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The Degree of Disadvantage: Incarceration and Inequality in Education

By
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and
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This article examines how the rise in incarceration and its disproportionate concentration among low-skill, young African American men influences estimates of educational attainment in the United States. We focus on high school graduation rates and the persistent gap in attainment that exists between young black and white Americans. Although official statistics show a declining racial gap in high school dropout in recent years, conventional data sources exclude the incarcerated population from sample data. We show how those exclusions underestimate the extent of racial inequality in high school graduation and underestimate the dropout rate among young black men by as much as 40 percent. America's prisons and jails have become repositories for high school dropouts, thereby obscuring the degree of disadvantage faced by black men in the contemporary United States and the relative competitiveness of the U.S. workforce.

Keywords: incarceration; high school graduation; racial inequality

The educational attainment of a country's population is linked not only to inequality within a country but also to its position in the global economy. Educational expansion enhances the life chances of even formerly disadvantaged classes, thus providing a path toward upward mobility (Raftery and Hout 1993). The expansion of higher education in the United States after World War II has been linked to widening educational opportunities and increased social mobility through educational attainment (Blau and Duncan 1967;

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Raftery and Hout 1993). But just as education levels shape inequality within a country, having an educated workforce is a cornerstone of modern welfare state policy and thought to be a key component of U.S. global competitiveness (Pew Charitable Trusts 2009). The explicit rationale for continued contemporary public investment in education is to prepare and maintain an educated workforce in an increasingly competitive global economy.

The United States compares relatively favorably with other advanced industrialized nations on most measures of educational attainment (Goldin and Katz 2008). As Table 1 shows, young white men in the United States are more likely to graduate from high school than young men in any other advanced industrialized nation except the Czech Republic. And they are more likely to attend post-secondary school, or college, than men in any other country for which we have comparable data. However, within the United States, blacks are less likely to graduate from high school or go on to college than whites. They fall outside of the top ten (at eleven) in terms of high school completion and rank third on college attendance when considered in comparison to young men in other advanced industrialized nations. While some prominent scholars and policy-makers have used data similar to those shown in Table 1 to extol the educational progress of Americans (Child Trends 2003; Dillion 2010), especially among blacks, others lament the slow progress of black America over the past 50 years, and there is growing contention that the criminal justice system maintains racial inequality in the United States by disproportionately incarcerating young black men and excluding them from economic and political spheres of social life (Alexander 2010; Blank 2001; Gamoran 2001; Wacquant 2000, 2001; Western 2006).

In this article, we examine whether and how comparative assessments of educational attainment and racial inequality in high school completion within the United States are influenced by growth in the prison system. Although other aspects of social inequality in criminal justice contact (arrest, prosecution, sentencing, and so forth) are related to measures of educational attainment, we focus on incarceration. Four decades of penal expansion represent a new type of state intervention in the lives of low-skill, disproportionately minority, men. American welfare state provisions have historically emphasized providing training and services to promote full employment and a competitive workforce. Yet incarceration siphons millions of individuals out of the workforce, leaving them arguably less

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TABLE 1
 Percentage of Men Aged 25–34 by Educational Attainment and Country, 2010

	LTHS	HS	Some College
Czech Republic	5.0	74.9	20.1
U.S. whites	5.8	30.0	64.2
Slovakia	6.1	75.5	18.5
Poland	7.6	62.4	30.1
Slovenia	8.4	68.9	22.7
Switzerland	9.9	48.6	41.5
Croatia	10.2	69.6	20.2
Austria	11.0	70.1	18.9
Finland	11.1	57.9	31.1
Germany	13.2	62.0	24.8
U.S. blacks	13.4	38.2	48.4
Canada	13.5	23.5	63.0
Sweden	13.7	50.8	35.5
Hungary	14.0	65.0	21.0
Lithuania	14.0	48.1	37.9
Ireland	16.5	42.0	41.5
Luxembourg	16.6	41.0	42.5
Estonia	17.0	54.7	28.3
France	17.3	44.3	38.3
United Kingdom	17.3	43.9	38.8
Bulgaria	18.0	62.3	19.7
Norway	18.7	44.4	36.9
Cyprus	18.9	39.3	41.9
Belgium	19.5	42.2	38.2
Netherlands	20.1	43.0	36.9
Latvia	20.8	55.8	23.3
European Union (27 countries)	21.0	50.2	28.8
Romania	23.3	58.0	18.7
Denmark	23.5	45.4	31.1
Greece	30.3	44.6	25.1
Iceland	31.9	39.5	28.6
Italy	32.3	51.4	16.4
Spain	40.9	25.3	33.7
Turkey	53.0	28.7	18.3
Portugal	54.8	26.9	18.3
Malta	57.8	23.2	19.1

SOURCE: Eurostat database and Statistics Canada, accessed September 20, 2012.

