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The Economic Gains from Equity

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ABSTRACT How much larger would the U.S. economic pie be if opportunities and outcomes were more equally distributed by race and ethnicity? Using data from the Current Population Survey (1990-2019) we estimate the improvements in aggregate output associated with more equal outcomes in employment, hours worked, educational attainment, educational utilization, and earnings by race and ethnicity. We find significant economic gains, measured in trillions of dollars of GDP. Our results indicate that ensuring all Americans have an equitable opportunity to participate in the economy is an economically significant way to increase aggregate prosperity.

In 1964 President Lyndon B. Johnson signed the Civil Rights Act, prohibiting discrimination based on race, color, religion, sex, or national origin. The signing marked a shift in American law that was intended to remove barriers and deliver more equitable opportunities, including in the labor market. Today, significant gaps in outcomes remain. Indeed, an extensive literature documents persistent, and even widening, disparities in employment and earnings in the United States that leave Black, Hispanic and other minorities well behind their white counterparts. The research also shows these differences in outcomes, these gaps, are only partially explained by measurable differences

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in education, experience, and other characteristics related to productivity.¹ The result is that nearly sixty years after the passage of the Civil Rights Act, and the countless policies and programs that have followed, race and ethnicity remain significant predictors of labor market success in the U.S. (Rodgers (2019)).

We argue these facts present an economic problem.² If talent and preferences are evenly distributed by race and ethnicity, a premise that seems hard to refute, persistent disparities represent lost production.³ In other words, the persistence of systemic disparities is costly, and eliminating them has the potential to produce large economic gains (Hsieh and others (2019), Turner (2018), Truehaft and others (2014)).

Of course, the benefits go well beyond the addition of previously misallocated resources. The opportunity to use one's talents fully, unbridled by prejudice or other artificial barriers, is at the foundation of a dynamic economy. Individuals invest in themselves based on the returns they expect. Systemically lower payoffs and the presence of persistent barriers depress these incentives, likely leading to lower human capital investment, and further limiting personal and generational mobility. In other words, more equitable allocation matters both for the level of GDP and for the process of sustained economic growth.⁴ This means that changing opportunity affects both current and future economic output.

In this paper, we offer some initial estimates of what the GDP gains from greater equity might be. We do this by answering a simple question: how much larger would U.S. economic output be if opportunities and outcomes were more equally distributed by race and ethnicity?⁵ Looking over three decades (1990-2019) our findings point to considerable gains, measured in trillions of dollars of GDP. We then ask whether the gains from equity have changed over time. We find that the benefits from equity have risen, owing to the persistence of economic disparities and the rising share of the population that experiences them. Finally, we consider which gaps in outcomes are driving the results we document. We find that eliminating disparities in employment rates and educational attainment would contribute substantially to economic output. Additional meaningful gains could come from eliminating earnings gaps not explained by these and other productivity related indicators.

¹This literature spans multiple disciplines. For example, see Williams & Wilson (2019), Wilson & Jones (2018), Cajner and others (2017), Daly and others (2017), Pager & Shepherd (2008).

²Several researchers, including Williams & Spriggs (1999), Mason & Williams (1997), and Darity & Williams (1985), have noted that standard economics models would not naturally reach this conclusion. Our paper builds on their insights. We elaborate on their points later in the discussion.

³We are not the first to recognize this, see Bostic (2020), Cook (2020), Peterson & Mann (2020), Daly (2021).

⁴Although not the subject of this paper, these barriers also lead to gaps in consumption, savings, and wealth, which leave individuals, families, and communities more vulnerable to economic shocks.

⁵Examples of similar exercises can be found in Peterson & Mann (2020), Noel and others (2019), Turner (2018).

The remainder of the paper is structured as follows. We begin by documenting gaps in measures of labor market success over the past three decades, Section I. We then briefly discuss the related literature, calling out where our work contributes, Section II. In Section III we lay out our framework and describe our results. We conclude, Section IV, with a discussion of possible further considerations and research, including issues policymakers, the private sector, and American society will have to grapple with to obtain the kinds of gains we document.

I. Labor Market Disparities

Although gaps in labor market measures are often discussed and fairly well known, the extent of the gaps and their persistence bears reviewing. To do this we use data from the Current Population Survey (CPS) from 1990 through 2019.⁶ To avoid concerns about differences in schooling or retirement behavior, we focus on civilian non-institutionalized adults ages 25–64. We further restrict our sample to people who are not self-employed.⁷ We divide this population into eight mutually exclusive groups defined by gender⁸ and race or ethnicity. Although there is no perfect way to categorize individuals by race or ethnicity, we follow what is commonly done in the literature. Specifically, we define four mutually exclusive race/ethnicity groups based on self-reported designations: non-Hispanic white, non-Hispanic Black, Hispanic, and all remaining non-Hispanic, non-white, and non-Black individuals (e.g., Asian, Pacific Islander, American Indian).⁹ Throughout the paper we refer to these groups as: white, Black, Hispanic, and API+, respectively.

To assess relative labor market success across groups, we consider five metrics: employment, hours worked, earnings, educational attainment, and educational utilization. We define employment based on responses to the CPS monthly question, “Were you employed last week, either at work or off?” We aggregate these responses annually and compute the average share of employed individuals in each year. We define hours worked as usual weekly hours worked over all jobs, and similarly average this value over our sample and on an annual basis. Conditional on being employed, we measure earnings as average hourly earnings, defined as usual weekly earnings divided by usual weekly hours adjusted for inflation using the personal consumption expenditures price index.¹⁰

⁶We restrict our analysis to the outgoing rotation groups of the CPS basic monthly files.

⁷We make this restriction to improve the accuracy of reported hours worked which are a key variable in our analysis.

⁸The question asked in the CPS files that we use to define our gender variable asks “What is _’s sex?” In keeping with the literature, we refer to the distinctions of male and female as gender.

⁹Sample size limitations make it difficult to reliably consider these groups separately.

¹⁰To account for discontinuities in CPS top-coding, we adjust top-coded earnings following methods developed by the Center for Economic Policy Research (CEPR and John Schmitt (n.d.)). Employed individuals with missing earnings values are assigned zero earnings.

We measure educational attainment as the maximum education completed across four mutually exclusive categories: high school or less; some college; bachelor's degree; and postgraduate degree. We also compute a measure of educational utilization for employed individuals with a bachelor's or postgraduate degree. This measure captures the fact that many racial and ethnic minorities are "over-educated" for the jobs they hold ([Williams & Wilson \(2019\)](#), [Rose \(2017\)](#)).¹¹ Following [Williams & Wilson \(2019\)](#), we measure educational utilization for individuals with bachelor's and postgraduate degrees; we assume all other groups are appropriately utilized. To do so, we compute average educational attainment for each 4-digit occupational category. We then divide occupations into those requiring more skills (i.e. a bachelor's or higher) or less skills (i.e. less than a bachelor's). Individuals with a bachelor's or postgraduate degree residing in jobs requiring less skill are classified as underutilized. All others are classified as fully utilized.

1.A. Trends

We begin with employment, shown in Figure 1, which plots the percent of the population ages 25–64 employed in each year by gender and race. Several things stand out in these charts.¹² First, employment rates for all fluctuate with the business cycle, moving up in good times and down in bad times. Second, there are considerable differences by gender. Among males, shown in the left panel, the secular trend in employment is downward, meaning that employment rates are lower today than they were in 1990. Looking more specifically at differences by race and ethnicity, clear differences emerge. Employment rates for Black males are consistently lower than for all other groups. For example, in 2019 the employment rate of white, Hispanic, and API+ males was just over 80 percent; the employment rate for Black males was just over 70 percent. Over the entire sample period, the average employment gap between white and Black males is about 11 percentage points. Although the gap between Black and white males narrows somewhat during expansions, ([Aaronson and others \(2019\)](#)), the main finding is that Black males are far less likely to be employed than other males.

The pattern for females is quite different. Overall, females have lower employment rates than their male counterparts. Among females, white females have higher employment rates than their Black, Hispanic, or API+ counterparts. Black females have the next highest employment rates, although the gap between white and Black females fluctuates considerably over the business cycle, widening in recessions and narrowing again well into expansions. Employment rates for API+

¹¹Related literature finds that barriers to entry for racial and ethnic minorities have resulted in a misallocation of talent across industry and occupation ([Hsieh and others \(2019\)](#), [Bell and others \(2019\)](#)).

¹²It is important to note that there is considerable variation across these trends within the API+ group, reflecting the diversity of the various subgroups that comprise it. We include API+ in our analysis to fully capture potential gains to GDP from improving the allocation of talent across all people in the economy.

females are similar to those of Black females, however they exhibit very little cyclical variation over the sample. Hispanic females' employment rates are substantially lower and show little variation across time, similar to API+ females. The exception to this is the final years of the last expansion. Between 2016 and 2019, employment rates for Hispanic females rose 4.3 percentage points.

One thing that is consistently pointed out in the literature is that education alone cannot explain employment gaps (Spriggs & Williams (2000), Williams & Wilson (2019), Daly and others (2017), and Cajner and others (2017)). This can be seen in Figures 2, 3, and 4 which show how employment rates across groups differ regardless of education level. The charts plot employment rate gaps by education between white males and females and their Black, Hispanic and API+ counterparts, e.g., the percentage point difference between white male employment rates and Black male employment rates.

Starting with Figure 2, it is clear that educational attainment alone does not close gaps in employment between white and Black men. That said, gaps do shrink with educational attainment. For example, in 2019 the employment gap for Black males with a bachelor's degree was about 5 percentage points, compared to over 11 percentage points for Black males with high school or less. Although the gaps have fluctuated somewhat over time, by and large they are the same in 2019 as they were in 1990. This holds for all education levels. As was the case in the more aggregated trends, the pattern for females is different. The employment gap between Black and white females has been converging towards zero for all education levels since 2015, lining up with the closure of these gaps as depicted in Figure 1.

Figure 3 shows the same plot for Hispanic males and females. Recall that Hispanic males generally have higher employment rates than white males. The figure shows that this is especially true for Hispanic males with high school or less. Hispanic males with a bachelor's or postgraduate degree are employed at about the same rate as their white counterparts, resulting in an employment gap of zero. Similar to the pattern for Black females, the employment gaps for Hispanic females at all education levels have been converging towards zero, although some gaps do remain.

