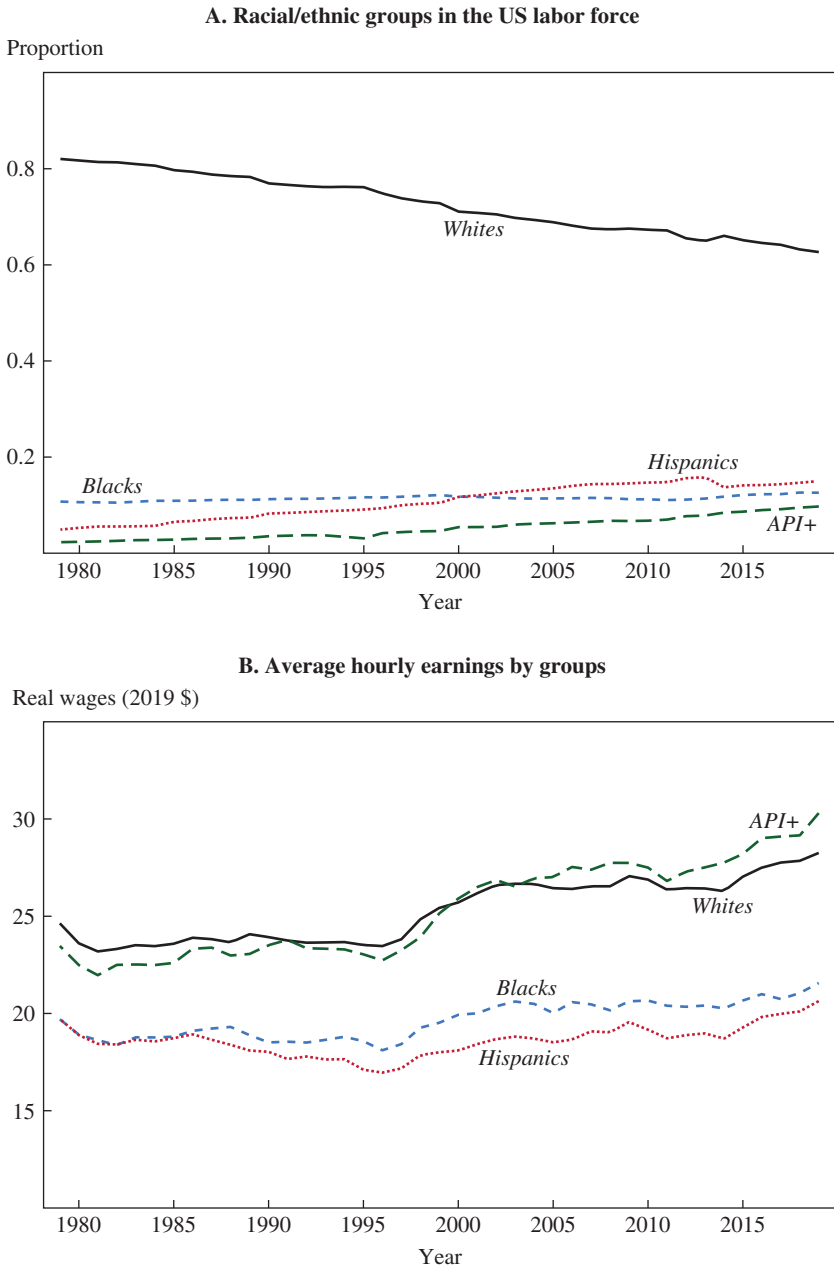
outcomes across racial/ethnic groups were erased. Now the argument that more equitable outcomes matter for both the level of GDP and the process of sustained economic growth will be even stronger in the future. Indeed, as America needs to welcome more immigrants from around the world, these will primarily fuel the ranks of minority groups. As shown in figure 1, panel A, the fraction of workers from the long-standing majority group, non-Hispanic white workers, is slowly diminishing over time: non-Hispanic white workers represented 63 percent of workers in 2019, down from 82 percent in 1979.²

More precisely, this ambitious, thought-provoking paper asks, “How much larger would the US economic pie be if opportunities and outcomes were more equally distributed by race and ethnicity?” The authors evaluate the impact on the labor contribution to GDP over thirty years in light of the question, What if Black and Hispanic workers had outcomes similar to those of non-Hispanic white workers? They focus on five outcomes of interest: employment, hours of work, educational attainment, educational utilization, and earnings gaps not explained by these and other productivity-related indicators. There are three notable features of this paper by comparison with the previous literature on the benefits of closing labor market gaps.

First, the authors consider a wider span of racial and ethnic groups that includes the typical non-Hispanic Black group, but also other groups with a high percentage of foreign-born workers, namely, Hispanic and other non-Hispanic, non-white, and non-Black individuals (e.g., Asian, Pacific Islander, American Indian) called API+. This addition reflects existing disparities in the labor market, as shown in figure 1, panel B. Hispanic workers have lower real average hourly earnings than Black workers, while API+ workers appear to have higher earnings than the majority group since 2000. The latter implies that in the construction of counterfactuals below, the substitution of non-Hispanic white earnings value for racial and ethnic groups will generally not apply to API+ groups. This grouping innovation opens up several issues regarding immigration policies and the potential (or lack thereof) to close differences in educational attainment for adult immigrants. These issues are discussed in more detail below.

2. These computations use the demographic groups defined by Buckman, Choi, Daly, and Seitelman: “White” for non-Hispanic white workers, “Black” for non-Hispanic Black workers, “Hispanic” for Hispanic workers of all races, and API+ for all remaining non-Hispanic, non-white, and non-Black individuals (e.g., Asian, Pacific Islander, American Indian). The analysis also focuses on employed workers age 25–64 using the CPS-MORG data, but uses the same variable construction as in Fortin, Lemieux, and Lloyd (2021).