NOTE: LTHS = less than high school; HS = high school.

well-equipped to compete in a global economy after incarceration (Pager 2007). These institutionalized persons are categorically excluded from household-based surveys.

We question whether the omission of inmates from conventional surveys affects comparative assessments of high school completion. While conventional data sources show U.S. workers in good standing cross-nationally and point to declines in racial inequality in high school completion within the United States, growth in the prison system may conceal the true nature and extent of educational inequality both within the United States and across countries.

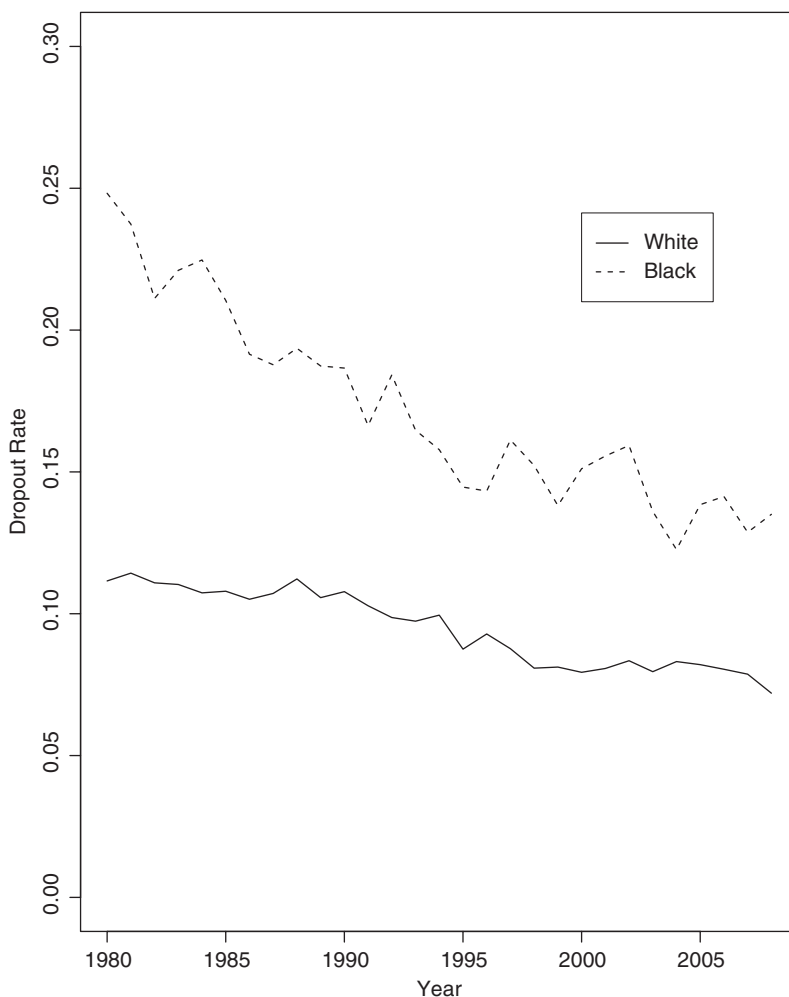
Educational Attainment and the Modern Welfare State

One of the key metrics used to evaluate contemporary welfare states is the educational attainment of the population. Education is a key element of modern democracy, and an educated workforce is thought to be more productive and responsive to rapidly changing global economic conditions (Goldin and Katz 2008). As Table 1 shows, Northern European nations typically outrank Southern European countries in educational attainment. Eastern European countries have relatively high rates of high school completion (or the equivalent) but very low rates of college attendance.

Within the United States, minority and low-income students tend to have lower educational attainment than white and more affluent students (Gamoran 2001; Lareau 2003). However, data from the Current Population Survey (CPS), shown in Figure 1, are consistent with the claim that educational expansion has fueled declines in racial inequality in education in the United States. The educational attainment measure in the annual March CPS indicates whether an individual has failed to complete high school or acquire a general equivalency degree (GED). While this is technically not a measure of high school dropout, we use the term high school dropout to indicate failure to complete high school or acquire a GED by the time of the survey. In 1980, at the start of the time series in Figure 1, 11.2 percent of non-Hispanic white men between 20 and 34 had not completed high school or a GED. By the end of the series in 2010, the number of high school dropouts in this group had fallen to 6.4 percent. Among non-Hispanic black men in the same age group, the high school dropout rate fell from 24.8 percent to 14.4 percent over the same period, resulting in a 40 percent decline in the racial gap in high school dropout over the period. We focus on the black-white graduation gap given the extraordinarily high incarceration rates among blacks and the concentration of low-skill, young black men in American prisons and jails.

