SOCIAL SCIENCES

Barred from employment: More than half of unemployed men in their 30s had a criminal history of arrest

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We investigate what portion of the pool of unemployed men in the United States have been arrested, convicted, or incarcerated by age 35. Using the National Longitudinal Survey of Youth, 1997, we estimate 64% of unemployed men have been arrested, and 46% have been convicted. Unexpectedly, these rates vary only slightly by race and ethnicity. Further investigation of other outcomes such as marriage, education, household net worth, and earnings shows large differences between unemployed men who have a criminal history record and those who do not. One major implication of these findings is that employment services should focus more on the special challenges facing unemployed men with criminal history records. A second implication is that statistical discrimination against unemployed members of racial minority groups, to avoid hiring those with criminal histories, is both illegal and ineffective.

INTRODUCTION

As many as one in three adult Americans have been arrested at least one time (*1*, *2*). This level of involvement with the criminal justice system is higher than in Western European countries (*3*). It is well established that the presence of a criminal history record (CHR), ranging from an arrest to a conviction, contributes to unemployment or employment problems (*4*). This is noteworthy because information about criminal justice involvement is both more readily available and more likely to be used by employers in the United States relative to Western Europe or most of the rest of the world (*5*). Yet, the level of unemployment in the United States is lower than in most Western European countries (*6*). This odd combination raises the possibility that the unemployed population in the United States is uniquely saturated with individuals who have histories of involvement with the criminal justice system.

To date, there have been no attempts to estimate the prevalence of a CHR among the unemployed population. In this paper, we investigate the proportion of unemployed men who have been arrested, convicted, and incarcerated as adults. We estimate that by age 35, approximately 64% of unemployed men [95% confidence interval (54, 73)] have been arrested at least one time for a nontraffic offense as an adult, and slightly more than 46% (38, 55) have been convicted at least one time for a nontraffic offense as an adult. As shown in the Supplementary Materials, the proportion is similar for samples that cumulatively include recently unemployed and discouraged workers (those who stopped searching for work but who had searched last year) and unemployed, discouraged, and involuntary part-time workers (those working part-time who would prefer full-time work). For more details on the definitions of labor underutilization, see the "Defining unemployment" section in Materials and Methods. Given that such a high proportion of unemployed men have a CHR, we suggest that employment services need to more aggressively address the specific problems facing individuals with CHR.

Our results about the proportion of unemployed men who have a CHR do not vary significantly by race. This counterintuitive finding has potential implications for current discussions about statistical discrimination where employers avoid hiring black and Hispanic applicants because the employers believe these applicants are statistically more likely to have a CHR. Statistical discrimination only works if CHR is correlated with race in the population of interest. This paper suggests that quite apart from being illegal, statistical discrimination, at least among unemployed men, will not accomplish the employer's goal of eliminating candidates with higher rates of criminal justice involvement.

Background

The myriad causes of Americans' levels of involvement with the criminal justice system are well documented: high crime rates, racial animus, economic inequality, educational disparities, and anti-immigrant bias, to name a few (*7*–*10*). From a social perspective, there are strong links between social isolation, persistent unemployment, crime, and involvement with the criminal justice system—particularly for black and Hispanic men.

Since the mid-20th century, the job prospects for men without a college degree have changed substantially. The transition from a manufacturing to a service economy has greatly reduced the number of well-paying, blue-collar jobs that do not require college degrees. Some jobs have evaporated because of technological changes, and others have relocated away from their original locations in the Rust Belt states. When new jobs are created, they often require more education and a higher skill set or they are low-paying service jobs that do not offer the same level of job security (*11*, *12*). The lack of access to well-paying manufacturing jobs has removed a pathway to the middle class for those who do not have a college degree. While black and Hispanic men have been disproportionately affected, white men without a college degree have also struggled to find stable, well-paying jobs.

Previous research has found that some people respond to limited job opportunities by participating in the underground economy (*13*–*17*). At the same time, as famously discussed by William Julius Wilson in *The Truly Disadvantaged* (*17*), inner-city communities now have

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fewer social, religious, and economic institutions, which can lead to concentrated poverty, isolation, and crime (*13*). Within these communities, black and Hispanic men may experience an underpolicing/overpolicing paradox (*15*). The absence of social, religious, and economic institutions in these areas often coincides with the lack of a regular police presence, forcing residents to navigate everyday problems on their own. However, when law enforcement officers are present, they often heavily target black and Hispanic youth and adults for harassment and arrest, which contributes to disproportionately high arrest, conviction, and incarceration rates for members of these groups (*18–22*).

Cognizant of the high criminal justice involvement within these communities, employers are increasingly likely to perform criminal background checks during the hiring process, largely because of cheap and easy access to CHR (*23, 24*). These checks lead to lower rates of success for those with CHR (*25*) and, by extension, large potential earning loss over the course of a career (*26*). Men are more likely than women to have a CHR, making it more difficult for them to secure employment. In addition, disproportionately high rates of criminal justice involvement for black people, combined with persistent racism and discrimination, make it particularly difficult for black job seekers to secure employment (*25*).