Figure 1. Demographic Weights and Average Hourly Earnings by Racial/Ethnic Groups



Source: Author's calculations using CPS-MORG 1979-2019, employed workers age 25-64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

Second, by performing the analysis annually for thirty years, from 1990 to 2019, the paper shows that the potential gains from erasing inequities are increasing over time. Unfortunately, starting in 1990 rather than 1980 misses a critical historical period in the erosion of policies and labor market institutions meant to support the most vulnerable workers, as shown in DiNardo, Fortin, and Lemieux (1996) and documented below. Therefore, the paper bypasses important insights to be learned from the past.

Third, the particular focus on employment opportunities helps connect the dots between the above well established but narrow experimental literature on discrimination in callback rates and more significant consequences for the labor market. Disparities in employment and hours worked are an often neglected dimension of this literature, and this paper fills a critical gap.

METHODS AND RESULTS The authors present two sets of counterfactuals; the first focuses on closing the gaps in earnings, the second on closing gaps in underlying factors to identify which factor yields the greatest gains. In the first instance, a group-specific counterfactual labor earnings contribution to total GDP is computed by multiplying the group's worker share and the average annual earnings of the majority group when group-specific earnings are lower. These counterfactual earnings, obtained by changing prices, provide the basis against which incremental gains from changing each factor will be assessed. The gains themselves are computed as the difference between observed group-specific labor earnings and the counterfactual group-specific labor earnings when minority group earnings are brought to at least the level of the majority group. For Black workers, the economic gains from getting counterfactual white earnings have remained relatively steady in percentage terms; their labor earnings contribution to GDP would have increased from 3.8 to 4.6 percent over the sample period. On the other hand, the overall counterfactual gains from labor income shows more substantial increases, from about 7.6 percent in 1990 to 10.2 percent in 2019, owing to the Hispanic share rising over the period.

Another set of counterfactuals is constructed at a disaggregated cell level (thirty-two cells for age, gender, and racial/ethnic group). The first two steps evaluate changes in employment rates and average weekly hours when the minorities' quantities are lower than the non-Hispanic white quantities, priced at the group-specific average hourly wage. In terms of contributions to labor earnings, employment rates stand at 2.1 percent and 2.2 percent in 1990 and 2019. The contributions of hours are much lower at 0.7 percent and 0.9 percent. Both contributions vary less over time.

In a third step, the counterfactuals adjust the entire vector of educational attainment in each cell to that of the majority in cases where the minority shares of those with at least some college are lower than in the majority group. From this imputed educational distribution, the authors derive new group-specific wages, changing prices in construction of this counterfactual. A fourth step boosts group-specific average earnings by changing the education utilization for racial and ethnic minorities when it is lower than for non-Hispanic white workers. Changing prices and quantities implies multiplicative effects or interaction terms, which lead to adding up issues, but they appear minor, as acknowledged by the authors. Here the percentage gains of labor earnings contributions from education and utilization show sizeable increases from 1.2 percent to 2.9 percent and from 0.1 percent to 0.6 percent, respectively, in 1990 and 2019. Finally, a fifth step adjusts whatever remains in residual earnings to match those of the majority group.

The main takeaway is that eliminating racial and ethnic disparities in employment rates and educational attainment makes the most significant contributions among the factors analyzed. However, when looking at the relative importance of these factors for Black workers, the authors find much smaller gains from equalizing education in 2019, in particular. More importantly, consistent with prior research, the authors find that residual earnings gaps play the largest role in generating GDP gains. These gains arising from unexplained sources are largest for Black workers and do not diminish over time. This finding is consistent with the cited literature that finds little progress in reducing residual earnings gaps over the sample period. Further disaggregation shows employment gaps and hours gaps play a more significant role for Black men than Black women, especially in 2019, while it is the reverse for educational attainment.

These results suggest the existence of barriers to equal educational and labor market opportunities for minority groups. However, it is also possible that policies meant to apply universally have differential impacts across racial/ethnic groups, making potential discriminatory effects more difficult to discern.

THE LABOR ECONOMIST'S VIEWPOINT The following points of discussion come from the viewpoint of the labor economist in terms of policies that might help materialize the gains. These policies include immigration policies, affirmative action measures, and labor market institutions, namely, labor unions and minimum wages. These two last sets of measures long protected the most vulnerable workers, including minorities. Indeed, Farber and others (2021) find that from the 1940s to the 1990s, unions conferred a sizeable (10–20 percent) family income premia to non-white and less