Data in Figure 1 suggest steady declines in the proportion of African American men who fail to complete high school—either through graduation or equivalency degrees—over the past three decades. Gamoran (2001) concluded that black and white high school completion rates approached parity by the end of the 1990s; yet the exact size of the racial gap in high school completion and recent trends in

FIGURE 1
High School Dropout Rates, Men 20–34



SOURCE: Authors' calculations using the March CPS, 1980–2010.

the race gap are still sources of debate. Different data and measures generate a high school completion rate that ranges between 70 and 82 percent (Mathews 2006; Mishel and Roy 2006; Greene and Winters 2006), and one strand of research finds that graduation rates of white and minority students have not converged as is commonly thought (Heckman and LaFontaine 2010; Greene and Winters 2002; Orfield et al. 2004).

While recent research has made important strides in documenting the implications of high rates of incarceration for the measurement of educational

inequalities, more attention is needed to understand how sample bias has affected the construction of estimates of high school completion over time and across countries. Specifically, we show how the exclusion of the incarcerated population, when calculating national estimates of educational attainment, understates the extent of racial inequality in high school graduation and obscures cross-national comparative statistics. This article represents one example of the study of the growing invisibility of young, undereducated black men due to mass imprisonment and household-based data sampling (Pettit 2012).

Mass incarceration is an aspect of American welfare state policy (Western 2006) that affects the relationship between educational attainment and individual mobility or American competitiveness. Over the past several decades, as the prison system has grown, spending time in prison has become concentrated among those with low levels of education. Nearly three in ten white male dropouts in the United States can expect to serve time in a state or federal correctional facility in their lifetime, and nearly 60 percent of black male dropouts are imprisoned at some point in their lives (Pettit and Western 2004). At the same time, our national data systems, and the social facts they produce, are structured around a kind of domestic life—one that categorically excludes inmates housed in correctional institutions.

More than two decades ago Darity (1980) argued that the exclusion of the unemployed population from estimates of wages overstated the relative economic standing of blacks and created an illusion of black economic progress. More recent research has argued that high rates of incarceration lead to the exclusion of socially marginal groups from household-based surveys including the CPS (Pettit 2012). The exclusion of prison and jail inmates from conventional data sources has been shown to influence how the United States compares to other advanced industrialized nations' measurement of racial inequality in unemployment (Western and Beckett 1999), employment (Welch 1990; Western and Pettit 2000), wages (Western and Pettit 2005), and general estimates of voter turnout (McDonald and Popkin 2001).

Accurate measures of racial differences in educational attainment are more than empirical facts. If the exclusion of prisoners from such calculations biases estimates of educational attainment, a growing institution—prisons and jails—has obscured our understanding of one of the most basic measures of socioeconomic success and one of the key pillars of American democracy—educational attainment. Such an omission may have wide ranging consequences for sociological research and public policy. Furthermore, if the exclusion of prisoners leads to a misrepresentation of the educational attainment of the population, the findings will suggest that current frameworks for understanding the relationship among education, individual mobility, and American competitiveness require additional theorizing and greater empirical rigor because they ignore a salient institution in the lives of disadvantaged men. We investigate how the exclusion of prison and jail inmates from the calculation of educational attainment affects estimates of high school graduation rates and obscures the comparative status of American workers.

Mass Incarceration and Educational Attainment

When statistics on the size of the prison population were first recorded in 1925, 79 of every 100,000 Americans were held in federal or state prisons (Sourcebook of Criminal Justice Statistics 2008). Long-term stability in the imprisonment rate prompted some prominent criminologists to claim the existence of a “natural” or stable incarceration rate (Blumstein and Cohen 1973). Theories of stable incarceration rates were upended during the prison expansion that began in the mid-1970s. Between 1975 and 2009, the U.S. imprisonment rate grew at an average annual pace of 4.7 percent, a stunning increase considering the imprisonment rate adjusts for population growth over the period. By 2008, 2.3 million people (roughly 764 per 100,000) were institutionalized in American correctional facilities (West and Sabol 2009; Pettit 2012). And, as Table 2 shows, the United States incarcerates a higher fraction of its population than any other advanced industrialized nation.