RESULTS

Unemployment

In what follows, we focus on black, Hispanic, and white men. We provide a complete analysis for women in Supplementary Text (see figs. S4 to S6). The results for men and women vary in important ways because rates of unemployment and criminal justice involvement vary substantially by gender. We are not able to include estimates for other ethnicities because of sample size limitations.

Figure 1 presents our initial estimates of male labor unemployment by race and ethnicity using the National Longitudinal Survey of Youth, 1997 Cohort (NLSY97). The sample is all unemployed men, with or without a CHR. Those enrolled in school for any part of the year are not included in the sample. The leftmost panel represents our baseline measure of unemployment, and the middle and right panels show the broader measures of unemployment defined above. In the leftmost panel, we find that the black/white unemployment ratio, which historically averages approximately 2:1 for young adults in the Current Population Survey, is somewhat smaller in the NLSY97, with a ratio closer to 3:2. Across all three panels, we find that rates of unemployment among Hispanic men are similar to those of white men. The shaded areas represent 95% confidence intervals. Consistent with prior labor research, we find that younger workers have much higher rates of unemployment regardless of the measure used. This is driven by lower rates of job finding and higher rates of job leaving with an interim spell of unemployment, more part-time work, and spells of labor force withdrawal. As workers age, labor market "churn" declines, workers settle into career fields with longer job tenure, and unemployment also thus declines [see Freeman and Wise (*27*) for a comprehensive examination of youth labor markets, as well as Mroz and Savage (*28*)].

In the middle panel of Fig. 1, we show a broader measure of labor unemployment by adding workers who have recently searched but are not currently searching. Again, we see a pattern of declining unemployment as workers age; in addition, these differences are statistically significant between black and white/Hispanic men, with black men having higher levels of unemployment at all ages. For the
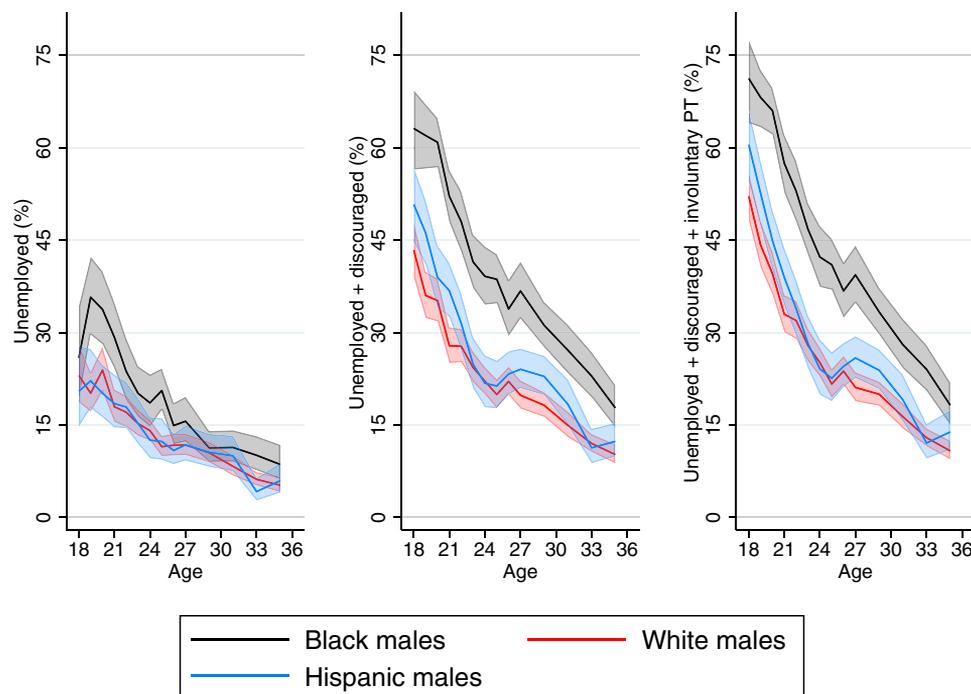
Fig. 1. Proportion of males in the labor force experiencing labor underutilization by age. Leftmost panel displays proportion of unemployed, middle panel displays proportion of unemployed or discouraged, and rightmost panel displays proportion of unemployed, discouraged, or involuntarily part time (PT). Bands represent 95% confidence intervals.

rightmost panel, we show our broadest measure of unemployment, which combines unemployment with recently discouraged workers and those who work part-time because they cannot find a full-time job. Again, we see that black labor unemployment is statistically significantly different from that of whites and Hispanics.