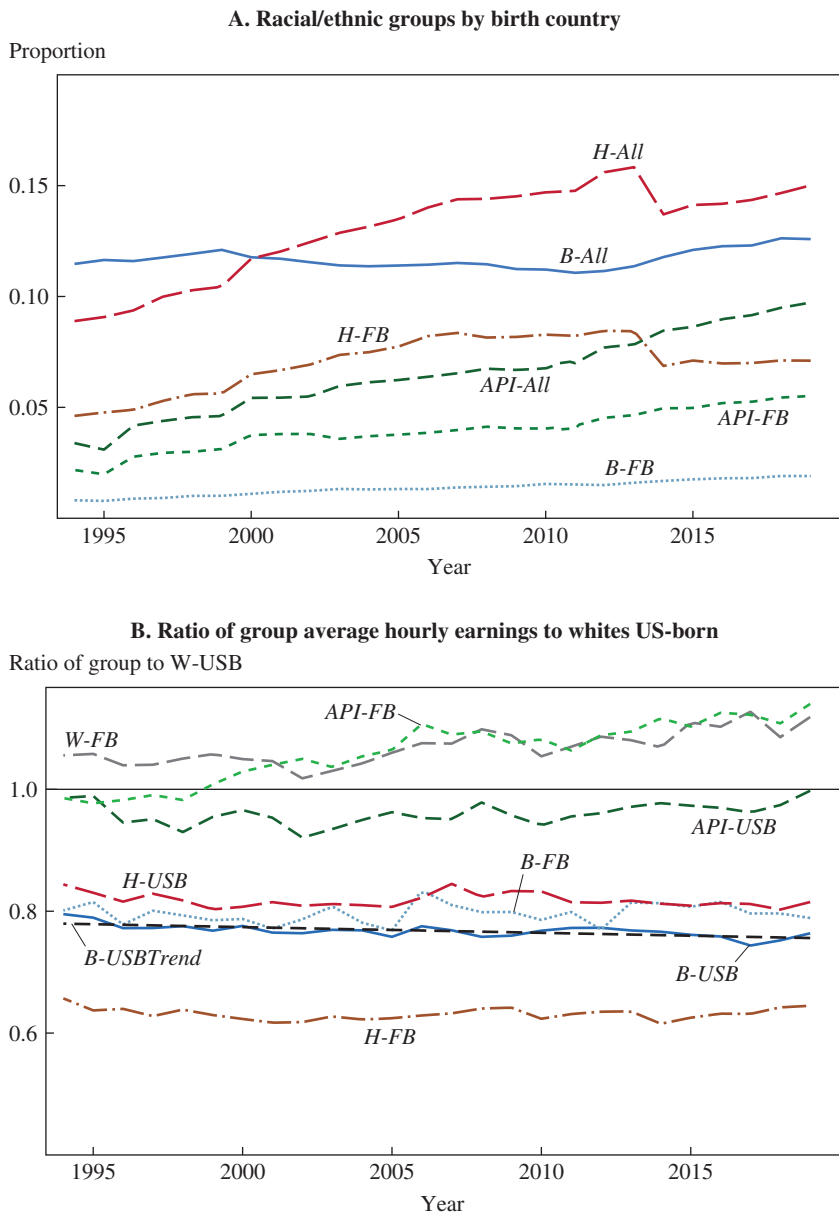
educated households, who were overrepresented among union members.³ Using compelling research designs, Derenoncourt and Montialoux (2021) show that the 1967 extension of the minimum wage accounts for more than 20 percent of the reduction in the racial earnings and income gap during the civil rights era. However, these institutions have been eroded since the 1980s (DiNardo, Fortin, and Lemieux 1996), a decade earlier than the facts documented in this paper. The stylized facts presented below will suggest a potential role for the erosion of institutions in the lack of improvement in the labor market outcomes of minority groups, especially Black workers. However, establishing a clear link between the weakening of these policies and institutions and the lack of progress of minorities would require a more thorough and rigorous investigation, as demonstrated in Farber and others (2021) and Derenoncourt and Montialoux (2021).

The first important point is that the definition of ethnic and racial groups matters. Using the same four groups as the authors, as shown in figure 2, panel B, the earnings of Black workers surpass those of Hispanic workers, and the earnings of the API+ group surpass those of white workers in 2000. However, equity issues are different when considering adult immigrant workers who arrive in the United States after completing their education. For example, many Hispanic “economic refugees” from Mexico have a much lower level of education than US-born Hispanics (Chiquiar and Hanson 2005). While there are state-level education policies directed at the children of immigrants, who would be first-generation college-goers, it is unfeasible to upgrade the educational attainment of foreign-born Hispanics to the level suggested by the exercise above. Conversely, immigrants from large Asian countries, such as China and India, are more likely positively selected, partly because of the per country ceilings on permanent immigration visas and other visa issues.⁴ On the other hand, some US-born members of the API+ group, such as US-born Pacific Islanders and American Indians, may face some persistent labor market disadvantages. As acknowledged by the authors, the API+ group is quite heterogeneous.

3. Farber and others (2021) point out that in this era, part of the overrepresentation of Black workers in unions arose merely as a by-product of unions organizing lower-skilled areas of the economy, which were disproportionately non-white.

4. To ensure that certain nationalities do not dominate immigration flows to the United States, permanent immigrants (family-based and employment-based combined) from a single country cannot exceed 7 percent of the total number of people immigrating in a single year. Budiman (2020) documents that in 2018, after Mexico, which accounted for 25 percent of the US immigrant population, the next two largest origin countries were China and India at 6 percent each. See also Maynard and Seeborg (2014), Liao and Seeborg (2015), and Orrenius, Zavodny, and Kerr (2012) for the impact of special visas.

Figure 2. Differences by Country of Birth Status among Racial/Ethnic Groups



Source: Author's calculations using CPS-MORG 1979-2019, employed workers age 25–64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

Note: W—white workers; B—Black workers; H—Hispanic workers; FB—foreign-born; USB—US-born. Birth country data available from 1994.

The share of foreign-born workers among minority groups is not trivial. Figure 2, panel A, displays the trends in the demographic weights of all employed workers from each minority group, along with the demographic weights of foreign-born in each group.⁵ The ratio of the two group-specific trends gives the share of foreign-born within each group (not displayed). For example, we can compute that in 2010, the share of foreign-born was 56 percent among Hispanic workers, more than 60 percent among API+ workers; it is still substantial at 14 percent among Black workers but was much lower at 4 percent for non-Hispanic white workers.⁶ Immigration policies play a significant role in the racial/ethnic composition of the US labor force, thus in its contribution to GDP.