The risks of spending time in prison are not uniformly distributed across the population and inmates represent a particularly disadvantaged segment of the American population. One in one hundred American adults is housed behind bars; however, one in nine African American men is incarcerated, and over one in three young, black, male high school dropouts is in prison or jail on any given day (Pew Center on the States 2008; Western and Pettit 2010). Disproportionately male, black, and low-skill inmates and former inmates are less likely than otherwise similar disadvantaged men to live in settled households and hold down steady legitimate jobs. Even their institutionalization involves a segment of the state cut off from usual methods of social accounting: inmates are categorically excluded from surveys that sample from the population of individuals living in households.

Decades of prison growth coupled with high concentrations of incarceration among low-skill black men may have important consequences for the measurement of racial inequalities in educational attainment within the United States and the comparative standing of U.S. workers. Although some scholars assert that the CPS provides a reasonable approximation of educational distributions of the general population (e.g., Goldin and Katz 2008), others have cautioned that conclusions about racial convergence in high school completion rates based on measures derived from CPS data should be viewed with skepticism, noting that the CPS measure of educational attainment tends to be statistically unreliable for minority populations and that different measures of high school graduation rates may yield different conclusions (Hauser 1997).

Recent concerns about how sample bias affects measures of racial inequality in high school completion are situated within a wider discussion of which data sources to use and how to best measure high school graduation and dropout rates. Scholars and policy-makers have considered the implications of using data that exclude private school students, differences in the classification of GED recipients, and the effects of migration and grade retention (Swanson and Chaplin 2003; Warren and Halpern-Manners 2007, 2009; Warren 2005; Orfield

TABLE 2
Prison Population and Incarceration Rates by Country, 2009–2010

Country	Number of Inmates	Incarceration Rate (per 100,000)
United States	2,292,133	743
Russian Federation	806,100	568
Georgia	23,995	547
Belarus	36,533	381
Greenland	194	340
Ukraine	154,027	338
Lithuania	9,139	276
Estonia	3,405	254
Poland	83,401	218
Czech Republic	23,028	218
Slovakia	10,031	184
Turkey	124,074	168
Hungary	16,537	165
Spain	73,459	159
England/Wales	84,883	153
Scotland	8,000	153
Luxembourg	706	139
Romania	29,126	136
Bulgaria	9,071	120
Canada	39,132	117
Portugal	12,038	113
Italy	67,615	111
Austria	8,658	103
Greece	11,547	102
Ireland	4,495	100
Belgium	10,561	97
France	59,655	96
Netherlands	15,604	94
Northern Ireland	1,628	90
Germany	69,385	85
Switzerland	6,181	79
Sweden	7,106	78
Denmark	4,091	74
Norway	3,602	73
Iceland	189	60
Finland	3,189	59

SOURCE: Walmsley (2011).

et al. 2004; Goldin and Katz 2008; Heckman and LaFontaine 2010). Estimates of high school graduation rates and dropout rates vary depending on how scholars treat these issues.

Since CPS data cannot distinguish between public and private high school graduates (Swanson and Chaplin 2003; Warren and Halpern-Manners 2007), and Common Core Data (CCD) data count as graduates only those individuals with a high school diploma and not a GED (Warren and Halpern-Manners 2007; Orfield et al. 2004), it is not surprising that these datasets yield differing estimates of the high school dropout rate. Warren and Halpern-Manners (2007) found that half of the difference in dropout rates calculated using CCD and CPS data is due to classification differences of private school graduates and GED recipients, and they argue that the other half of the discrepant results is due to CPS respondents' misstating children's enrollment and educational status. Nonetheless, there is no commonly agreed upon method for establishing over time trends in educational attainment. Our research uses time series data from the CPS, combined with data on inmates, to examine overtime trends in the sample selection effects associated with penal growth.

Data and Method

To estimate the effect of mass incarceration on the educational attainment of men in the United States, we construct a weighted average of the proportion of the population without a high school diploma or GED, by using data from different sources that include information on the educational attainment of the noninstitutionalized and institutionalized populations.

We estimate the educational attainment of the noninstitutionalized population using data from the March CPS. The March CPS collects data, annually, on a sample of 50,000–60,000 Americans living in households. The data include measures of gender, age, race, ethnicity, and an indicator of whether an individual has completed high school or received a GED (see Figure 1).