These patterns of declining unemployment as workers age happened despite two sharp economic downturns during the data collection period (one short recession in 2001 and the Great Recession in 2008) (29). The period shocks, which are spread out over five ages—because we have five birth cohorts in the data—show up around ages 17 to 21 for the 2001 recession and around ages 24 to 28 for the Great Recession, with slope changes that are particularly clear in the trends for black men.

Criminal history record

In Fig. 2, we present CHR information over the course of the young adult male life. We show an increase in three types of CHR: arrest, conviction (including guilty pleas), and incarceration. We consider only adult offenses—those occurring at age 18 or older—and we do not include traffic-related offenses. In each case, the CHR is cumulative, and we do not make allowances for CHR expungement or "clean slate" policies because this information is not available in the NLSY97. As a result, our estimates may be considered an upper bound. In the leftmost panel, we compare arrests among black, Hispanic, and white men; in the middle panel, we compare convictions; and in the rightmost panel, we compare incarcerations. The solid lines indicate the proportion who have been arrested by age, and the shaded areas are the 95% confidence intervals for the estimates. All results are weighted to account for the oversample of black and Hispanic men. Because these proportions reflect "ever" involvement, these proportions all increase as people age; also, they

shift downward (at each age) as criminal justice involvement increases (i.e., arrest is more likely than conviction, which is more likely than incarceration). Arrests are quite common, with approximately half of black men experiencing at least one adult arrest for a nontraffic offense by age 35. The arrest prevalence for black men is roughly 33% higher than it is for white men throughout the observation period, with some evidence that the gap widens further during their 30s. Black men also experience more convictions (middle panel) and are much more likely to be incarcerated (rightmost panel). By age 35, approximately 50% of the black men in the NLSY97 have been arrested, 35% have been convicted, and 25% have been incarcerated. Hispanic men generally have higher rates of arrest, conviction, and incarceration than white men, although the differences are not statistically significant.

The slope of the curve is steepest at the earliest ages, meaning that most people get involved with the criminal justice system for the first time in their late teens and early twenties (30). However, it is worth noting that the flattening of the curves may be exaggerated somewhat by the fact that these data were collected during a time period when crime rates were steadily dropping (31).

Proportion of the unemployed with CHR

On the basis of Figs. 1 and 2, it is unclear what fraction of unemployed men will have a CHR; unemployment rates decline with age, while the stock of people with any contact with the criminal justice system increases with age. Also, confounding is the fact that broader definitions of unemployment have differential effects by race. For example, unemployment requires a recent job search, so people with CHR who have left the labor force for long periods of time (in excess of 39 weeks) will not be counted in our measure of unemployment. Our other measures of unemployment will capture
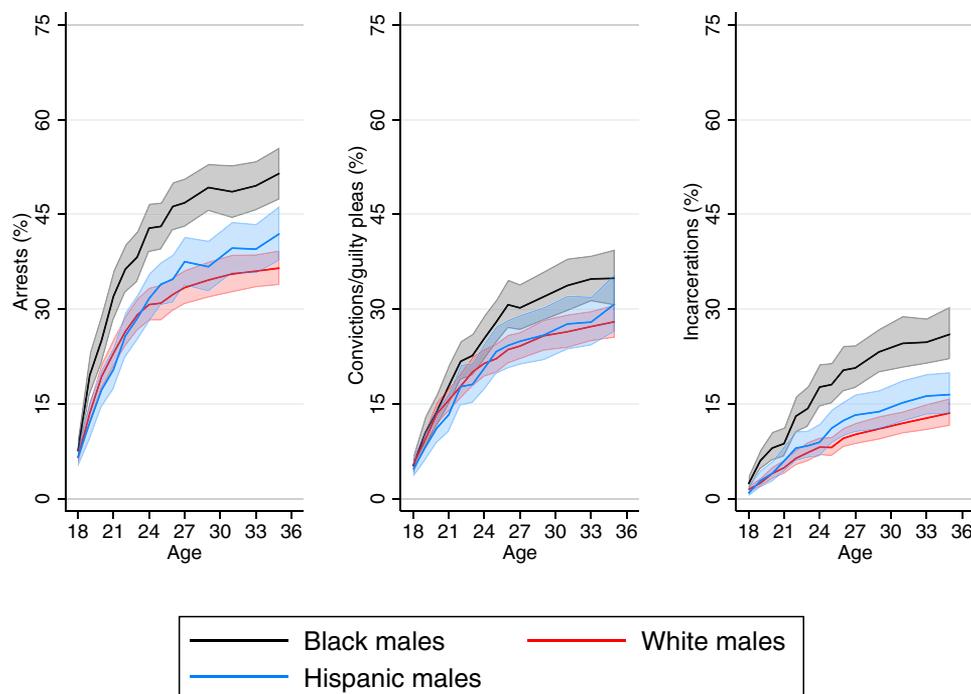
Fig. 2. Proportion of males with an adult CHR by age. Leftmost panel displays proportion with an arrest, middle panel displays proportion with a conviction or guilty plea, and rightmost panel displays proportion with an incarceration. Bands represent 95% confidence intervals.

those marginally attached jobless, and some who want to work more hours than are currently available. The results for the broader measures of unemployment are presented in figs. S12 and S13 in the Supplementary Materials. Because the results were so similar across the measures of unemployment, in the remainder of this paper, we chose to simplify the presentation and focus only on the results for the measure that most closely corresponds to the standard definition of unemployment.