The data in Figure 4 show employment gaps for API+ males and females. For API+ males, the gaps have been trending down over time for all education levels. However, gaps do remain for API+ males with less than a postgraduate degree.¹³ The pattern by education is completely reversed for more educated API+ females, with larger employment gaps and lower employment rates.

Turning to hours, white males work more hours than Black, Hispanic, or API+ males. In the early 2000s, the gap between white and API+ males began to decrease, while the values for both groups mostly leveled off in the recent expansion. The gaps in hours between white males and

¹³As mentioned earlier, the majority of the API+ sample is Asian American, with higher than average levels of educational attainment.

Black and Hispanic males have begun to narrow, as hours for Black and Hispanic males have risen. The growth in hours worked for these two groups was especially noticeable in the last expansion. In 2019, the hours gap was at the lowest level recorded over the period, at about 1.7 hours per week between Black and white males, and 1.4 hours per week between Hispanic and white males. Again, for females, the patterns are significantly different. Black and API+ females work more hours than their white or Hispanic counterparts. That said, during the last expansion, hours worked among white females grew somewhat, narrowing the gap. Hours for Hispanic females fell during the Great Recession and only started to climb again in 2017.

The trends we have shown for employment and hours have been documented by other researchers. Moreover, previous authors have found that these gaps exist in other labor market measures including labor force participation, unemployment, and underemployment, especially among Black and Hispanic workers. Recent studies by [Cajner and others \(2017\)](#) and [Daly and others \(2017\)](#) show that these outcomes cannot be fully explained by differences in age, education, experience, or occupation and industry, but rather reflect unmeasured factors.¹⁴ The persistent and large differentials in the employment opportunities of racial and ethnic minorities, even after controlling for educational attainment, point to considerable underutilized human resources that if more equitably allocated could boost aggregate output ([Stewart and others \(2021\)](#)).

¹⁴One well-studied unmeasured factor is discriminatory practices. Using specialized data and experiments several authors have documented discriminatory practices or biases as an ongoing barrier in the labor market. See [Neumark \(2018\)](#), [Altonji & Blank \(1999\)](#), [Bertrand & Mullainathan \(2004\)](#), [Pager and others \(2009\)](#).

Figure 1: Trends in Employment

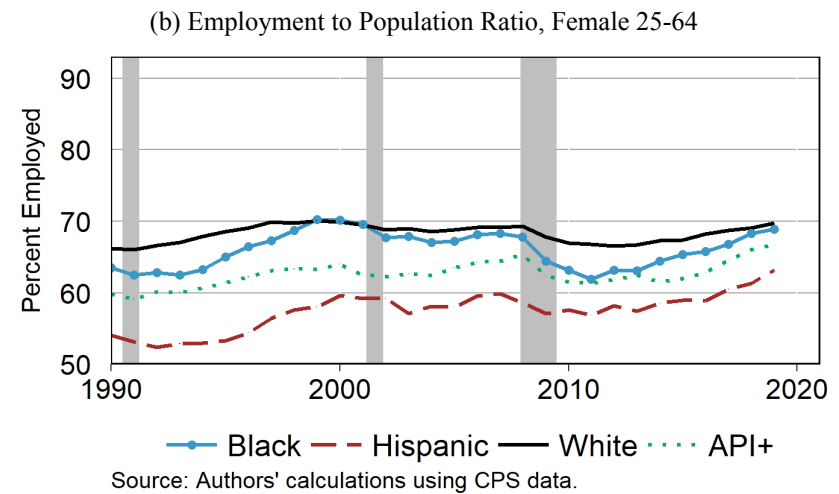
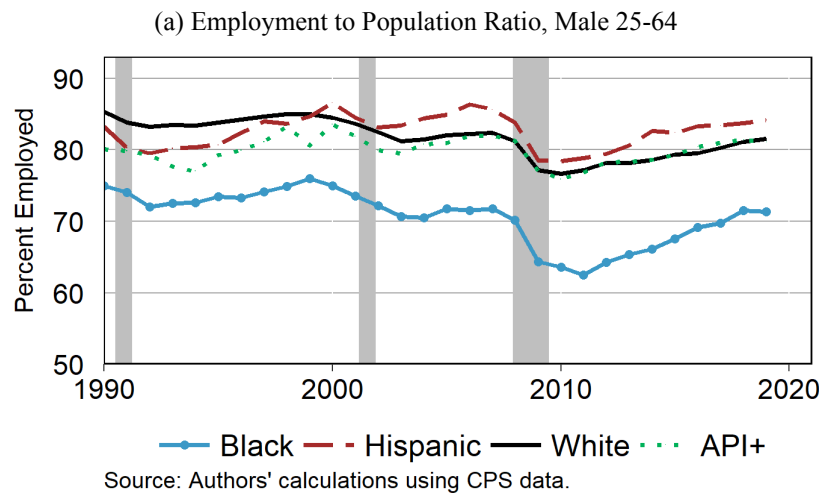


Figure 2: White - Black Trends in Employment Gaps by Education

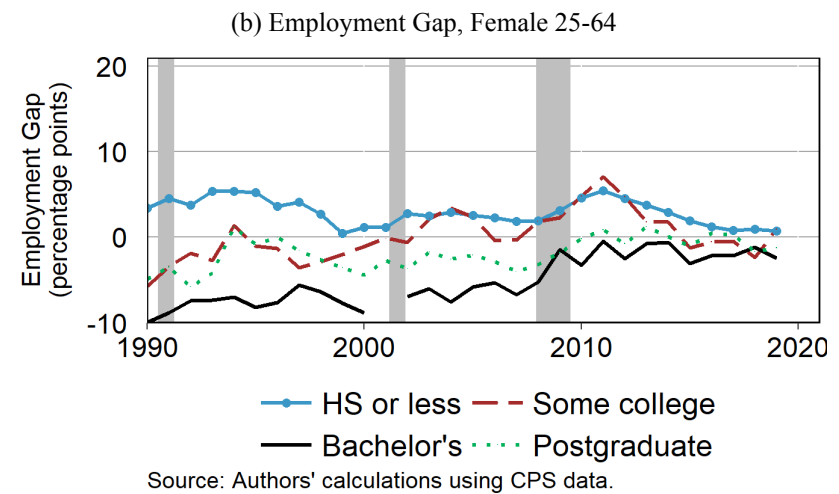
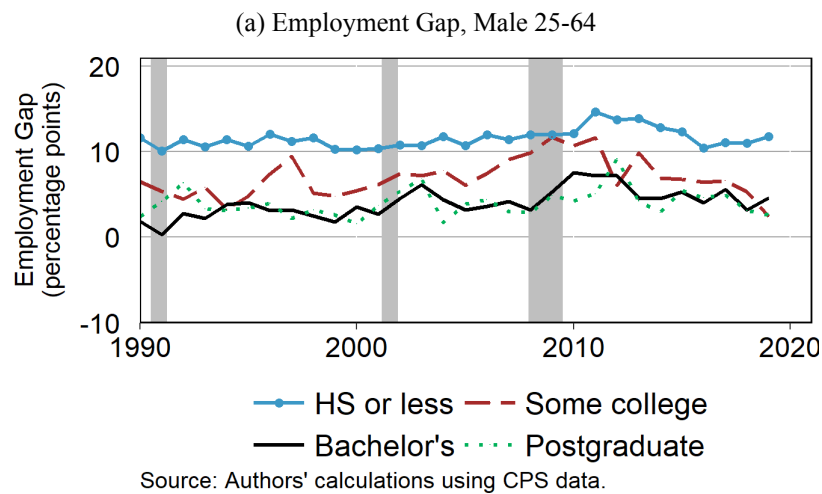


Figure 3: **White - Hispanic Trends in Employment Gaps by Education**

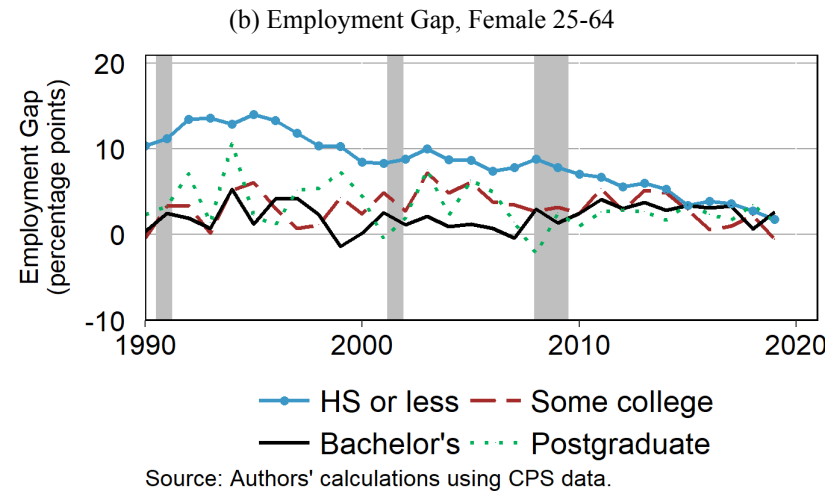
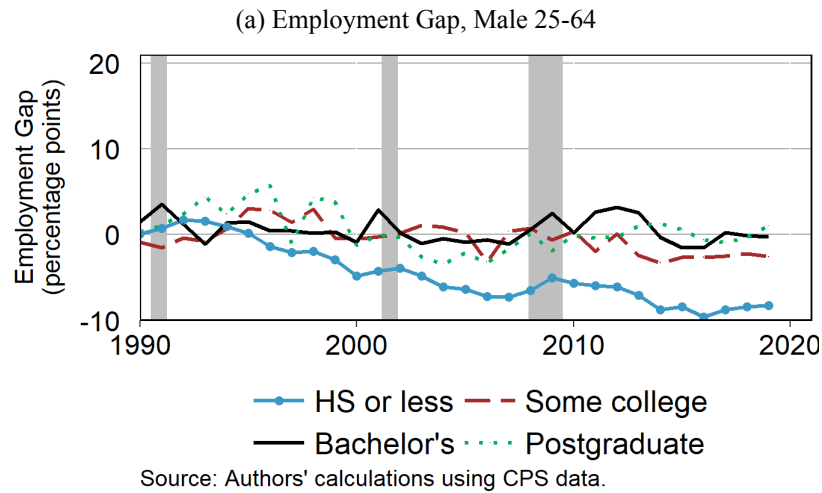