Estimates of the educational distribution of the prison and jail population are generated from aggregate data on penal populations weighted by survey data available from periodically conducted surveys of inmates. Aggregated data on the size of the penal population are available by facility type, not for specific gender, race/ethnicity, age, and education groups. Microdata from correctional surveys are used to estimate proportions of inmates within gender, race/ethnic, age, and education groups. Surveys used include the Survey of Inmates in Local Jails (1973, 1978, 1983, 1989, 1996, 2002), the Survey of Inmates in State Correctional Facilities (1974, 1979, 1986, 1991, 1997, 2004), the Survey of Inmates in Federal Correctional Facilities (1991), and the Survey of Inmates in State and Federal Correctional Facilities (1997, 2004). We linearly interpolate between survey years within facility type to construct annual adjusted dropout rates.

In our data, we are unable to distinguish exam-certified high school equivalents (GED) and high school graduates from one another, although research suggests that they are not equivalent. Cameron and Heckman (1991) find that persons who complete high school through exam certification rather than graduation face wage and employment prospects on par with high school dropouts. Even the returns to postsecondary schooling and job training are lower among

TABLE 3
Demographic Characteristics of Inmates in Local, State,
and Federal Correctional Facilities

	1980	2010
Male	94.7	91.5
Age in years	29.4	34.3
Non-Hispanic white	42.9	35.0
Non-Hispanic black	42.5	41.4
Hispanic	12.3	18.7
Other race	2.2	4.8
Less than high school	51.0	55.7
High school/GED	34.6	31.4
Some college	14.4	12.9

GED recipients. Thus, our results are likely to be conservative estimates of educational inequality as rates of GEDs are much higher among the inmate population than among men not incarcerated (Harlow 2003).

Although the military represents another critical institution that may bias estimates of educational inequality upward (by requiring at least a high school diploma for enlistment after the Vietnam War), we do not include it in our analysis. Heckman and LaFontaine (2010) show that the military is a very small segment of the population that has very little effect on national estimates of the graduation rate. Specifically, they find that “the net effect of excluding armed forces personnel is one-tenth of a percentage point overall” (Heckman and LaFontaine 2010, 249). The military is more broadly representative of the U.S. civilian population, with the number and fraction of active-duty service people being much lower in the period we study (Pettit 2012). Thus, exclusion of the military from our analysis does not significantly distort our estimates of the dropout rate over time.

Table 3 shows the basic demographic characteristics of inmates in 1980 and 2010. In 1980 the prison and jail population was 94.7 percent male and had a mean age of 29.4. While blacks were significantly overrepresented in the prison and jail population, there were slightly more whites behind bars. Just over half of all inmates had less than a high school diploma. By 2010, the incarcerated population included more women and the mean age of inmates was nearly five years older than in 1980. By 2010, African Americans represented the largest share of inmates, though Hispanics saw sizable increases in their share of the incarcerated population over the period since 1980. Perhaps most striking is that while the educational levels of the noninstitutionalized population saw significant increases since 1980, inmates were on average less well-educated in 2010 than in 1980. By 2010, 55.7 percent of all inmates had less than a high school diploma.

We focus our attention on how incarceration influences estimates of educational attainment among non-Hispanic white and non-Hispanic black men in the age group 20–34.¹ We focus on these groups given the extraordinarily high incarceration rates experienced by blacks and the concentration of low-skill, young

TABLE 4
Educational Distribution of Inmate Population, Men, Age 20–34

	1980		2010	
	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic White	Non-Hispanic Black
Less than high school	40.7	52.7	52.7	61.8
High school/GED	43.2	34.3	35.5	30.6
Some college	16.1	13.1	11.8	7.7