Figure 3 shows the CHR of unemployed men as our sample ages. The results are notable. Throughout the life cycle (with the exception of conviction rates for unemployed white males between ages 19 and 21), unemployed black, Hispanic, and white men experience similar rates of criminal justice involvement. We do not see persistent statistical differences between races and ethnicities, so we omit confidence intervals for improved readability (see fig. S3 in the Supplementary Materials for a version with confidence intervals). Additional sensitivity checks using 1 to 39 and 1 to 52 weeks of unemployment during the year yield nearly identical results. While there is certainly selection into who becomes unemployed (see the race and ethnicity differences in Fig. 1), this finding is not due to selection on the duration of a spell of unemployment. As we show in the Supplementary Materials (fig. S12 and S13), we find a similar result when we expand the sample to include recently discouraged and underemployed men.

Demographics of the labor force by CHR status
We present demographic information in Tables 1 and 2 for unemployed and employed men with and without an arrest. Table 1 displays information for unemployed men, and Table 2 covers employed men. Here, we pool together respondents age 30 and older

by the final survey wave (administered in 2017) to ensure sufficient sample sizes for these subgroups. The top line presents the proportion of unemployed men who have no CHR and those who have been arrested, convicted (or pled guilty), and incarcerated. These percentages are similar by race and ethnicity: Slightly more than half of those who experience at least one spell of unemployment have a CHR of arrest, 38 to 42% have been convicted, and 20 to 26% have been incarcerated. As noted above, we find no evidence that the differences in arrest, conviction, or incarceration probabilities differ between race and ethnicity for the unemployed (Table 1). By contrast, in Table 2, we do see significant differences for the employed population across race; 44% of employed black men (ages 30 to 38) have a CHR of arrest compared to 32% of employed white men and 36% of employed Hispanic men. Tables S8 and S9 summarize the results of bivariate tests of independence between race and CHR for each of the subpopulations identified in Tables 1 and 2. Tables S10 and S11 summarize analogous results from multivariate analyses.

One of the most striking differences between those with and without a CHR is the low level of educational attainment for those with a CHR, a finding that holds for both the unemployed and employed populations. Among the unemployed, 50% of black men with a history of arrest are either high school dropouts or GED holders compared to 24% of those with no arrest record. Low levels of educational attainment for those with a CHR are also evident for white and Hispanic men. This combination of low educational levels and CHR status among the unemployed creates a kind of double bind that makes employment harder to achieve, particularly for black and Hispanic men. This is particularly worrisome because of evidence showing that early criminal justice involvement is responsible for lower levels of educational achievement (32). More generally,
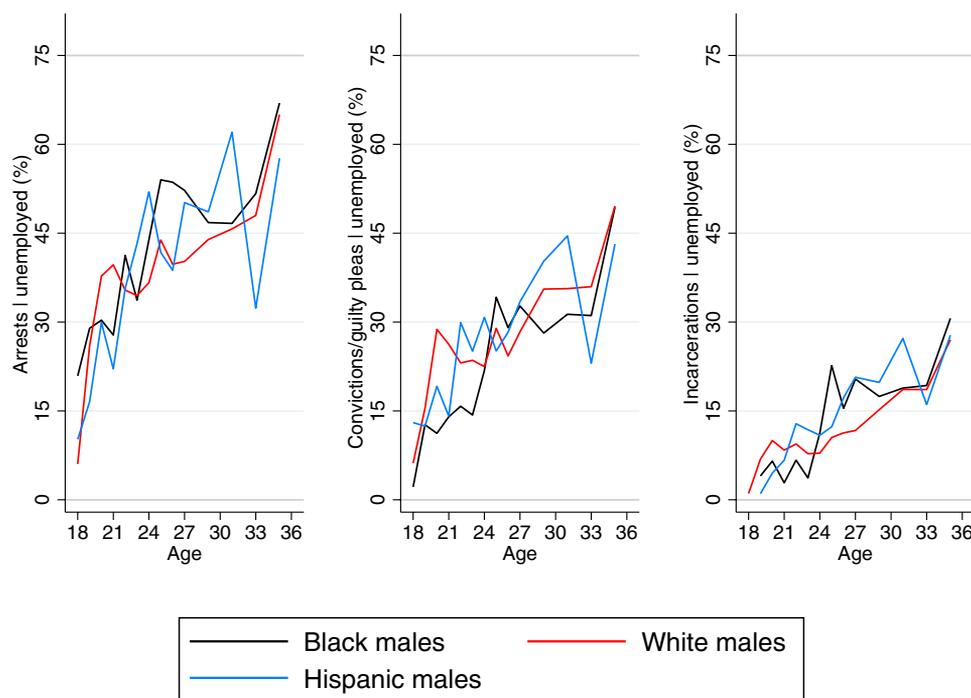
Fig. 3. Proportion of unemployed males with an adult CHR by age. Leftmost panel displays proportion with an arrest, middle panel displays proportion with a conviction or guilty plea, and rightmost panel displays proportion with an incarceration. All panels represent the population of unemployed males using our baseline measure of unemployment.