Figure 4: **White - API+ Trends in Employment Gaps by Education**

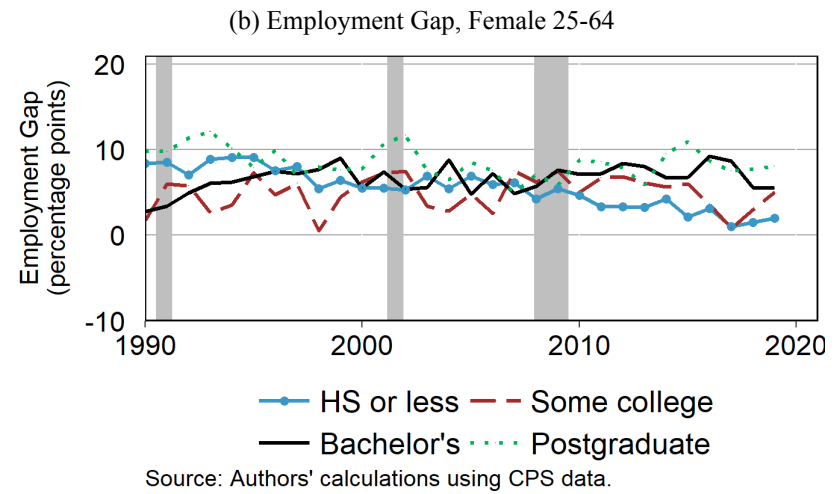
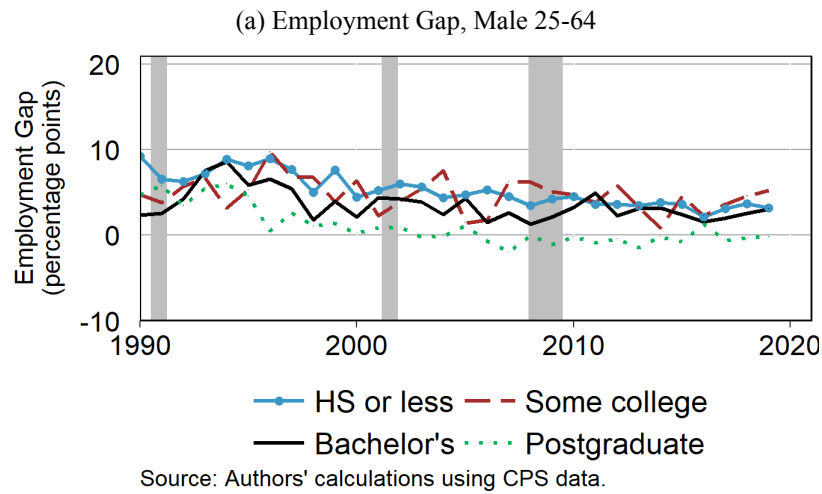
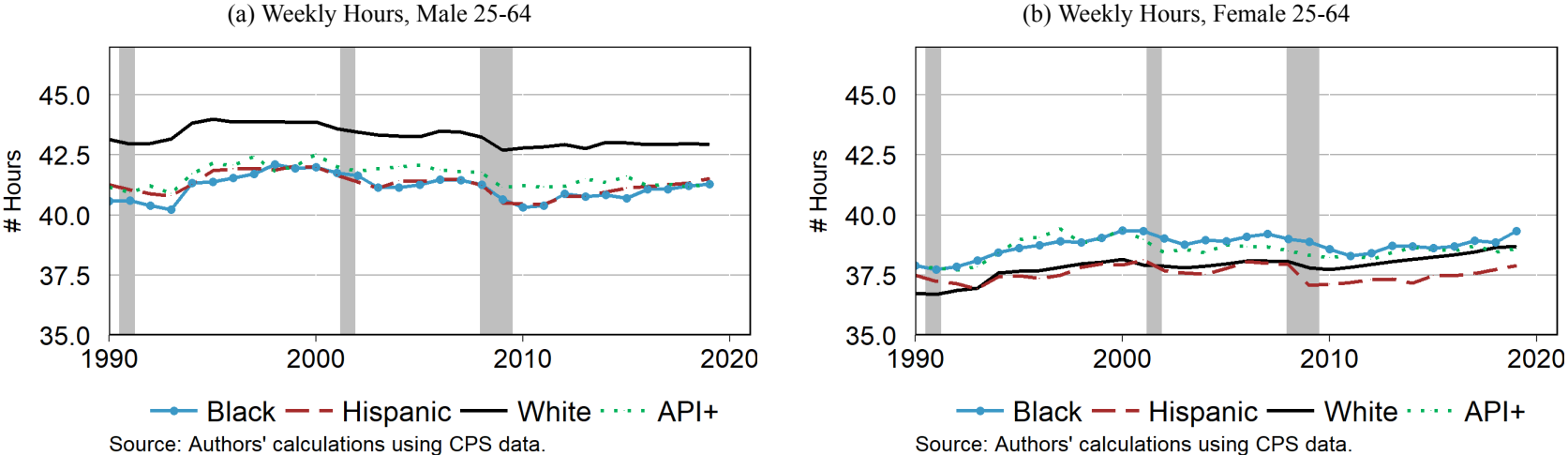


Figure 5: Trends in Hours



Although educational attainment is not a remedy for all the gaps we observe, ongoing differences in education do play a role in determining economic opportunities. Figure 6 shows that there remain large differences in education across groups. The figure plots the share of males and females with a bachelor's degree or more by race and ethnicity from 1990 to 2019. Several things are worth noting. First, API+ have the largest share of the population with a bachelor's or higher, driven largely by the very high college completion rates of Asian Americans, which is the largest subgroup of API+. ¹⁵ This holds for both males and females. White males and females have the next highest shares, followed by Black and then Hispanic males and females. These trends are consistent with findings by [Espinosa and others \(2019\)](#) on racial gaps in college completion.

The differences across groups are large. For instance in 2019, 58.0 percent of API+ males had a bachelor's or higher compared to 43.4 percent of white males, 30.4 percent of Black males, and 18.4 percent of Hispanic males. For females, the percentages were 59.2, 50.5, 35.8, and 26.3, respectively. These differences are larger than they were at the start of the sample for Black and Hispanic females as compared to white females. In fact, the growth of the gaps between white and Black females increased in the second half of the sample, as the rate of white females completing a bachelor's or higher increased, while the rate for Black females stayed relatively constant. Notably, we find these patterns are insensitive to the age range of the sample (shown in Figure A3), suggesting that these gaps are not the result of differences carried forward by older cohorts.

Even when gaps in educational attainment are closed, research has found that racial and ethnic minorities may not always be in occupations consistent with their degrees ([Williams & Wilson \(2019\)](#), [Abel & Deitz \(2016\)](#)). Figure 7 shows trends in educational utilization by group. Recall that being utilized is defined as being in an occupation that typically requires the level of education acquired, for example a person with a bachelor's degree working in a job that typically requires a bachelor's degree would be fully utilized. The figure plots the share of bachelor's and postgraduate degree holders who are in high skill jobs, appropriately utilized, by race and gender. For both males and females, utilization rates of whites and API+ workers are higher than those of Black and Hispanic workers. The gap is especially large for Black and Hispanic males. Black and Hispanic females have higher utilization rates than their male counterparts. Notably, the gaps in utilization for both genders have grown over time as white and API+ workers have become better utilized while utilization rates for Black and Hispanic workers have remained steady. In 2019, the last year of our sample, the utilization gap between whites and both Blacks and Hispanics stood over 8 percentage points regardless of gender.

¹⁵ Among Asian Americans, there is significant variation in the educational experiences of ethnic subgroups ([Espinosa and others \(2019\)](#)).

Figure 6: Trends in Educational Attainment

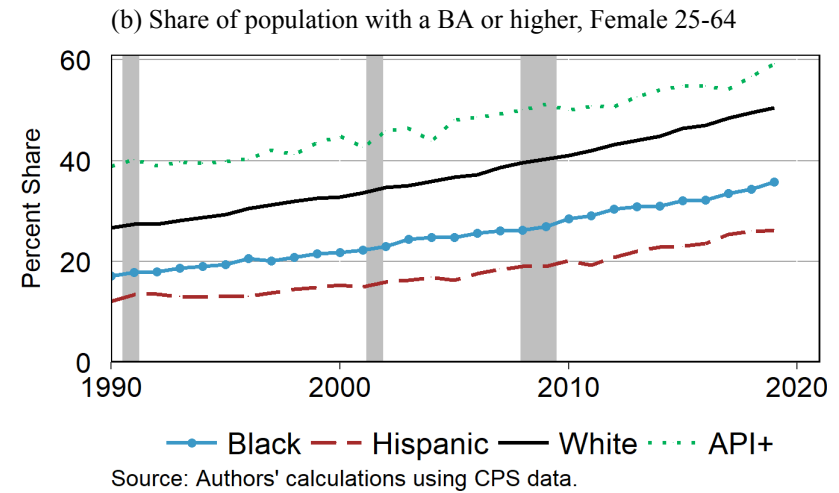
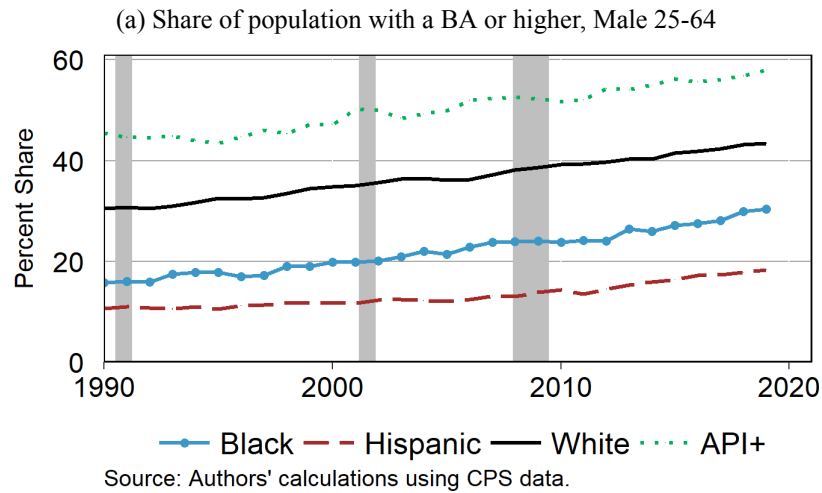
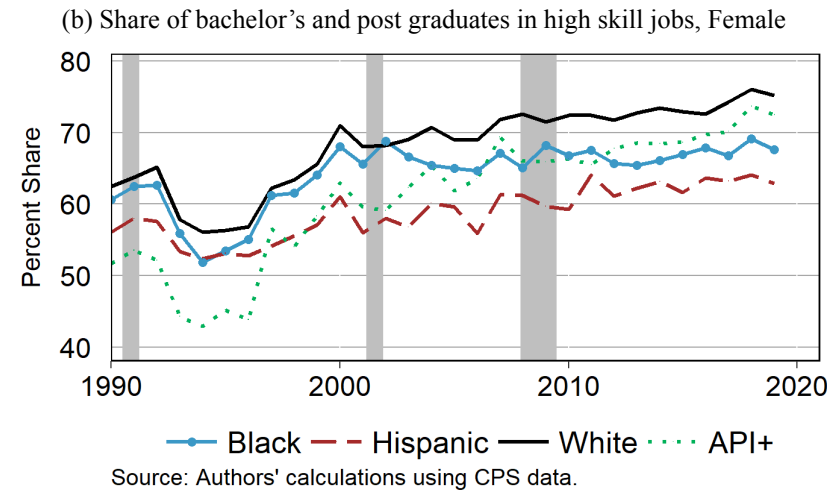
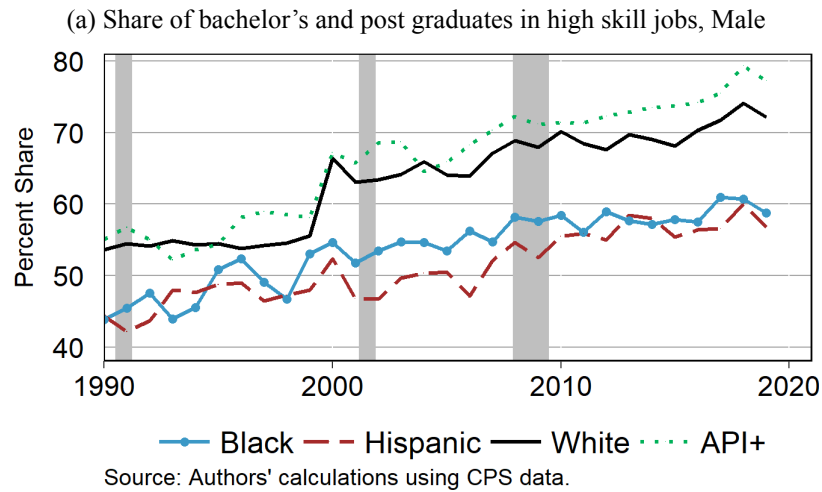