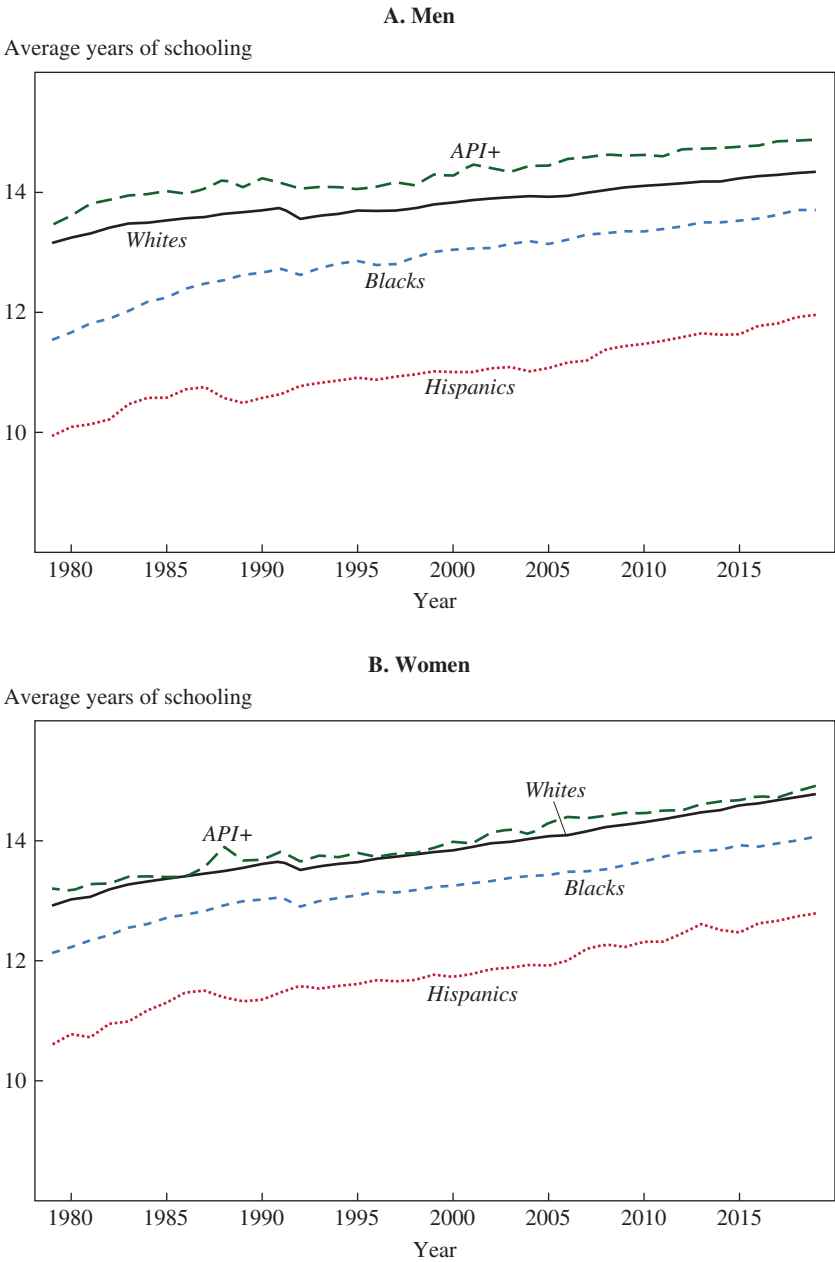
Differences of average hourly earnings in the ranking of groups between the US-born and the foreign-born, displayed in figure 2, panel B, are stunning. Among the US-born, Hispanic workers do better than Black workers, and API+ workers do not do as well as non-Hispanic white workers. Among the foreign-born, Black workers do better than Hispanic workers, and API+ workers are similar to non-Hispanic white workers. Thus, the wage advantage of the API+ group mostly comes from their immigrant status. Therefore, the decision made by the authors to use non-Hispanic white wages as the counterfactual of choice is empirically well founded, given the relatively lower share of positively selected foreign-born among them, although that share is growing over time. However, when we distinguish the US-born and foreign-born, we find that relative to their US-born non-Hispanic white counterparts the wages of US-born Black workers are declining over time, a grimmer situation than usually found in the literature. What might be the sources of this undesirable trend?

The authors have already shown the striking differences in educational attainment between Black workers and non-Hispanic white workers, in particular, and that these gaps are not converging. For instance, figure 3 goes back a decade earlier in time and shows that the improvement in the annual growth in years of schooling among Black workers slowed down by

5. For example, the B-All line shows the evolution of the demographic weight of all Black workers, ranging from 11 to 12.6 percent of workers, while the B-FB line traces the evolution of the demographic weight of Black workers who are foreign-born, which ranges from 0.8 to 1.9 percent of workers. As a result, the percentages of foreign-born among Black workers range from 6.6 to 14.9 percent. For each of the other minority groups, the evolution of the demographic weights of foreign-born members (H-FB and API-FB) are traced with less solid lines.

6. For clarity, the evolution of the foreign-born among non-Hispanic white workers is not displayed; we can compute that it had grown from 4 percent in 2010 to 7.5 percent in 2019.

Figure 3. Educational Attainment by Racial/Ethnic Groups



Source: Author's calculations using CPS-MORG 1979-2019, employed workers age 25-64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

half after 1996.⁷ That year, bans on affirmation action in higher education, also characterized as a move toward race-neutral policies, began to take hold in several large states (Howell 2010).⁸

Affirmative action policies, which began in the late 1960s, allowed admissions departments at selective higher education institutions to consider race as a factor when admitting new students. Subsequently perceived as reverse discrimination, these policies were subjected to legal challenges. Howell (2010) studies the replacement policies instituted in state public colleges in California, Florida, and Texas. These policies favored high-performing (e.g., top 10 percent) students from economically disadvantaged high schools and were thought to provide a practical alternative. However, Howell (2010) argues that these programs would not be successful at restoring minority representation at the most selective colleges, given that affirmative action was helping a wider range of minority students and not only the highest performers.

Labor unions are institutions that historically supported workers from all groups. Union jobs were those “good jobs” that allowed workers to access the middle class. However, since the mid-twentieth-century union peak (Farber and others 2021), there has been a significant decline in unionization rates across many industries and states.⁹ More recently, this decline was exacerbated by right-to-work (RTW) laws, which prevent unions from collecting union dues from nonmembers and thus generate “free-rider” problems (Ichniowski and Zax 1991). Initially adopted in the late 1940s, RTW laws have made a comeback in several states since 2001 (Fortin, Lemieux, and Lloyd 2021).¹⁰ At the federal level, a 2019 Supreme Court ruling has extended RTW to all public sector employees—local, state, and federal—within the United States.