Table 1. Unemployed men's demographic characteristics by CHR. Chi-square test of difference between overall difference by race and ethnicity on the probability of having an arrest record failed to reject the null hypothesis ($P = 0.82$). P values corresponding to all other bivariate tests between CHR and race are summarized in table S8. Education and marital status are statistically significant in a multivariate logistic regression (details provided in Supplementary Text and table S10). Dash (–) indicates that the sample size was insufficient to reliably estimate, i.e., there were fewer than eight observations in more than one cell.

Unemployed	Black males, ages 30 to 38				White males, ages 30 to 38				Hispanic males, ages 30 to 38			
	No arrest	Arrest	Convict	Incarce.	No arrest	Arrest	Convict	Incarce.	No arrest	Arrest	Convict	Incarce.
Proportion with a CHR	47.2	52.8	37.9	23.2	47.2	52.8	39.8	20.3	45.7	54.3	42.5	25.9
Highest education												
% <HS or GED	24.2	50.4	57.2	57.3	12.9	41.7	45.2	57.5	28.1	46.6	46.6	71.2
% High school	45.3	41.5	37.9	38.6	38.9	35.1	37.1	35.0	51.0	44.5	47.9	28.8
% Some college	3.2	–	–	–	11.6	7.7	6.1	–	3.9	–	–	–
% College	27.3	–	–	–	36.6	15.4	11.7	–	17.0	–	–	–
% Urban	51.1	42.8	44.3	39.1	30.5	42.4	42.3	37.2	43.5	45.5	39.4	41.0
Marital status at last survey												
% Never married	54.4	56.9	58.4	54.2	40.1	54.5	56.4	51.1	42.2	69.5	67.2	65.7
% Married	43.2	31.6	33.7	37.3	47.8	31.1	27.8	22.1	42.8	18.9	–	–
% Sep/div/widow	2.4	11.5	8.0	8.5	12.0	14.4	15.8	26.8	15.0	11.6	–	–
Household net worth, age 35 (thousands of 2015 dollars)												
% (–inf, 0)	14.4	18.5	–	24.5	17.8	16.0	16.1	8.9	–	23.1	24.5	–
% [0, 10,000)	33.8	34.1	36.1	42.4	15.1	24.2	29.4	38.0	–	32.6	36.0	–
% [10,000, inf)	61.8	47.4	–	33.1	67.1	59.9	54.5	53.2	71.9	44.4	39.5	42.0

Table 2. Employed men's demographic characteristics by CHR. Chi-square test of difference between overall difference by race and ethnicity on the probability of having an arrest record rejects the null hypothesis ($P = 0.0002$). P values corresponding to all other bivariate tests between CHR and race are summarized in table S9. Education and marital status are statistically significant in a multivariate logistic regression (details provided in Supplementary Text and table S11). Dash (–) indicates that the sample size was insufficient to reliably estimate, i.e., there were fewer than eight observations in more than one cell.