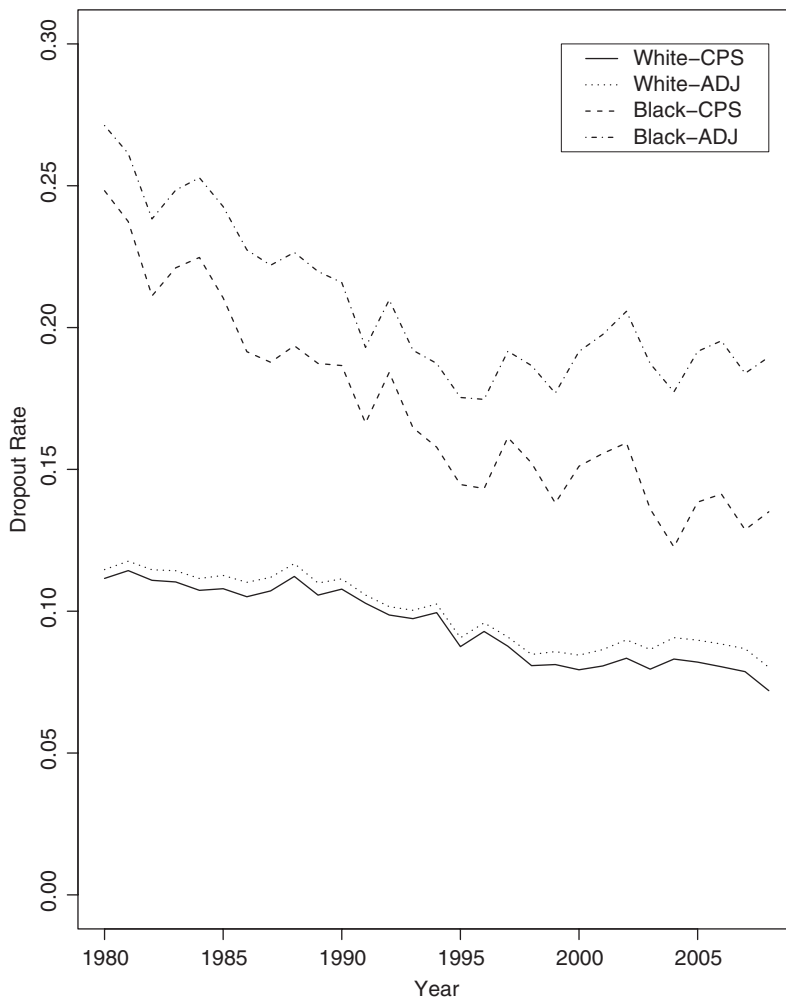
black men in American prisons and jails. To do so, we first calculate the proportion of the noninstitutionalized and institutionalized populations with high school diplomas or GED certificates within gender, race, and age groups. For example, using data from the March CPS we estimate the proportion of noninstitutionalized, non-Hispanic white men age 20–34 that has completed high school. We construct similar estimates of high school completion within race, gender, and age groups for the institutionalized population by pooling estimates from surveys of federal, state, and local inmates weighted in proportion to their contribution to the size of the inmate population. We combine these data to construct an adjusted total population mean (or pooled mean). We then compare adjusted and unadjusted high school dropout rates over time. We also examine the effects of incarceration for the educational attainment of men age 25–34² to examine the relevance of mass incarceration for cross-national accounts of educational attainment from a range of advanced industrialized countries shown in Table 1 for which we have comparable estimates.

Finally, we use ordinary least squares regression analysis to empirically examine the effects of race and time on the magnitude of the adjustment to the high school dropout rate after incorporating the educational attainment of incarcerated men. We regress race and time on the difference between the adjusted and unadjusted high school dropout rates to test whether the effect of excluding prisoners on estimated high school dropout rates varies by race. The model also includes an interaction of race and time to test if the consequence of the exclusion of inmates for racial inequalities in the dropout rate has grown over time.

Results

Table 4 shows that by 2010, 52.7 percent of white and 61.8 percent of black male inmates age 20–34 failed to obtain a high school diploma or GED. These numbers dwarf rates of high school failure in the noninstitutionalized population as estimated by the CPS and confirm the extent of educational disadvantage shown among the inmate population in Table 3. Furthermore, results show that the fraction of the inmate population that completed a high school degree or equivalent declined at a time when scholars argued that educational levels were increasing.

FIGURE 2
Adjusted High School Dropout Rates, Men 20–34



SOURCE: Author’s calculations using the March CPS, 1980–2010.
NOTE: ADJ = adjusted.

In 2010, the inmate population had significantly lower levels of educational attainment than those incarcerated in 1980. Table 4 highlights the shifting educational distribution of inmates, with black men being significantly more likely to have dropped out of high school than white men.

Figure 2 shows high school dropout rates estimated using the CPS and adjusted dropout rates that include information about the prison and jail population. Low levels of educational attainment among prison and jail inmates lead to

TABLE 5
Unadjusted and Adjusted Percentages of Men Failing to Complete High School
in the U.S., Age 20–34, by Race and Year

	1980			2010		
	Unadjusted	Adjusted	% Selection	Unadjusted	Adjusted	% Selection
Non-Hispanic whites	11.2	11.5	2.7	6.3	7.2	12.5
Non-Hispanic blacks	24.8	27.1	9.3	14.4	19.2	33.1
Black-white gap	13.6	15.6	14.7	8.1	12.0	48.1