Farber and others (2021) documented that at their mid-twentieth-century peak, unions were organizing groups that were disproportionately non-white. However, it is less well known how much larger union coverage

7. Before 1996, years of completed education among Black men grew by 0.08 a year on average, from 11.5 in 1979 to 12.9 in 1995. That rate, at 0.04, was half from 1996 to 2019, when the average reached 13.7 years.

8. These include, by year of adoption, California (1996), Texas (1996–2003), Washington (1998), Florida (1999), Michigan (2006), Nebraska (2008), Arizona (2010), New Hampshire (2012), Oklahoma (2012), and Idaho (2020).

9. The 1980s decline in unionization rates was initially propelled by the deregulation of federally regulated industries in the Reagan area.

10. These states include, by year of RTW adoption, Oklahoma (2001), Indiana (2012), Michigan (2013), Wisconsin (2015), West Virginia (2016), and Kentucky (2017). On the other hand, a handful of states have turned down RTW laws or adopted bans: Missouri (2018), New Mexico (2019), and New Hampshire (2017 and 2021).

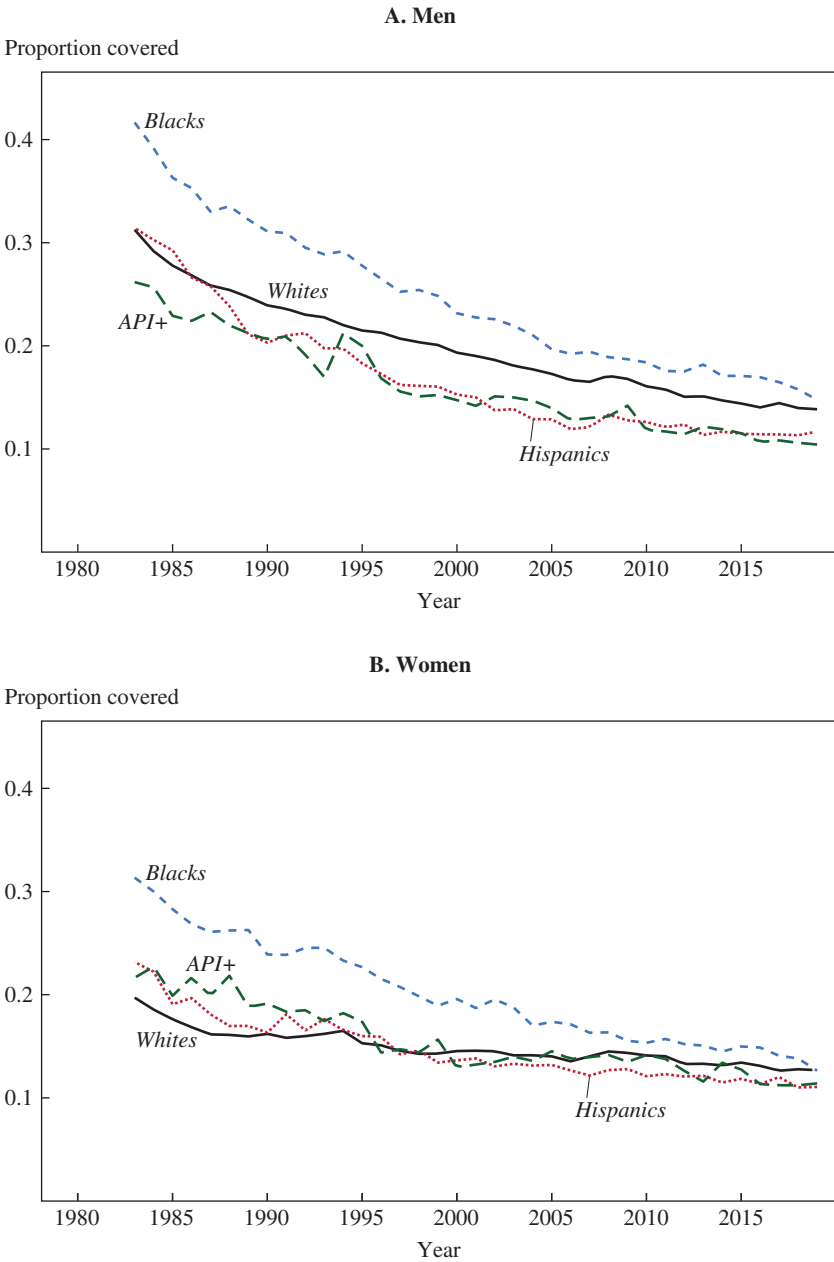
rates were among Black workers than among other groups and therefore, how much steeper the decline was in union coverage for Black workers, both men and women.

Figure 4 illustrates that steeper decline, especially for Black men: union coverage rates dropped from 42 percent to 15 percent between 1983 and 2019, while they dropped from 31 percent to 12 percent for Black women. Not surprisingly, a dramatic decline in the power of unions to extract rents and boost the union/nonunion wage gap accompanied the decline in union density. Figure 5 displays the level of average hourly earnings by union status (panel A) and the union premium computed as the ratio of average hourly earnings of unionized to nonunion workers minus one (panel B). Again, the trends are displayed for non-Hispanic white workers and the groups whose earnings are consistently lower than those of the majority group. A few striking stylized facts emerge from this graph.

In panel A, the white advantage persists even over unionized minority workers, although before 1995 nonunion white workers do barely better than unionized Hispanic or Black workers. The gap between these last two groups is almost indistinguishable, showing that unions could equalize wages across minority groups. The fact that nonunion wages converge to union wages among non-Hispanic white workers illustrates one reason for disaffection with unions among the majority group. Panel B illustrates this fact in terms of the erosion of the union/nonunion premium for this group. It also shows the sharper decline in the union premium for Black workers. Black workers in the middle of the wage distribution were facing strong headwinds to get ahead. The good unionized manufacturing jobs that gave them access to the middle class were disappearing (Autor 2010).