Employed	Black males, ages 30 to 38				White males, ages 30 to 38				Hispanic males, ages 30 to 38			
	No arrest	Arrest	Convict	Incarce.	No arrest	Arrest	Convict	Incarce.	No arrest	Arrest	Convict	Incarce.
Proportion with CHR	56.3	43.7	27.9	17.0	68.2	31.8	23.9	9.9	64.0	36.0	25.0	12.4
Highest education												
% < HS or GED	16.0	41.0	46.7	55.0	8.5	30.7	34.2	49.6	15.8	36.9	41.2	51.5
% High school	50.3	47.5	43.9	39.3	40.0	41.5	39.9	34.7	47.9	49.5	49.8	42.7
% Some college	6.5	4.7	5.6	–	8.7	7.4	7.9	7.8	10.6	4.4	3.5	–
% College	27.2	6.8	3.7	–	42.8	20.3	17.9	7.8	25.7	9.3	5.5	–
% Urban	42.0	52.2	57.7	61.0	34.1	32.7	32.3	28.3	47.3	48.4	48.4	46.0
Marital status at last survey												
% Never married	54.4	58.4	59.7	58.2	28.1	45.3	45.9	48.4	43.2	52.2	50.8	56.6
% Married	35.3	29.0	27.3	28.5	63.6	43.0	41.2	37.4	47.4	35.1	34.4	27.8
% Sep/div/widow	10.3	12.6	12.9	13.2	8.3	11.6	12.9	14.2	9.4	12.7	14.8	15.5
% Experienced spell of part-time employment after age 30	17.6	27.6	29.1	36.4	10.9	17.9	16.9	18.9	15.3	16.1	14.9	17.1
Wage/salary income (thousands of 2015 dollars)												
Avg. wage/salary income	45.5	36.1	30.9	23.8	67.8	52.2	50.9	39.9	52.6	48.0	43.8	41.2
Median wage/salary income	39.6	28.0	24.2	21.3	57.8	41.6	41.6	34.8	45.4	38.7	38.7	33.8
Household net worth, age 35 (2015 dollars)												
% (–inf, 0)	14.5	6.8	7.9	7.0	5.2	9.1	8.3	8.1	12.4	9.4	10.3	15.2
% (0, 10,000)	21.3	33.7	32.2	39.0	5.7	16.8	16.5	17.5	12.5	19.1	18.4	17.8
% (10,000, inf)	64.2	59.5	60.0	54.0	89.1	74.1	74.3	74.4	75.1	71.5	71.3	67.0

this educational attainment finding adds an element to Wilson (*33*). Many of those with low education also have a CHR; consequently, they face a changing marketplace with fewer well paying job options and in which most employers conduct background checks.

Table 1 also contains results on the likelihood of being married. Having a CHR is significantly correlated with the likelihood of never being married for Hispanic men and, to a slightly lesser degree, for white men. The correlation is small for black men.

Table 2 provides a similar set of results for the employed. Employed men are less likely to have been arrested than unemployed men, but the prevalence is far from zero. The proportion of workers with an arrest record is largest for black men (43.7%) and smallest for white men (31.8%); Hispanic men are in between the two (36.0%). Once again, we observe the education gradient for those with a CHR of arrest: Regardless of race or ethnicity, men are significantly more likely to not graduate from high school if they have a CHR.

From an economic perspective, men with a CHR are more likely to have worked a part-time job after the age of 30, regardless of race, although the baseline is higher for black men, and so too is the rate of increase over time. Hispanic men without a CHR are more likely than their white counterparts to work part time; however, having a CHR does not increase the likelihood of working part time for Hispanic men. Employed men with a CHR earn lower average pay and lower median pay than their never-arrested counterparts. Furthermore, the amount earned falls with the severity of the CHR, likely due to the lower levels of educational attainment, and a reduction in labor market experience. So not only is this class of job seekers less likely to work, but also, when they do work, they earn significantly less than their counterparts without CHR, making the middle class ever less reachable for unemployed men with CHR.

DISCUSSION

The finding that rates of CHR are similar across race within the unemployed population is counterintuitive in light of the substantial differences in unemployment across race observed within the entire population. Although we have limited statistical power to detect differential CHR rates in the relatively small sample of people who are unemployed, this pattern still holds when we pool 30 to 38 year olds and make comparisons by race and ethnicity. Given the counterintuitive nature of the finding, it is helpful to understand how this situation can arise mathematically.

The probability of CHR among unemployed black males can be written as

$$P(\text{CHR} \mid \text{unemployed, black male}) = \frac{P(\text{CHR, unemployed} \mid \text{black male})}{P(\text{unemployed} \mid \text{black male})}$$

In words, the probability of having CHR among unemployed black males is equal to the ratio of two probabilities: (i) the probability of having CHR and being unemployed among the population of black males and (ii) the probability of being unemployed among the population of black males. Relative to white males, we know both of these probabilities to be larger for black males. When both of these probabilities are larger by the same percent increase, $P(\text{CHR} \mid \text{unemployed, black male})$ equals $P(\text{CHR} \mid \text{unemployed, white male})$. The higher probabilities in both the numerator and denominator for black men effectively cancel each other out.

It is helpful to remember that this similarity in the probability that someone who is unemployed will have a CHR does not mean that the experience of the stigma of having a CHR is similar across racial groups. As Pager (*34*) pointed out, the stigma of a CHR combines with discrimination based on race to create additional problems for black men in particular. In addition, the similar probability of being unemployed and having a CHR will have a different overall impact by race given that proportionally more black men face unemployment.

This similarity in the probability that someone who is unemployed will have a CHR across race also has sharp implications for the current debate about the possibility that employers might statistically discriminate against black job applicants if they are denied information about CHR (*4*, *35*–*38*). The claim is that employers concerned about hiring people with CHR will discriminate against black men based on the belief that black men are more likely to have CHR (*39*). While this belief may be true in general, this paper shows that this belief about the correlation between race and CHR is not true among men who have been unemployed at least 4 weeks in the last year: Among these unemployed men, statistical discrimination will not help employers avoid those with CHR.