Figure 7: Trends in Educational Utilization (25-64)



The final trends we highlight are for earnings. Figure 8 shows real average hourly earnings for employed workers (2019 dollars). Starting with males, there is a sizeable gap between the earnings of white and API+ workers and the earnings of Black and Hispanic workers. This gap has remained stagnant over the sample with the average Black male earning 72 percent of the average white male earnings. The data for Hispanic males tells a similar story, with a ratio of earnings between Hispanic and white males of about 71 percent for the beginning and end of the sample. However, during the middle of the sample, there were many years where the earnings ratio was as low as 65 percent.

Although the gaps in earnings for females are smaller, they have notably widened over time. In 1990, the average Black female earned about 87 percent of the average white female. As of 2019, the average Black female earned only 82 percent of the average white female. Similarly, the gap in earnings between white and Hispanic females has increased. In 1990 the average Hispanic female earned 82 percent of the average white female; in 2019 this number had fallen to just 76 percent. These trends are consistent with findings from [Wilson & Rodgers \(2016\)](#).

Of course, these earnings disparities are in part a reflection of some of the differences in hours worked, educational attainment, and educational utilization highlighted previously. But these differences do not explain the majority of the earnings gap, leaving a large portion of the gap unexplained. One way to see this is to consider earnings gaps by educational attainment. These are plotted in Figures 9 and 10. The figures display the white-Black, white-Hispanic, and white-API+ earnings gaps by education, computed as white average hourly earnings less the average hourly earnings for other racial/ethnic groups. The results are striking. Among males, the white-Black earnings gap is consistently larger for those with a bachelor's degree or higher, but sizable gaps exist for all education groups. Black females have a smaller earnings gap after controlling for education, but it has been steadily growing since 1990 for all education levels.

Although the earnings gaps for Hispanic males are somewhat smaller, gaps do exist for all levels of educational attainment. Similar to the pattern for Black males, the payoff to education in terms of earnings gaps is not apparent. Hispanic males with a bachelor's or postgraduate degree have roughly the same earnings gaps in 2019 as Hispanic males with a High School education or less. Hispanic females have even smaller earnings gaps, but like their male counterparts, there is little difference in the gaps by education.

Finally, Figure 11 shows the patterns in earnings by education for API+ males and females. Among API+ males, those with less than a bachelor's degree have positive, although relatively small, earnings gaps compared to equally educated white males. In contrast, API+ males with a bachelor's or more earn more than their white counterparts on average, producing a negative earnings gap. This was not always the case, but started to shift in in the 2000s for postgraduates and in the 2010s for those with a bachelor's. A similar pattern can be seen for API+ females. Relatively

small gaps for those with high school or less and negative gaps for those with a bachelor's or more.

Taken together these trends document large and persistent gaps in labor market experiences by race and ethnicity. These gaps reflect a variety of factors including ones that are easy and hard to measure. Whatever the cause, the disparities highlight inherently large gains from greater equity. We turn to this now.

Figure 8: Trends in Real Average Hourly Earnings in 2019 dollars

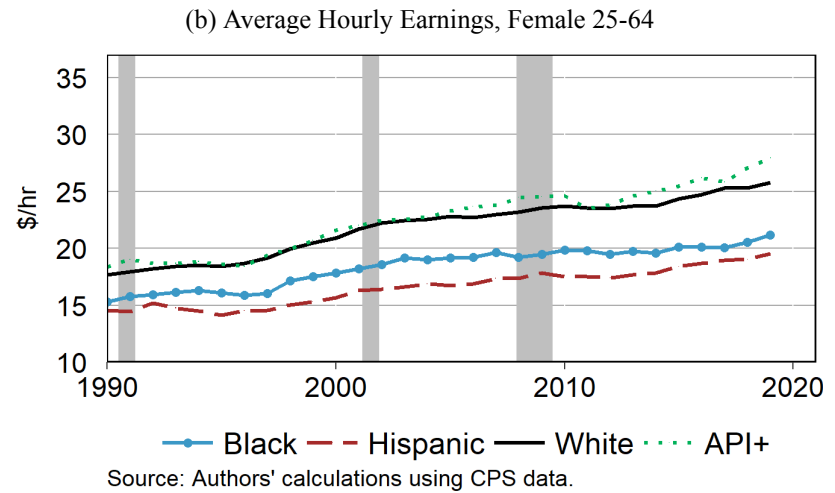
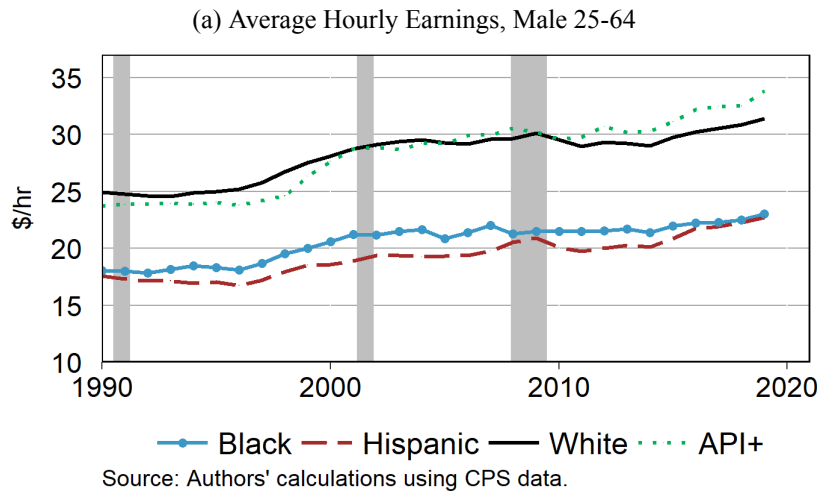


Figure 9: White - Black Trends in Real Average Hourly Earnings Gaps by Education in 2019 dollars

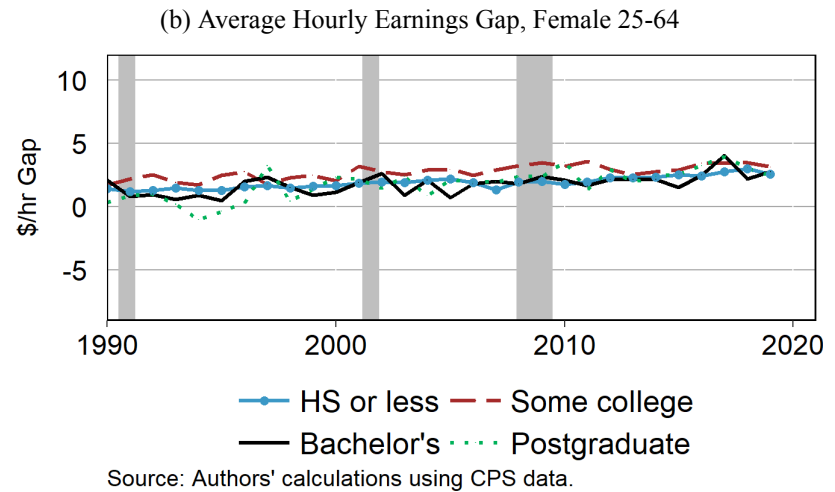
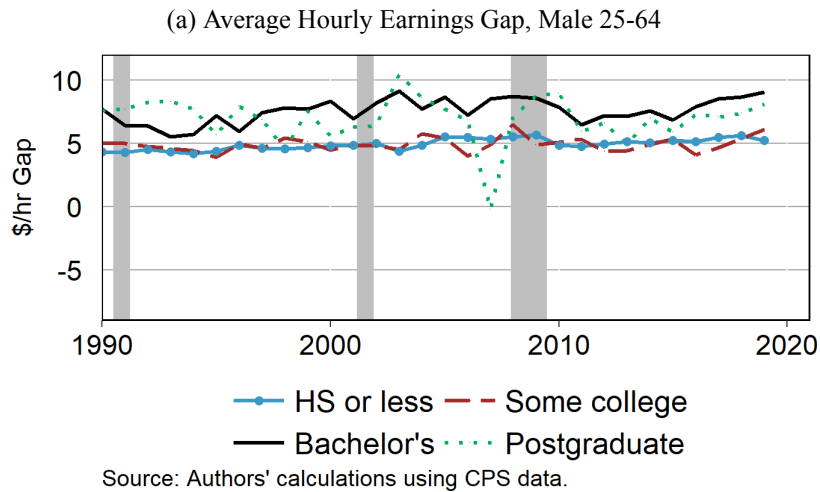
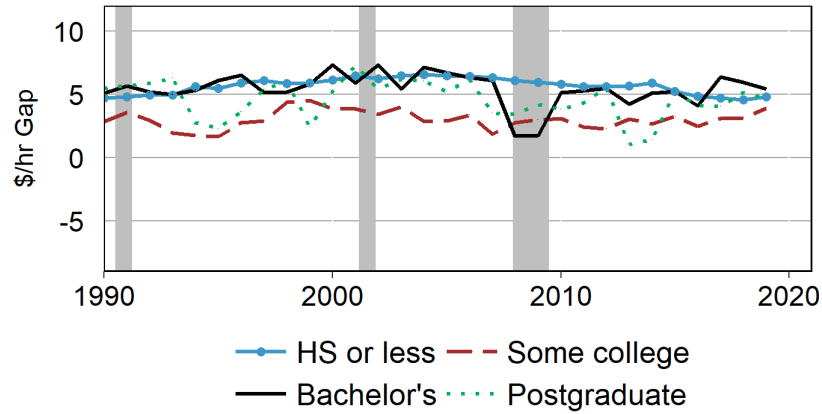