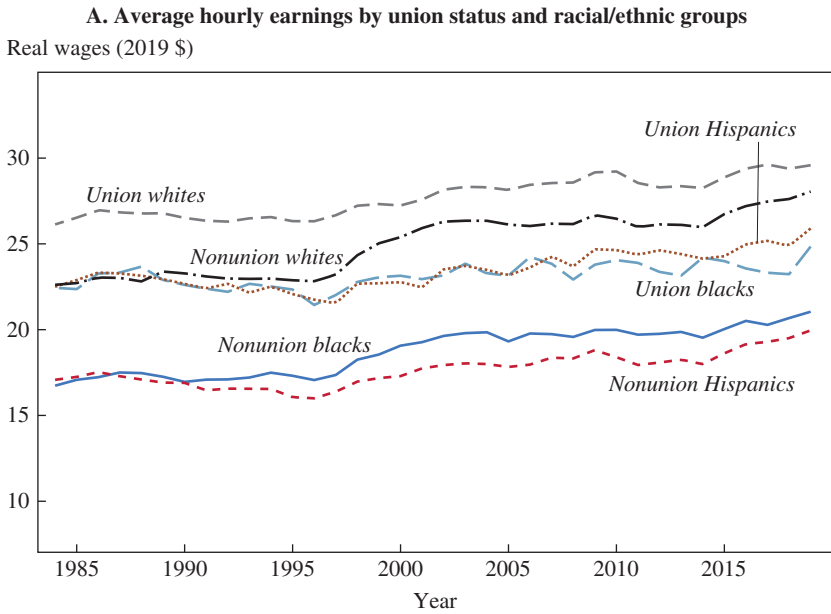
Meanwhile, the proportion of minimum wage workers was consistently higher among Black workers than among non-Hispanic white workers, although it was much smaller than among Hispanic workers, as shown in figure 6. In particular, after the Great Recession of 2008, 7 percent of Black men were minimum wage workers, while that proportion was 3 percent among non-Hispanic white men and 11 percent among Hispanic men. Among women over the last decade, the proportion of minimum wage workers was highest among Hispanic workers at 18 percent, triple that of non-Hispanic white workers at 6 percent. However, the proportion of female minimum wage workers was similar among Black workers, 9.6 percent, and API+ workers, 9 percent, reflecting that this last group is substantially heterogeneous, as discussed above. This heterogeneity also explains why, when the authors perform their analysis by gender, they find different results for API+ men and women.

Figure 4. Union Coverage by Racial/Ethnic Groups

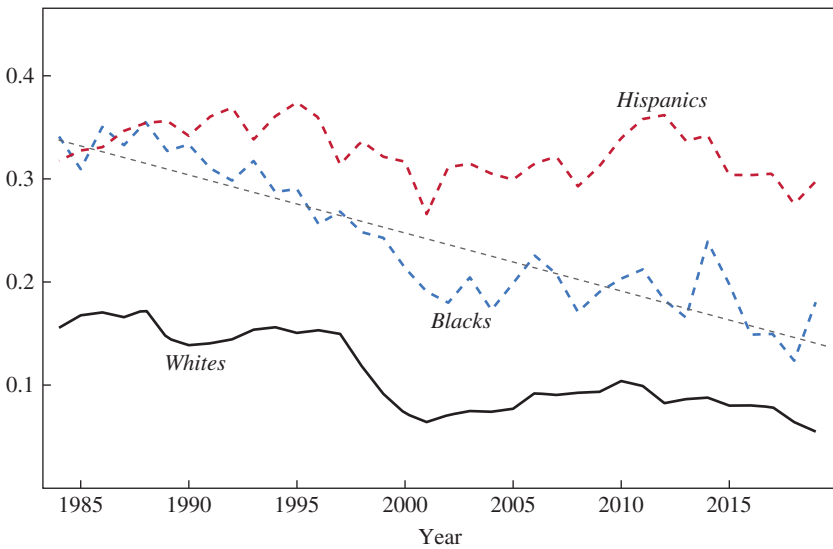


Source: Author's calculations using CPS-MORG 1979-2019, employed workers age 25-64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