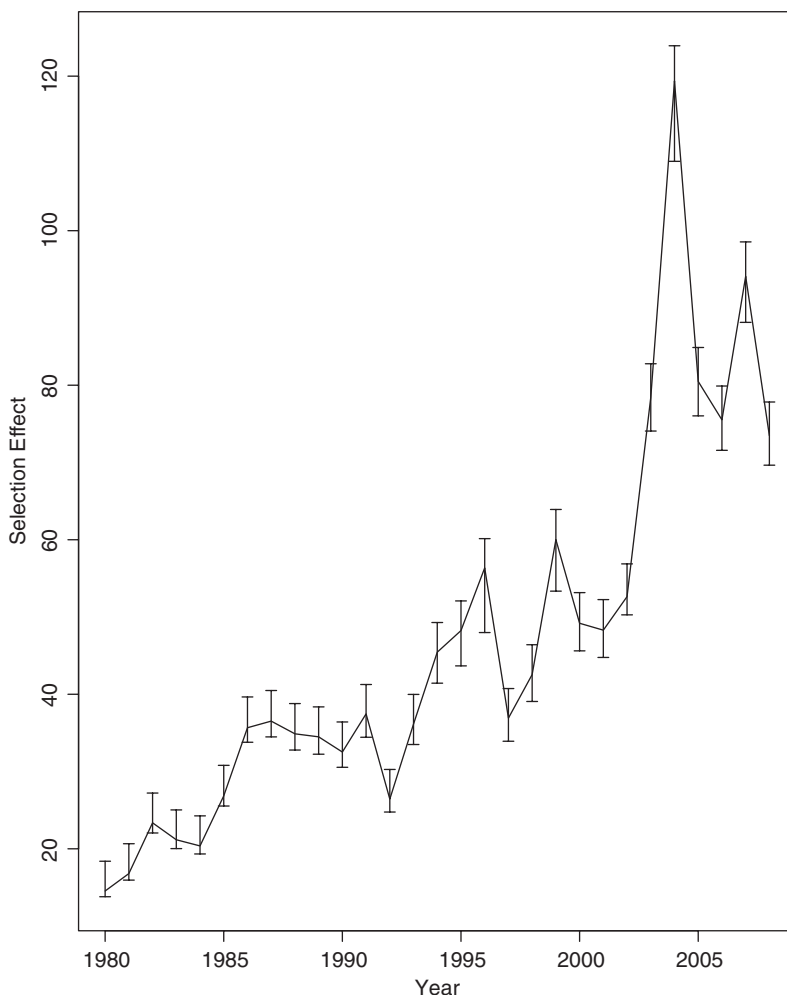
higher adjusted dropout rates for both whites and blacks than conventional statistics using the CPS would imply. In other words, measures of the high school graduation rate that exclude inmates consistently underestimate high school dropout or overestimate the educational attainment levels of the population.

The effect of excluding inmates on estimates of graduation rates has grown over time, as the prison and jail population has expanded. In 1980, the exclusion of inmates from estimates of the high school dropout rate led to a 2.7 percent difference in the estimate of the high school dropout rate for young white men and a 9.3 percent difference for young black men. Table 5 shows that by 2010, conventional data sources that exclude the incarcerated population underestimate the dropout rate among young white men by 12.5 percent. Among young black men, the dropout rate is underestimated by as much as 33 percent in 2010; however, the zenith of these underestimates occur in 2008, when the high school dropout rate is underestimated by as much as 40 percent for black men. These estimates represent stark differences from their 1980 level, with incarceration increasing estimated dropout rates by a factor of four among both whites and blacks by 2010.

Differences in the size of the adjustment over time and by race suggest that conventional data sources that exclude the incarcerated population not only underestimate the high school dropout rate but also underestimate racial inequality in educational outcomes. Data from the CPS imply that the black-white gap in high school completion either through formal schooling or a GED has narrowed from 13.6 to 8.1 percentage points between 1980 and 2010. Including inmates, we find little improvement in the black-white gap in high school completion for the last 20 years. Our adjusted estimates suggest that the gap in high school completion has hovered close to its current level of 12 percentage points for most of the past 20 years.

Figure 3 plots the size of the adjustment to the racial gap in high school dropout between 1980 and 2008, with confidence intervals around the estimated sample selection bias associated with inmate exclusion from the CPS. The figure clearly indicates that prison growth has contributed to large, growing, and

FIGURE 3
 Difference in the Adjusted and Unadjusted Dropout Rates
 between Black and White Men, Age 20–34



SOURCE: Author’s calculations using the March CPS, 1980–2010.

statistically significant adjustments to estimates of racial inequality in the high school dropout rate. In recent years, the sample selection bias of CPS data for the noninstitutionalized population has been as large as 110 percent. In 2010, the selection effect attributable to the exclusion of prison and jail inmates from the CPS was 3.9 percentage points. The sample selection effects of incarceration suggest that reliance on the CPS underestimates racial inequality in the high school dropout rate by as much as 48 percent in 2010.