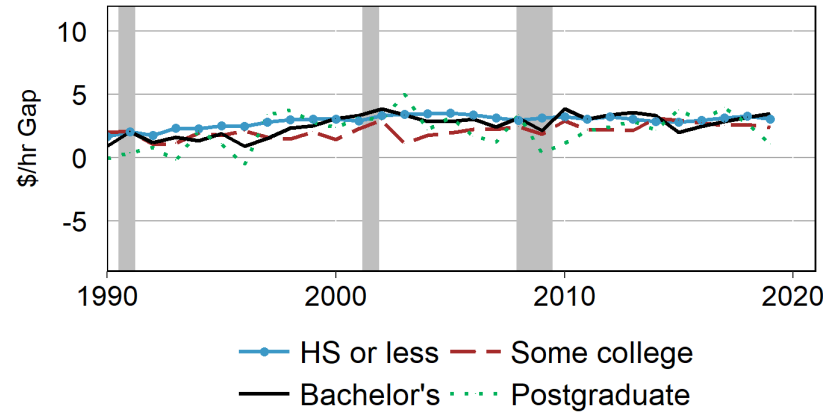
Figure 10: **White - Hispanic Trends in Real Average Hourly Earnings Gaps by Education in 2019 dollars**

(a) Average Hourly Earnings Gap, Male 25-64



Source: Authors' calculations using CPS data.

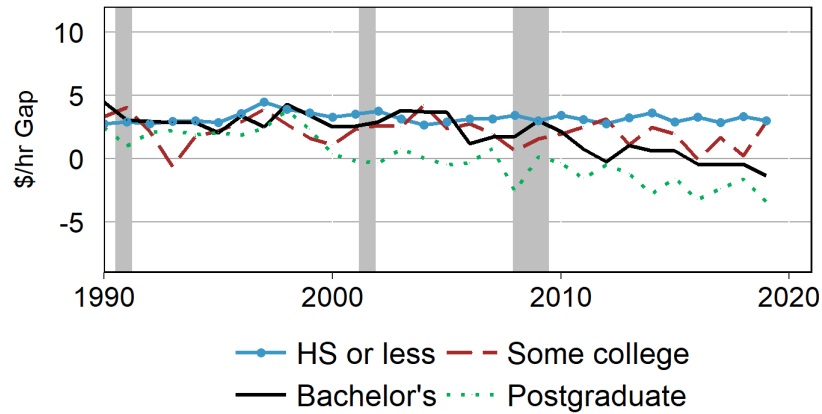
(b) Average Hourly Earnings Gap, Female 25-64



Source: Authors' calculations using CPS data.

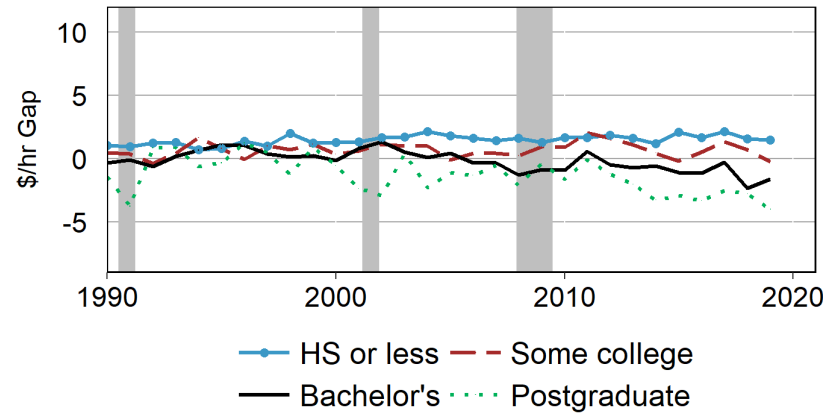
Figure 11: **White - API+ Trends in Real Average Hourly Earnings Gaps by Education**

(a) Average Hourly Earnings Gap, Male 25-64



Source: Authors' calculations using CPS data.

(b) Average Hourly Earnings Gap, Female 25-64



Source: Authors' calculations using CPS data.

II. What If Gaps Didn't Exist—Previous Literature

Although most of the research on labor market disparities focuses on why gaps exist across groups, a recent set of studies has looked at the toll these disparities take on the economy, or said differently, how much better the economy would be doing if the gaps were erased. The findings point to large gains in GDP. For example, [Hsieh and others \(2019\)](#) examine the effect on aggregate productivity of the convergence in the occupational distribution between 1960 and 2010. They use a structural model to examine how much of the gain in productivity during this period is associated with reductions in barriers to entry for females and Black workers. They estimate that the improved allocation of talent contributed between 20 percent and 40 percent of the total growth in aggregate market output per person during this period. They use a general equilibrium model to decompose the contribution of various forces, namely discrimination, barriers to human capital formation, and differences in preferences or social norms. They find that lowering human capital barriers explains 36 percent of growth in GDP per person over the period, while declining labor market discrimination explains 8 percent of growth, and changing preferences explain little of growth during this period.

Taking a non-structural approach, [Peterson & Mann \(2020\)](#) conduct a simple empirical exercise to estimate the cost of Black inequality in the U.S. They find that closing gaps between Black and white adults in wages, higher education, home ownership, and entrepreneurship would have generated significant additional income for saving, investing, and consumption, leading to a GDP boost of \$16 trillion over the past 20 years, and a projected \$5 trillion gain over the next five years. [Noel and others \(2019\)](#) consider a similar question, but focus on wealth. Through the lens of an Oxford model, they examine what closing the Black-white wealth gap by 2028 would do to aggregate GDP, using income, tangible investments, and stock-market investments as components of wealth. They find that closing these gaps would increase aggregate output by 4-6 percent by 2028.

Other authors have considered the impact of closing more specific gaps. For example, [Turner \(2018\)](#) focuses on closing the racial earnings gap associated with disparities in health, education, incarceration and employment opportunities. The exercise sets earnings for minority groups, further divided by age and gender, to the average earnings of their non-Hispanic white counterparts. She finds that closing these gaps today would increase GDP by 22 percent by 2050, for a corresponding gain of \$8 trillion. In a similar exercise, [Truehaft and others \(2014\)](#) estimate gains in average annual income and GDP under a hypothetical scenario in which there is no inequality of earnings or employment by race or ethnicity. The authors estimate the actual average annual income and hours of work for each racial/ethnic group, as well as projected values under the assumption that all

racial/ethnic groups had the same average annual income and hours of work, by income percentile and age group, as non-Hispanic whites. The projected values are then applied to the individual level for all racial/ethnic groups other than non-Hispanic whites. They find that closing these racial gaps in 2012 would have increased GDP by 14 percent or \$2.1 trillion that year.

Each of these empirical studies imagines a counterfactual world in which gaps do not exist and then computes the effect on aggregate GDP and some set of its components. Our paper adds to this literature. We make three contributions. First, we perform our analysis over 30 years of data for all racial minorities. Second, we explore how the gains from equity have changed over time, paying particular attention to whether they are falling or rising. Finally, we examine which disparities are contributing most to the gains we compute, looking over five distinct factors: employment, hours, educational attainment, educational utilization, and earnings gaps not explained by these factors.

III. The Economic Gains from Closing Gaps

III.A. Simple Counterfactuals

We begin with a very simple exercise to fix ideas and get an initial estimate of the magnitude of the gains to GDP from closing gaps.¹⁶ Using the CPS data for 2019, we compute the share of the population that is not self-employed, ages 25–64, that is non-Hispanic white, non-Hispanic Black, Hispanic, and non-Hispanic API+. We then compute the sum of average labor income earned by group, inclusive of zeros to account for differences in employment. The data are presented in the top panel of Table 1.

Next, we ask what would happen to the labor contribution to GDP if non-Hispanic Blacks, Hispanics, and non-Hispanic API+ had the same average earnings as whites. White individuals are the base group in our analysis as they have historically faced fewer systemic barriers in the labor market and as a result have had better labor outcomes overall relative to minority groups.¹⁷ The results are reported in the bottom panel of Table 1. Based on this simple exercise, eliminating earnings gaps alone would add about \$0.66 trillion to GDP. In percentage gains, this amounts to a 10 percent increase in labor income for the U.S. economy.

Of course, this simple exercise underestimates total labor income in the U.S. Assuming the same improvement applies to all labor income, we can scale up our number using the labor share of GDP. National income and product accounts data (NIPA) from the Bureau of Economic Analysis tell us

¹⁶We thank Erik Hurst for this idea.

¹⁷Our analysis only adjusts groups when they are worse off than the corresponding white group. This primarily affects adjustments for the API+ group, in which employment, educational attainment, and earnings are often higher for Asian Americans than for whites. However, there is significant inequality within this group reflective of the heterogeneity across ethnic subgroups (Kochhar & Cilluffo (2018)).