Figure 5. Union Premium across Racial/Ethnic Groups

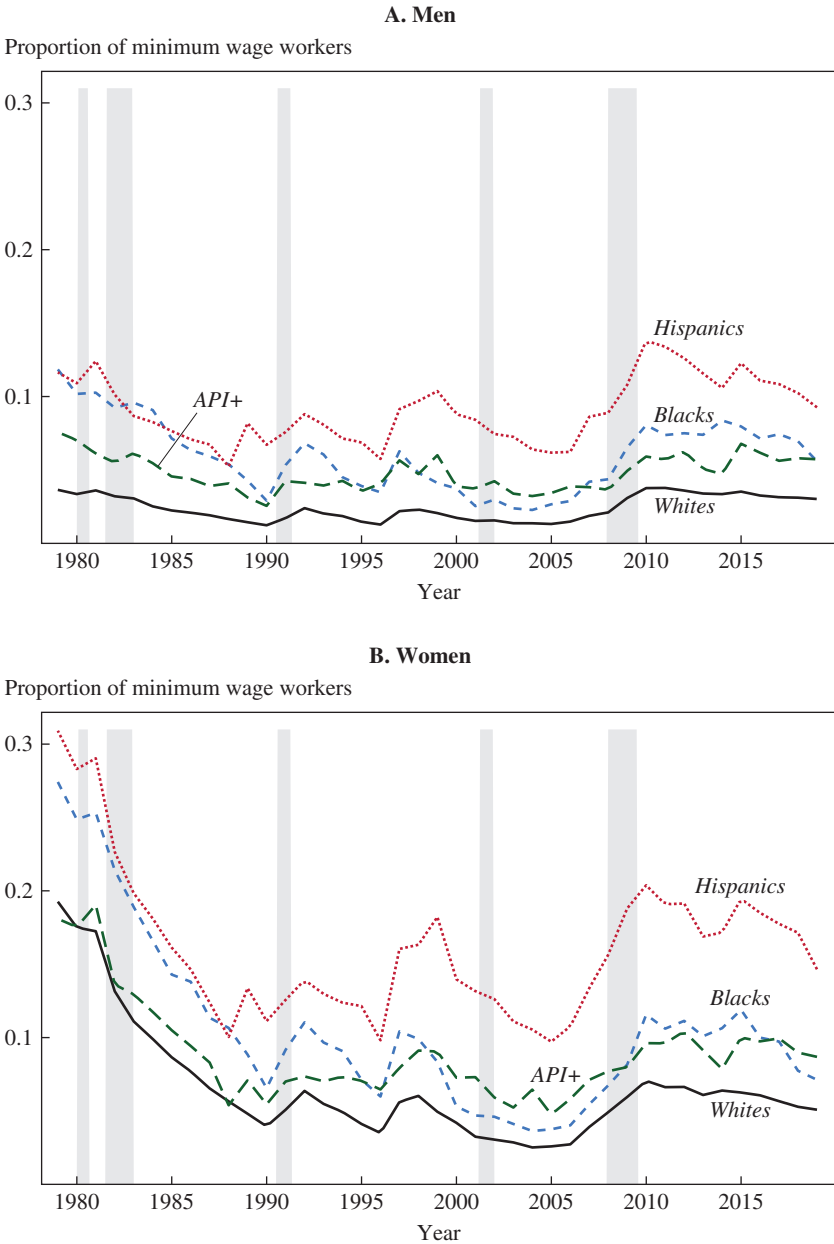


Union/nonunion gap



Source: Author's calculations using CPS-MORG 1979-2019, employed workers age 25-64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

Figure 6. Proportion of Minimum Wage Workers across Racial/Ethnic Groups



Source: Author’s calculations using CPS-MORG 1979-2019, employed workers age 25–64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>.

Note: Within 15 percent of effective minimum wage. Shaded areas indicate recessions.

Unlike the case of unions, minimum wages have remained a popular labor market institution. Indeed, in 2012, a new wave of proponents surged under the banner of “Fight for \$15,” when two hundred fast-food workers walked off the job to demand \$15/hour and union rights in New York City.¹¹ By 2018, several cities (San Francisco, Berkeley, Los Angeles, and New York City) had adopted the prescription, which was almost triple the state minimum wage in other areas (e.g., in Georgia and Wyoming, it is \$5.15/hour, noting employees subject to the Fair Labor Standards Act must be paid the federal minimum wage of \$7.25/hour).

The movement coupled with the stagnation of federal minimum wages marks a new era of increasing minimum wage inequality. Figure 7, panel A, illustrates the divergence between state and federal minimum wages. Minimum wage workers in some states can earn almost twice as much as their counterparts in other states. This increasing disparity begs the question: Which racial/ethnic groups benefit or suffer from this trend? In 2019, the federal minimum wage of \$7.25/hour prevailed in twenty US states, including eleven states in the South (Alabama, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia) where 43 percent of Black workers live, in comparison to 27 percent of Hispanic workers. Thus, it will not come as a surprise that Black minimum wage workers are overrepresented in the bottom quartile of minimum wage workers, as shown in figure 7, panel B.¹² Although Hispanic workers are more likely than Black workers to be minimum wage workers, as shown in figure 6, panel B, they are less likely to be in the bottom quartile of minimum wages, given that many work in California, a higher minimum wage state.¹³

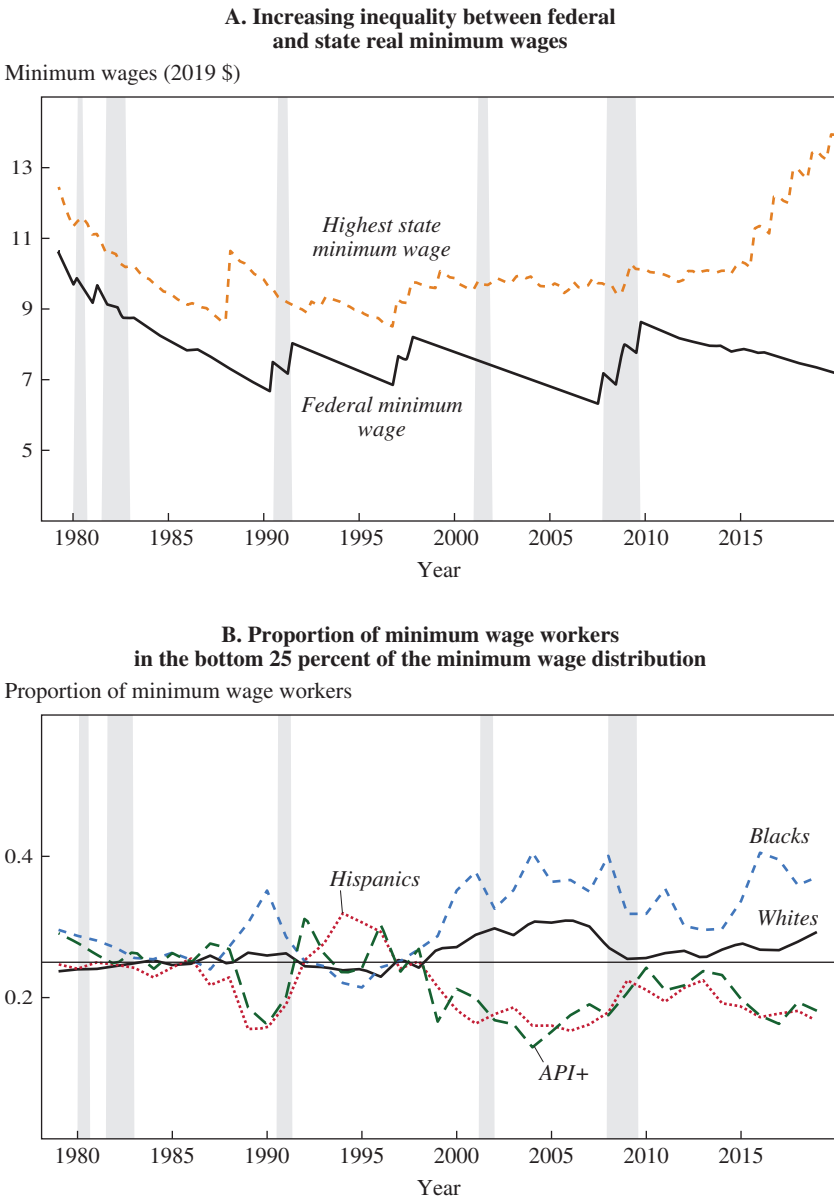
Following the recovery after the Great Recession, by comparison with non-Hispanic white workers, Black workers are twice as likely to be minimum wage workers and 20–50 percent more likely to be in the bottom quartile of minimum wages. Black workers are still more likely to be unionized than non-Hispanic white workers. However, their average unionized earnings are lower than those of the majority group, and the union premium they face has been declining over time. In sum, the labor market institutions that historically helped support Black workers are now less effective.