The importance of this finding depends critically on the extent to which unemployed men, as measured in this sample, represent the pool of job applicants. After all, people who are employed can and do apply for other jobs. To examine this issue, we define a job switcher as someone who changed employers during the year without a spell of unemployment. We find that black male job switchers, at age 35, had a statistically significant higher rate of arrest (43%) than white male job switchers (32%).

There are two relevant findings here. First, for both black and white men, the prevalence of arrest is lower among job switchers than the unemployed, making it clearer why employers might be drawn to hiring people who are already employed. Second, statistical discrimination might be effective among men who are employed, even if it not effective among unemployed men or those who are recently discouraged or underemployed. The full results are presented in the Supplementary Materials (see fig. S10 for the employed and fig. S11 for job switchers.).

Main findings

This paper finds that men in the NLSY97 who were unemployed between the ages of 30 and 38 had substantial levels of involvement with the criminal justice system. The majority had been arrested at least once, almost 40% had been convicted at least once, and more than 20% had been incarcerated at least once. The results were very similar when we included recently discouraged workers and those who were working fewer hours than they wanted.

These men whose labor is underused include the very men whom Wilson identifed as the "truly disadvantaged" (*17*). Concern for this group of underutilized workers led to an increase in employment programs focused on helping people who are not fully successful in the labor market develop the skills they need for today's job market—although, overall, these programs are underdeveloped and underfunded (*40*). The findings in this paper have shown that many of these "truly disadvantaged" men also face an additional hurdle: the stigma of a CHR. Labor programs designed to help people fit into the ever-changing labor market will need to address the stigma of the CHR.

Now, this is not generally the case. One of the most comprehensive examinations of how to better target employment services in the

United States, by Eberts *et al.* (*41*), did not use the words crime, criminal, arrest, or conviction anywhere. The now seminal Black *et al.* (*42*) *American Economic Review* paper examining whether the threat of reemployment services is more effective than the services themselves has no mention of these issues either. A more recent analysis of the employment services program in Nevada fails to mention the issues related to CHR for the unemployed population (*43*).

Quite apart from employment services (which are targeted to the unemployed receiving unemployment insurance benefits), federally funded One Stop Career Centers exist to provide career and skill development, along with job search help, to all individuals seeking employment, a category that includes discouraged workers and part-time workers who would like to work full time [CareerOneStop n.d.; (*44*)]. The CareerOneStop.org website does offer a specific link for "workers with a criminal conviction," but that site often fails to include relevant information for those with CHR. We could find no reference to Ban-the-Box regulations or other guidance to employees about what employers can or cannot ask about or the regulations that vary by state about the background check processes.

The main piece of advice for those with convictions on the CareerOneStop site is to contact a community organization specializing in reentry. According to the CareerOneStop site, "there are hundreds of local service providers who specialize in helping ex-offenders find work" (*45*). However, these programs are not universally available, they may cater to particular occupations, they may only accept women, or they may be geographically too distant to access. As we show in this paper, having a CHR is a very common characteristic among unemployed people—the main clientele for the federally funded One Stop Career Centers. Our results therefore suggest that this important federal resource should be more directly focused on serving the important subpopulation of unemployed people with CHR.

Our paper also finds that the common understanding that race is correlated with having a CHR does not hold in the subsample of unemployed men. In this subsample, all races are equally likely to have a CHR. Among this group of unemployed men, having a CHR is a shared stigma that does not discriminate by race.

This does not mean that the lived experiences of black, Hispanic, and white men who have CHR are the same. It is well known that black men have higher rates of both CHR and unemployment—leading to substantively different labor market and criminal justice experiences. What it does mean is that employers cannot effectively use race-based statistical discrimination to avoid hiring those with CHR when hiring from among the unemployed. As shown in the Supplementary Materials, the result is similar for women, although, among the unemployed, white women might actually be more likely to have a CHR than black women. This result is driven by the much smaller differences in the rates of criminal justice involvement by race among women.

Limitations

One limitation of our results stems from the fact that the NLSY97 collected data on a particular group of birth cohorts followed during a period in which the country experienced a prolonged (and steep) drop in crime and two recessions, including the Great Recession. It is possible that the results we found regarding the prevalence of CHR among unemployed men might be driven by these historical realities. If we were to redo this analysis on cohorts born 20 years later, then we might find lower rates of CHR in the cohort and different patterns

of unemployment. Future research on other samples could explore whether these results hold for other birth cohorts who have experienced different historical contexts during their young adult years.