	Share of Population	Population 25-64	Avg Annual Earnings	Group Specific “GDP”
White	0.60	155 million	46,407	4.31 trillion
Black	0.13	155 million	32,572	0.65 trillion
Hispanic	0.18	155 million	32,760	0.92 trillion
API+	0.09	155 million	47,440	0.68 trillion
Total	–	–	–	6.56 trillion

Observed GDP Contributions

	Share of Population	Population 25-64	Avg Annual Earnings	Group Specific “GDP”
White	0.60	155 million	46,407	4.31 trillion
Black	0.13	155 million	46,407	0.93 trillion
Hispanic	0.18	155 million	46,407	1.30 trillion
API+	0.09	155 million	47,440	0.68 trillion
Total	–	–	–	7.22 trillion

Counterfactual GDP Contributions

Table 1: GDP Gains From Labor Equity in 2019

that aggregate labor income in the U.S. in 2019 was \$11.45 trillion. Multiplying our percentage gain in labor income (10 percent) by aggregate labor income of \$11.45 trillion generates an aggregate gain to GDP of about \$1.15 trillion from eliminating gaps in 2019 alone. This number is consistent with the numbers generated by prior research including [Peterson & Mann \(2020\)](#) and [Truehaft and others \(2014\)](#).

Using this simple counterfactual exercise, we next ask whether the gains from equity have risen or fallen over time. Two observations suggest that they likely have risen. First, from the trends we documented in Section I it is clear that while overall labor market disparities by race/ethnicity have improved for some groups, for many the disparities have remained stable or even worsened over time. Second, the population share of racial and ethnic minorities has been rising over the past three decades. This can be seen in Table 2 which shows shares of the adult population ages 25–64 by race and ethnicity. In 1990, 75 percent of the U.S. population was non-Hispanic white, compared to 60 percent in 2019. Over the same period, the Hispanic share of the U.S. population rose rapidly, increasing from 9 percent in 1990 to 18 percent in 2019. The API+ population share also rose, accounting for 9 percent of the U.S. population in 2019. The share of non-Hispanic Blacks remained relatively constant. This means that the existing large gaps apply to an increasing share of the U.S. population.

	1990	2000	2010	2019
White	0.75	0.70	0.66	0.60
Black	0.12	0.12	0.12	0.13
Hispanic	0.09	0.12	0.15	0.18
API+	0.04	0.06	0.07	0.09

Table 2: Population (25-64) Shares by Decade

Table 3 displays how these facts have impacted the gains from equity over the past three decades. Following the methods used in Table 1, the table shows gains to GDP from greater equity in earnings for 1990, 2000, 2010, and 2019. The gains represent the difference between actual GDP in each year and the counterfactual GDP with no earnings gaps.¹⁸ Beginning with the last line of the table, total GDP gains from eliminating gaps in earnings have grown considerably over time, rising from \$(2019)0.28 trillion in 1990 to \$(2019)0.66 trillion in 2019. The value of \$(2019)0.66 trillion in 2019 can be easily found by taking the difference of the Total Group Specific GDP in the bottom panel of Table 1 and the Total Group Specific GDP in the top panel from the same table. In percentage terms, counterfactual gains from labor income have risen from 7.5 percent in 1990 to 10 percent in 2019.

The patterns by race and ethnicity are also informative. All non-White groups have experienced gaps in labor market opportunities with non-white Hispanics throughout the majority of our sample. However, as of 2019, the potential gains from closing these gaps stem from opportunities for equity in the non-Hispanic Black and Hispanic populations. Since the non-Hispanic Black population has remained relatively constant over the time period it is easy to see that the increasing gains to equity over time are driven by rising gaps in earnings between white and black adults. In contrast, the bulk of the growth in the gains to equity for Hispanics owes to their rising share of the population, although gaps in their earnings have also risen.

These simple exercises illustrate the economic value of greater equity in labor market opportunities and outcomes, a value that has been rising over time. The next question to address is what is holding us back? Which underlying disparities are creating the gaps in average earnings we observe, and limiting aggregate output year after year? We turn to these questions in the following section.

¹⁸As in the previous exercise, if average earnings for a group are higher than non-Hispanic whites we do not change them. This is the case for API+ in 2019.

	Trillions 2019\$			
	1990	2000	2010	2019
White	—	—	—	—
Black	0.15	0.19	0.25	0.28
Hispanic	0.11	0.22	0.31	0.38
API+	0.02	0.02	0.02	—
Total	0.28	0.43	0.58	0.66

Table 3: Changes in GDP Gains From Labor Equity Over Time

III.B. Drivers of the Gains

The exercises so far tell a compelling story. But they do not point to where the largest opportunities for improvement might lie. To begin to answer this question we extend our counterfactual analysis and consider the labor market and educational gaps underlying the disparities in average labor earnings we observe in Table 1. Since our focus is on the labor contribution to aggregate GDP, we consider factors that contribute directly to labor input (employment and hours) and labor quality (educational attainment and educational utilization). Previous research has shown that these factors are important determinants of earnings differentials by race and ethnicity.¹⁹ We recognize that other measurable factors also matter such as industry and occupation ([Matthews & Wilson \(2018\)](#), [Daly and others \(2017\)](#), [Del Rio & Alonso-Villar \(2015\)](#)) and geographic location ([Cajner and others \(2017\)](#), [Parks \(2012\)](#)), as well as a host of other more difficult to measure factors including differences in educational quality ([Card & Krueger \(1992\)](#)), differences in career ladder opportunities ([Daly and others \(2020\)](#)), and discrimination, current or historical ([Darity & Mason \(1998\)](#), [Daly and others \(2017\)](#), [Cajner and others \(2017\)](#)). Although we do not separately quantify them in this analysis, their effects are accounted for in the remaining differences in average earnings once differences in employment, hours, education, and educational utilization have been eliminated.

III.B.1 Methodology

The first step in conducting this more detailed counterfactual exercise is to prepare the data. We begin with the same CPS data set we’ve been using, which includes civilian non-institutionalized adults ages 25–64, who are not self-employed. We divide this population into 32 mutually exclusive age, gender, race/ethnicity groups defined by two genders (male and female), four race/ethnicities (non-Hispanic white, non-Hispanic Black, Hispanic, and non-Hispanic API+), and four 10-year age ranges (25–34, 35–44, 45–54, and 55–64). The additional divisions by gender and age account for the differences in experiences across those dimensions that were highlighted in the discussion

¹⁹For example, see [Daly and others \(2017\)](#), [Altonji & Blank \(1999\)](#), [O’Neill \(1990\)](#).

of disparities. These additional divisions also address a common criticism of the literature on racial or ethnic disparities, namely that comparisons of averages do not capture the diverse experience of individuals within a group.

For each of these 32 groups we compute group specific values across our key variables: employment, hours, educational attainment and educational utilization. We define these variables as described in Section I. This produces a data matrix that allows us to easily exchange values for one group with values for another and recompute GDP, just as in the simple counterfactual. An example of this data matrix is displayed in Table 4 which shows the data cells for non-Hispanic white and non-Hispanic Black males ages 25–34 in 2019. Looking across the first two rows of the table, we see differences between white and Black males in the percent of the groups employed, average weekly hours, shares across the education distribution, and the percent of those with a bachelor’s degree or higher who are in jobs that require a bachelor’s degree or higher, labeled as utilized. The data in the table illustrate how the gaps displayed in the broader trends and the simple counterfactual play out even in narrowly defined age, gender, race cells. In all cases, Black males are in a worse position than their white counterparts. These rows contain what we will call the quantity variables, the labor inputs to the GDP contribution.

The next two rows in the table display the second part of the equation—average hourly earnings conditional on employment. Again, we see that in every case Black males earn less than their white counterparts. Of course, these are still averages across experiences that may be heterogeneous, but the fact remains that for the average employed Black male the average hourly earnings gap is substantial, roughly \$8 per hour.

With the elements of this data matrix we can easily perform our more detailed counterfactual analysis for Black males ages 25–34. To estimate the contribution of differences in employment, hours, educational attainment, and educational utilization, we first replace the values for Blacks with those of whites.²⁰ We “price” the new additions at the average hourly earnings of other Black males already in those positions. For example, we close the gap in employment rates, making the Black rate 87.7% and give the extra workers the average hourly earnings value of employed Black males, \$18.98. The results of this computation are shown in the last panel of the table, in the row labeled “ Δ Quantities.” The first cell in that row shows that giving Black males ages 25–34 the employment rate of white males, and making no other changes, would boost aggregate GDP by \$(2019)0.0125 trillion. The remaining entries in that row show the GDP contributions from adjusting the other factors.²¹

²⁰ As a reminder, white individuals are the base group in our analysis as they have historically faced fewer systemic barriers in the labor market and as a result have had better labor outcomes overall relative to minority groups.

²¹ Note that since we are moving people from one state to another, some of the GDP values are negative, the high school or less being a good example.

These counterfactuals give us estimates of the role that each of our variables play in the total contribution to GDP of greater equity as reported in Table 1. However, since they do not reflect all the reasons that average earnings differ by race and ethnicity, their contributions will not sum to the totals in that table. To get to those values, we need to replace not just the quantities for our groups but also the prices, or average earnings. Doing this gives us the values in the final row of Table 4 labelled “ $\Delta E_t + Q_t$.” Note that we label these variables with a subscript t to represent that the GDP contributions only reflect the contributions from the treated group (for example the additional black men ages 25-34 who are employed due to our exercise are given the equivalent white earnings of that cell). The difference between the “ $\Delta E_t + Q_t$ ” and the “ ΔQ_t ” is attributable to the residual earnings difference associated with each labor market or education state.

Completing this simple exercise for each of our 32 age, gender, race groups gives us estimates of the labor contributions to GDP associated with removing labor market and educational disparities. Although previous literature suggests that these factors won’t capture all the potential gains from greater equity, they are an important dimension to consider. We now turn to our results.