11. Fight for \$15, <https://fightfor15.org/>.

12. Equal representation in the bottom quartile of minimum wages would be at 25 percent, that is, on the horizontal line. It corresponds to the share of non-Hispanic white minimum wage workers from 2009 to 2013 found in this bottom quartile.

13. In 2019, 27 percent of Hispanic workers lived in California by comparison with 6 percent of Black workers; see also Krogstad and Noe-Bustamante (2021).

Figure 7. Increasing Inequality within Minimum Wage Workers across Racial/Ethnic Groups



Sources: Author’s calculations using CPS-MORG 1979-2019, employed workers age 25–64, <https://www.nber.org/research/data/current-population-survey-cps-data-nber>; minimum wage data from FRED and Kavya Vaghul and Ben Zipperer, “Historical State and Sub-state Minimum Wages,” version 1.2.0, <https://github.com/benzipperer/historicalminwage/releases/tag/v1.2.0>.

Note: Within 15 percent of effective minimum wage. Shaded areas indicate recessions.

However, this applies less to Hispanic workers. They are less likely to be unionized than non-Hispanic white workers, but their average unionized earnings are comparable to Black workers, and the union premium they face has not declined as much over time. The average earnings of US-born Hispanic workers exceed that of Black workers, while the American dream of foreign-born Hispanic workers is still distant and may await the next generation. Indeed, leveling the quality of education across racial/ethnic neighborhoods and improving immigration policies are important but challenging objectives to achieve.

Given all the obstacles documented above, it is remarkable that Black earnings have merely stagnated, and it is not surprising that in the authors' analysis, the most significant gains to GDP for residual earnings equalization come from this group. While general disaffection with unions implies that they are not coming back (Farber 1990), could further erosion of union power be averted by reversing or banning RTW laws? The experience of the few states which did so has yet to be studied. On the minimum wage front, incremental increases to federal or state minimum wages would likely be a more feasible alternative than the push to \$15, which in some cases might double prevailing minimum wages. Arguably, minimum wages that are too low may be an obstacle to innovation.¹⁴ They fail to encourage firms to adopt more efficient technologies when earned income tax credit or similar income support programs implicitly boost low-skilled workers' reservation wages.

Finally, is there a role for direct antidiscrimination measures, such as the affirmative action policies discussed above? Nearly forty years ago, there was much optimism about these policies. Freeman and others (1973, 119) argued that "much of the improvement in the black economic position that took place in the late sixties appears to be the result of governmental and related anti-discriminatory activity associated with the 1964 Civil Rights Act." Unfortunately, as documented above, affirmative action measures lost favor from the 1990s onward.¹⁵

14. Lordan and Neumark (2018) find that minimum wage increases will give incentives for firms to adopt new technologies that replace workers. The flip side of job losses caused by automation following a minimum wage increase is that low minimum wages decrease firms' incentives to automate low-skilled jobs.

15. McCrary (2007) finds that court-ordered racial hiring quotas imposed on municipal police departments starting in 1973 led to a 14 percentage point gain in the fraction of African Americans among newly hired officers. However, he argues that by current standards, these measures were remarkably interventionist and among the most aggressive affirmation actions ever implemented in the United States.

Today, the authors offer a more targeted but renewed optimism in “a new mindset—a mindset that sees large gaps by race and ethnicity as inefficient and a sign of misallocation, rather than an unfortunate, but efficient, outcome of a well-functioning market.” In the twenty-first century, human interactions among young people, in particular, are changing. With the implied renewed mindsets, this optimism is hopefully well placed.

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COMMENT BY

ERIK HURST What are the aggregate gains from creating equal opportunities across racial and ethnic groups in the United States? That is the question this paper tackles. This is an extremely difficult question to answer. The answer depends both on what is causing labor market differences across groups and on how a reference group can be defined to perform various counterfactuals.

A SIMPLE ILLUSTRATIVE EXAMPLE To set the stage, consider two groups, A and B, with members of each group comprising half of the total population. Suppose further that members of group A in a given period earn, on average, \$75,000 a year while members in group B earn, on average, \$25,000 per year in that period. What are the gains to this fictional economy of equating the average incomes of individuals in groups A and B?

One counterfactual would be to do the following. First, we could assume that there are some labor market barriers in this economy causing group B