Future research should also explore the levels of CHR among job applicants, including those who are currently employed. Researchers should also explore whether hiring managers are motivated to avoid those with CHR due to recidivism or for other concerns, such as negligent hiring lawsuits or damage to the brand. If employers are worried about recidivism risk, then sophisticated recidivism prediction models that seek to understand the risk of recidivism among people who apply for jobs could go a long way toward demonstrating the true relative risk of job applicants by both race and CHR status. If employers are worried about negligent hiring liability (*23*), then the disproportionate presence of a CHR among black employed applicants could still explain statistical discrimination, even if there was no difference in actual recidivism. The only long-term solutions in this latter case are policies that limit the reach of negligent hiring lawsuits or that reduce the presence of CHR among people who have desisted (i.e., sealing and expungement).

To the extent that employers' policies are themselves a response to negligent hiring lawsuits and mandatory statutory restrictions, policymakers might be able to substantially improve outcomes for the unemployed by rebalancing the decision calculus to more fully take into account the societal impact of policies that restrict employment for those with CHR—a characteristic shared by a large number of the people in the labor market.

MATERIALS AND METHODS

The question in this paper is whether a CHR will have a particular influence on men whose labor is underused, relative to the general population. We answer this question using data from the National Longitudinal Survey of Youth, 1997 Cohort (NLSY97) to derive a set of CHR and unemployment variables. The NLSY97 is a panel survey of men and women living in the United States and born between 1980 and 1984 (*46*). The NLSY97 collects extensive data on labor market participation, educational attainment, criminal justice involvement, health, income/wealth, and personal and household demographic details. The survey follows an initial cohort of 8984 individuals. From 1997 to 2011, the survey was conducted annually; since then, it has been conducted every other year. The NLSY97 dataset is composed of two separate samples: a nationally representative sample and an oversample of black and Hispanic populations. We combine data from both samples in our analyses. The oversample is included to provide sufficient precision in the estimates of underrepresented subpopulations. The distribution of the NLSY97 initial cohort is presented in table S1.

The NLSY97 has been used previously to estimate the prevalence of any arrest (including an arrest as a juvenile) and has also been used to estimate the cost of a conviction on employment outcomes (*1*, *26*). We constructed three cumulative measures of a CHR, defined for each individual in each year: (i) arrest history, (ii) convictions/ guilty plea history, and (iii) incarceration history. These measures consider only criminal justice involvement after age 17 and therefore reflect an adult CHR.

Throughout this paper, our primary results are presented as age-based estimates. Calculation of age-based estimates is complicated by the fact that different individuals turn a particular age in different survey waves: The sample has five unique birth cohorts born in

five different years. Our age-based estimates are derived by pooling individuals of the same age across multiple survey waves and appropriately accounting for survey weights. As a result, age-based estimates for a particular age *a* reflect the population of individuals who are born between 1980 and 1984 and turn age *a* during the observed time frame, 1997–2018. For example, all individuals in the sample turned 30 years old between 2010 and 2014. Further details for this procedure are provided in Supplementary Text. Because of the panel nature of the NLSY97 survey, it is important to note that changes across age are inherently coupled to global changes across time. For instance, unemployment rates are affected by global economic recessions, which occur at similar ages for all individuals in the NLSY97 survey. Because of this, we provide calendar year–based estimates (as opposed to age-based estimates) of our major findings in Supplementary Text. In particular, figs. S7 to S9 provide calendar year–based estimates corresponding to Figs. 1 to 3 of the main text.

Defining unemployment

We define our primary measure of unemployment in this paper as an unemployment spell (nonemployment with active work search) lasting four or more consecutive weeks in a calendar year. We consider those who are unemployed for more than 39 weeks in a year to be out of the labor force. Limiting unemployment spells to fewer than 39 weeks excludes people who are marginally attached and only sporadically searching. Since our 12-month observation window for unemployment is much larger than the standard observation window for unemployment (typically a single week of the most recent month), we anticipated—and found—higher levels of unemployment than official statistics from the U.S. Department of Labor. We explore alternate definitions of unemployment—allowing up to 52 weeks—and find very similar results. In addition to our primary measure of unemployment, we also consider broader measures of unemployment by adding recently discouraged workers (those who are not actively searching for work at the time of the interview but who searched/worked in the past year) and those who are part-time for economic reasons (i.e., they would like full-time hours but cannot find a full-time job) to our baseline measure of unemployment. The three measures of unemployment are cumulative and move from narrowest definition to broadest: unemployed, unemployed plus recently discouraged, and unemployed plus recently discouraged, and part-time for economic reasons. These three measures correspond roughly to different U.S. Bureau of Labor Statistics measures of unemployment (see www.bls.gov/news.release/empsit.t15.htm). A detailed description of all the unemployment variables is provided in the Supplementary Materials and Methods section of the Supplementary Text and table S3.

SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at https://science.org/doi/10.1126/sciadv.abj6992

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Science Advances

Barred from employment: More than half of unemployed men in their 30s had a criminal history of arrest

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