	Percent Employed	Weekly Hours	Education Shares				Utilization Shares		Total GDP
			\leq HS	SC	BA	Post- graduate	BA + Postgraduate Utilized	BA + Postgraduate Underutilized	
Quantities									
White	87.74	42.06	0.45	0.11	0.33	0.12	0.70	0.30	–
Black	76.63	40.74	0.64	0.09	0.23	0.05	0.54	0.46	–
Avg Hourly Earnings									
White	25.97	25.97	20.38	23.77	31.00	35.22	34.66	26.13	–
Black	18.98	18.98	16.95	18.89	22.97	26.85	27.56	19.04	–
GDP Contributions (Trillions of 2019\$)									
Δ Quantities (Q_t)	0.012	0.003	-0.015	0.002	0.011	0.008	0.005	-0.003	0.023
Δ Earnings (E_t)	0.005	0.001	0.000	0.000	0.003	0.003	0.001	0.000	0.013
$\Delta E_t + Q_t$	0.017	0.004	-0.015	0.002	0.014	0.011	0.006	-0.003	0.036

Table 4: Example of Our Data Matrix for 25–34 Males in 2019

III.B.2 Results

The results of our deeper counterfactual exercise, displayed in Table 5, show which of the specific factors documented earlier matter the most for aggregate output. Specifically, as described above, the exercise gives Black, Hispanic, and API+ (as appropriate) groups the same employment rates, hours, educational attainment, and utilization rates of their white counterparts, defined by age and gender.²² The values in the table are for 1990 and 2019 and are reported in trillions of 2019 dollars of GDP.

The results point to the largest gains to GDP coming from equalizing employment and educational attainment. Hours and utilization also matter but their effects are small relative to employment and education. Looking over time, important differences emerge. In 1990, equalizing employment, hours, education and utilization by group, priced at the group specific average wage, Q_t in the table, accounted for most of the gains to output. Adding the E_t component, which adjusts for residual differences in average hourly earnings conditional on factor equalization, while important, was only a quarter of the total gain to counterfactual GDP.

Counterfactual Contributions 1990				
	Percent Employed	Weekly Hours	Education	Utilization
GDP Contributions				
Δ Quantities (Q_t)	0.08	0.02	0.06	0.00
Δ Earnings (E_t)	0.01	0.01	0.02	0.00
$\Delta Q_t + \Delta E_t$	0.09	0.03	0.08	0.00

Counterfactual Contributions 2019				
	Percent Employed	Weekly Hours	Education	Utilization
GDP Contributions				
Δ Quantities (Q_t)	0.15	0.06	0.21	0.02
Δ Earnings (E_t)	0.03	0.01	0.07	0.01
$\Delta Q_t + \Delta E_t$	0.18	0.07	0.28	0.03

Table 5: Decomposed GDP Gains From Labor Equity in Trillions of \$2019

By 2019, the picture had changed substantially. First, the gains from equalizing employment, hours, education, and utilization have risen, and by a substantial amount. While employment and education remain the most important factors, the gains from equalizing hours and utilization play

²²Recall that we only shift groups when they are in a lesser position than their white counterparts, which is not always the case for the API+ group.

a more material role. Importantly, the role of E_t also has grown, especially for educational attainment. This is consistent with the trends shown in Figures 9, 10, and 11, indicating that even when educational attainment is equalized, residual earnings gaps remain between whites and racial and ethnic minorities. Overall, the results in Table 5 indicate that continuing to improve equity in employment and education is a positive for GDP, especially if it is accompanied by greater equity in associated earnings.

As noted earlier, the factors we have examined cannot fully account for the gains in equity found in our simple counterfactual. This is because even when we close gaps in employment, hours, education and utilization, and price the new entrants at the white wage, large gaps in average earnings still exist among the population that was already in those positions. Our final exhibit, Table 6 puts all of these contributions together, reporting results for 1990 and 2019. The table shows the observed GDP contributions from labor, computed from our CPS data set. Note the numbers are slightly higher than ones reported in Table 1 because we are able to hold to the idea that we do not adjust earnings down, only up for our race/ethnicity groups. The next three rows report the total contributions of the treated group (those that were moved into employment, higher hours, higher education, or to being fully utilized). The numbers reflect the sum over the rows from Table 5. The next row shows the earnings adjustment for the remaining individuals who never changed state. The final two rows put everything together: the total gain from greater equity and the counterfactual GDP contribution of labor, respectively. Put simply, the Counterfactual GDP Contributions reported at the bottom of Table 5 are equal to the Observed GDP Contributions plus the GDP Contributions of the Treated and Untreated groups.

The values in Table 6 summarize the findings of our analysis. Gains to greater equity in labor market inputs and outcomes are large, adding 0.79 trillion dollars to GDP, which when scaled to match labor share based on NIPA data, amounts to 1.4 trillion dollars in output in 2019 alone. The impact of disparities in employment, hours, education, and utilization is meaningful, explaining most of the gains we compute. But gaps in average earnings that are unexplained by these factors remain important, and cannot be overlooked.

	Totals	
	1990	2019
Observed GDP Contributions	3.61	6.54
GDP Contributions Treated		
Δ Quantities (Q_t)	0.16	0.44
Δ Earnings (E_t)	0.04	0.12
$\Delta Q_t + \Delta E_t$	0.20	0.56
GDP Contributions Untreated		
Δ Earnings (E_u)	0.11	0.23
GDP Contributions Treated + Untreated		
$\Delta Q_t + \Delta E_t + \Delta E_u$	0.31	0.79
Counterfactual GDP Contributions	3.92	7.33

Table 6: GDP Gains From Labor Equity in Trillions of 2019\$

IV. Discussion and Future Research

The opportunity to participate in the economy and to succeed based on ability and effort is at the foundation of our nation and our economy. Unfortunately, structural barriers have persistently disrupted this narrative for many Americans, leaving the talents of millions of people underutilized or on the sidelines. The result is lower prosperity, not just for those affected, but for everyone.

Here we have put forth some initial estimates of the economic gains from achieving greater equity.²³ The numbers are large, 0.76 trillions of dollars lost each year, summing to almost 22.9 trillion dollars over our 30 year sample. Given that the population share of racial and ethnic minorities continues to rise, the gains will only grow in the future.²⁴ And as others have shown, these direct gains are only the beginning. More equitable allocation of talent by education, employment, and jobs improves innovation, invention, and entrepreneurship, which set the foundation for growth today and growth in the future (*Bell and others (2019), Aghion and others (2018)*).

So what is holding us back? If the gains to equity are so clear, why haven't we been able to close them? Although the answers often lie beyond the economics literature, a large body of research points to some of the hurdles. For one, many of the structural barriers we see have become deeply

²³We acknowledge there may be attenuating factors such as wage effects. Following the meta-analysis by *Peri (2014)*, we use a 0.1 percent decrease in wages for every 1 percent increase in employment. This would lower our estimate of the counterfactual GDP to 0.76 trillion. There may also be amplifying factors as removing barriers and improving allocation should also produce gains in innovation.

²⁴Using population projections from the Census Bureau, we estimate total gains to the labor component of GDP will be 1.0 trillion 2019 dollars in 2030.

embedded in our society and economy, the result of historic discriminatory policies and practices, such as Jim Crow laws or redlining, which have left enduring impacts on many racial and ethnic minorities (Rothstein (2017), Oliver & Shapiro (1995), Denton & Massey (1993)).²⁵

The accumulation of these inequities over multiple decades and generations suggests that achieving equity will take time and significant investment. It won't be as easy as declaring them gone. This is clear when looking at the educational attainment data. Eliminating the differences in human capital investment by group will take an influx of resources and the returns on that investment won't be immediate, but will be worth it. Consider the return on high-quality early childhood education programs. Garcia and others (2020) find that such programs improve educational attainment and labor income later in life. In their particular study, they documented a 13 percent annual rate of return, net of the cost of financing the program. Of course, closing gaps in labor market income also contributes to closing racial wealth gaps (Aliprantis & Carroll (2019)). And this is important for future gains, producing the positive cycle of "wealth begets wealth" (Black and others (2020)) that has been so important to inter-generational success.

The current and future gains are not limited to individuals. They affect everyone. This is clear from our results that show the gains of eliminating these inequities to aggregate economic output—a bigger economic pie for all. Additionally, including more people in the economy and across different occupations allows for more diverse teams, which contributes to better performance. A growing literature documents this impact. For example, Kline and others (2021) find that racially discriminatory hiring practices among firms are negatively correlated with firm profitability, while Herring (2009) finds that among for-profit business organizations, racial diversity in the workforce is associated with positive performance indicators like increased sales revenue, greater market share, and greater relative profits. This type of research suggests that investments and actions by the private sector to close labor market gaps can directly benefit their bottom line.

Together, these arguments suggest that although there is a cost to achieving equity, it is a good investment that benefits both the individuals affected and the economy as a whole. This brings us back to the original question, what is holding us back?

Future research, especially in economics, might focus on insights from a number of scholars who have called for a new mindset. Williams & Spriggs (1999), Mason & Williams (1997), and Darity & Williams (1985), among others, have noted that prevailing economic models, which assume efficient market outcomes, are challenged to deliver results that highlight the economic losses associated with the existence and persistence of labor market and other disparities.²⁶ Their point as

²⁵Other examples that have been cited in the literature are forced governance structures imposed on Native Americans (Dippel (2014)) and the internment of Japanese Americans (Chin (2005)).

²⁶This point was also made by William Spriggs and Sendhil Mullainathan during the "Racism and the Economy: Focus on the Economics Profession" virtual session hosted by all 12 District Banks of the Federal Reserve System on

we understand it is that if economic models start with the assumption that markets work perfectly, it naturally follows that persistent barriers, that limit productivity, would be removed by profit-seeking entrepreneurs. This then implies that remaining gaps are best explained by differences in productivity, even if hard to measure, or differences in group specific preferences that drive people to sort by race and ethnicity into specific types or intensities of work. A long literature on persistent gaps follows this model.

But what if we started from a different vantage point and asserted that talent and preferences were distributed equally across racial and ethnic groups? This would naturally suggest that disparate outcomes were a misallocation and open the door for researchers to investigate how it might have arisen, including explanations related to historical and current differentials in investment, access, and labor market treatment. With considerable pressures weighing on U.S. economic potential in coming decades, the time seems right to take a new perspective and imagine what's possible if equity is achieved.

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A. Trends 25-34

Figure A1: Trends in Employment

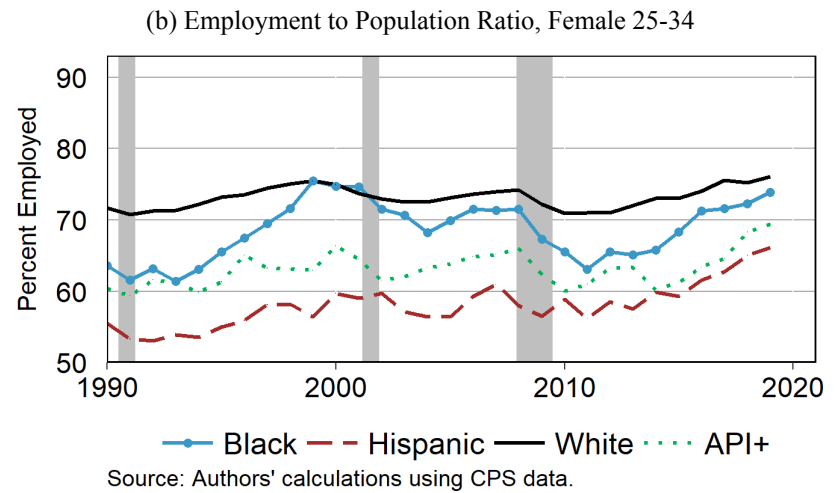
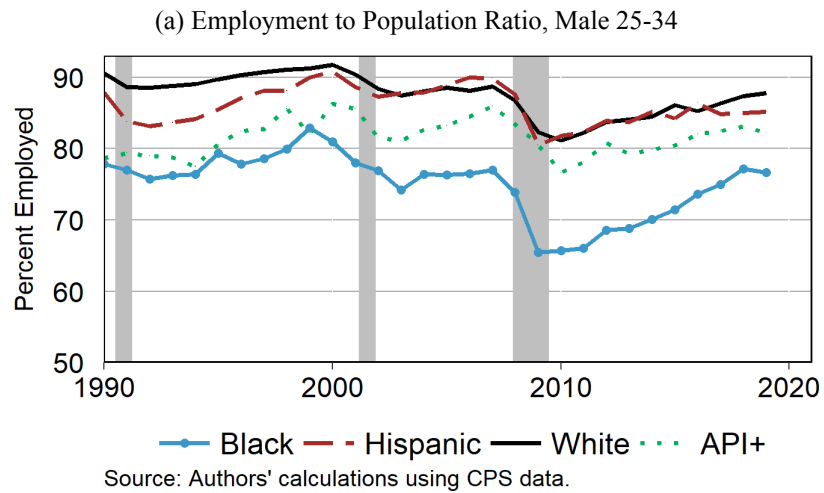


Figure A2: Trends in Hours

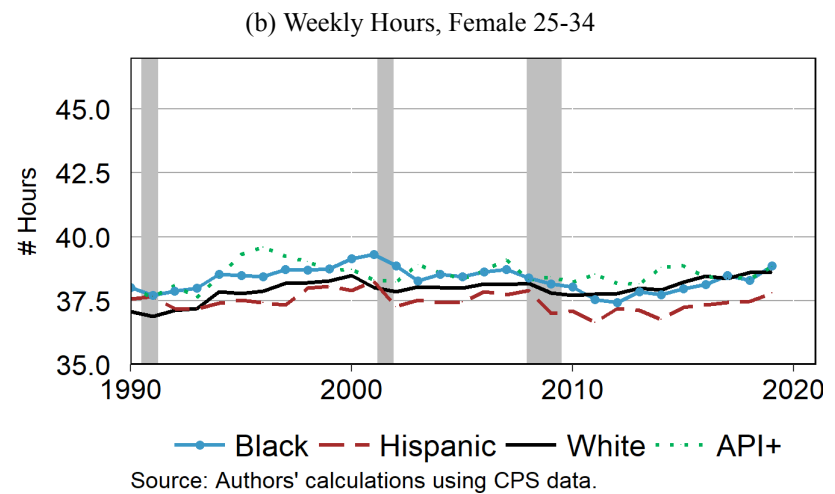
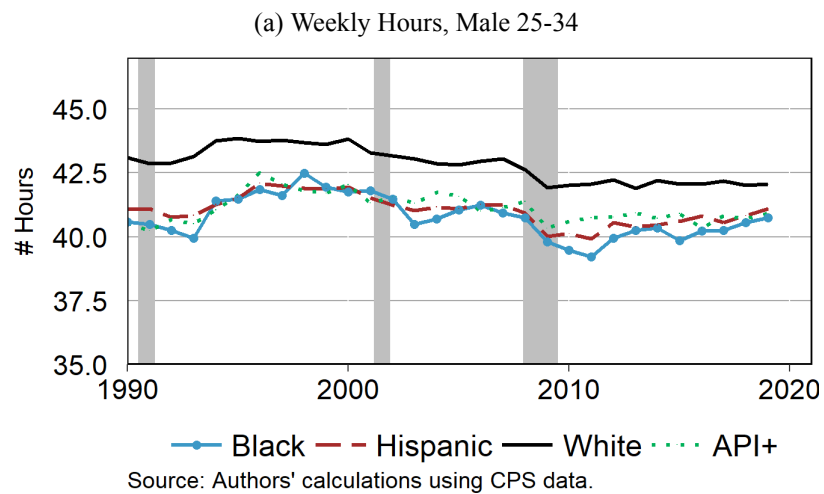


Figure A3: Trends in Educational Attainment

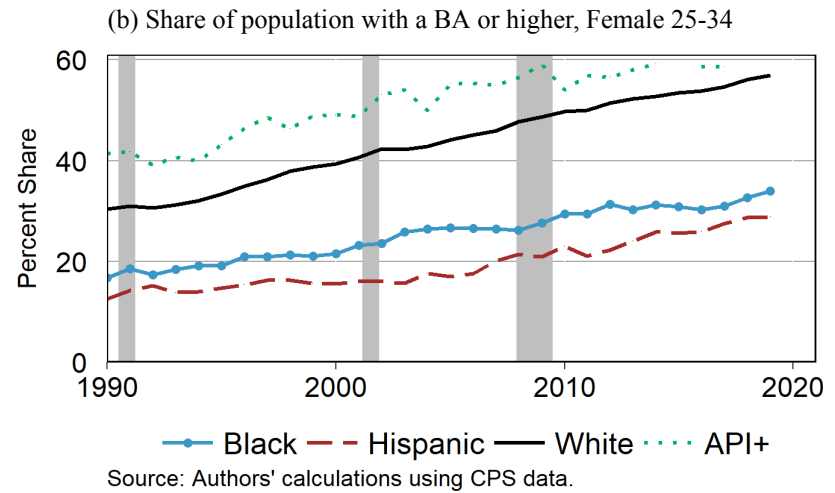
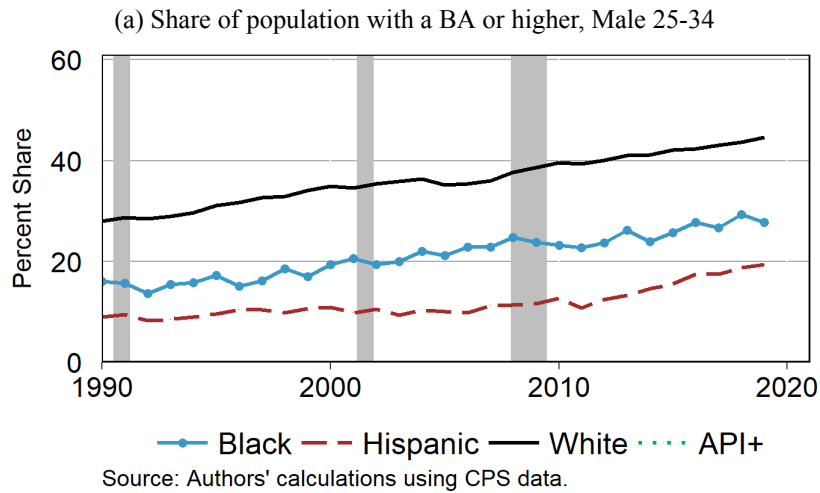


Figure A4: Trends in Educational Utilization (25-34)

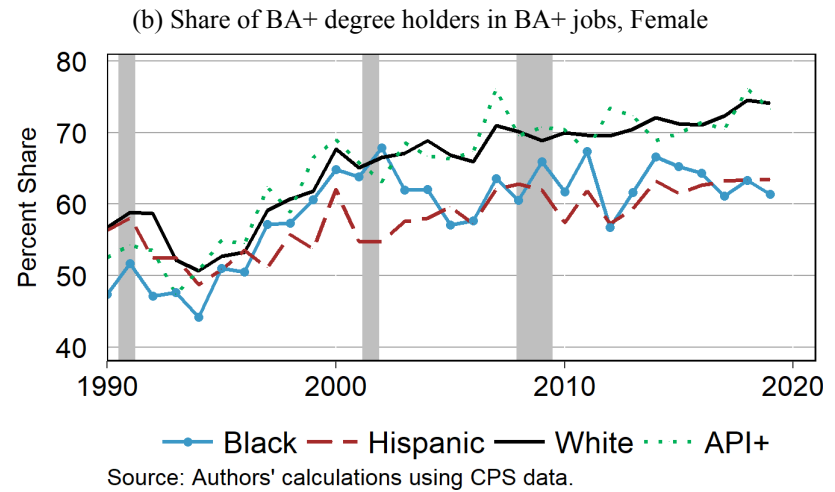
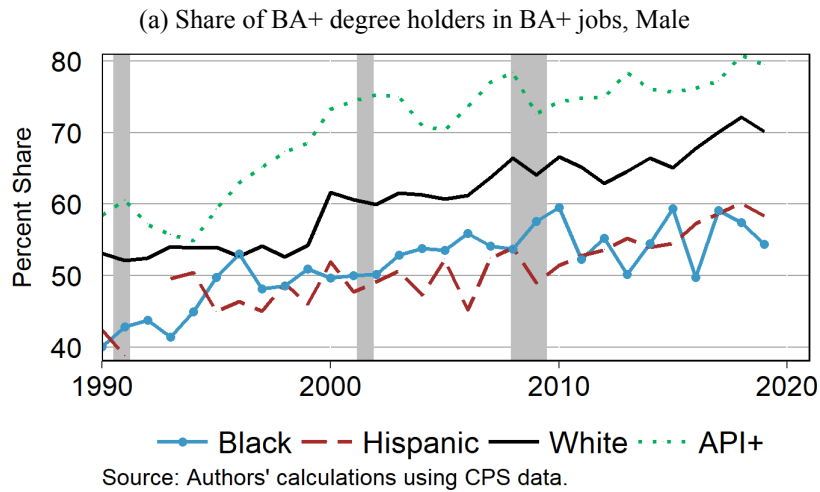


Figure A5: Trends in Real Average Hourly Earnings in 2019 dollars