TABLE 6
 Regression of Incarceration Adjustment to High School Dropout Rate,
 Men, Age 20–34, 1980–2010

	Coefficient	SE
Year	0.016	0.002 ^a
Non-Hispanic black	1.927	0.156 ^a
Year × Black	0.086	0.010 ^a
Constant	0.260	0.037 ^a
R-squared	0.9573	
N	93	

NOTE: Non-Hispanic whites are the reference category. Hispanics are included in this analysis but omitted from the presentation.

^a $p < .05$.

Changes in the magnitude of selection effects over time can be estimated by a regression that expresses the adjustment to the estimation of high school dropout rates as a function of race. For each race group (indicated by dummy variables), we estimate the size of the adjustment for each year. The model is fitted with a least squares regression and the basic model is augmented with year interactions to study whether race differences in the size of the selection adjustment have increased over time. We include Hispanics in the model, but only report results for whites and blacks.

Table 6 reports results for the interaction model.³ The main effects show variation in the size of the adjustment over time and by race. The positive effect for year indicates that the size of the adjustment has grown over time, even net of race. The sample selection effects of prison and jail have grown substantially since 1980 for all race groups. Furthermore, the positive effect for blacks indicates that the adjustment is consistently larger for blacks than for whites in all years (whites are the reference group).

The changing size of the adjustment by race over time is described by the interaction term. Sample selection effects by race changed significantly over time. Through the 1980s, 1990s, and 2000s, the gap in the size of the adjustment widened between whites and blacks. While a race gap in the size of the adjustment exists in all years, it has grown significantly over time. In sum, the sample selection effects of prison and jail generally increased for all race groups, but racial inequality in the size of the adjustment grew over time as well.

Results confirm that the exclusion of inmates—who are disproportionately male, black, and report low levels of education—from conventional estimates of the educational distribution of the population contribute to a large and growing sample selection bias. The bias induced by penal growth not only influences the establishment of basic social facts but potentially obscures our understanding of alternative explanations for the persistence of racial inequality within education and other important social institutions.

Discussion and Conclusion

National estimates of the educational attainment of the population and racial inequality within educational attainment are fundamentally obscured by the sample selection bias induced by decades of penal expansion and race and class inequality in incarceration rates. The growing concentration of incarceration among low-skill men leads to underestimates of high school dropout in all racial groups. Including inmates in estimates of the high school dropout rate suggests that, in recent years, conventional high school dropout rates are underestimated by as much as 12.5 percent for young white men and by as much as 40 percent for young black men.

Including inmates in estimates of educational attainment implies that black men have experienced no improvement in high school completion rates since the early 1990s. Illusions of black educational progress, however, have been sustained by reliance on data sources that categorically exclude prison and jail inmates from estimates of the educational attainment of the population. Just as Darity (1980) documented how the exclusion of the unemployed from calculations of wages overestimated the economic fortunes of blacks, underestimated the racial wage gap, and obscured the extent of racial inequality in the labor market, we find the exclusion of inmates from conventional data sources conceals the magnitude of racial inequality in educational attainment.

Adjusting high school completion rates to account for growth in the penal system shifts the position of black Americans in comparative accounts of education. On aggregate measures of high school completion, black Americans fall from eleventh place, between Germany and Canada, to twenty-first place, between the United Kingdom and Bulgaria. U.S. whites fall from second place, between the Czech Republic and Slovakia, to third place, between Slovakia and Poland.

These findings have both methodological and theoretical implications. Methodologically, this research calls into question the reliance on sample surveys of households to make generalizations about the American population and offers a method for combining data on subgroups of the population to generate more reliable population-level estimates. For example, recent research has used the CPS to estimate educational attainment of the population (Goldin and Katz 2008), and trends in educational attainment generated by the CPS are commonly used by researchers and policy-makers to make claims about the state of education in the United States and to allocate public resources toward educational programs and objectives (Blank 2001). Scholars rely on CPS data since they are collected monthly and have such a large sample size. However, the CPS' reliance on a household sampling frame limits its generalizability in an era of mass incarceration.

While scholars have raised concerns about coverage bias in the CPS and its effects on measures of educational attainment, ours is the first study to systematically document how sample selection bias associated with the categorical exclusion of inmates from the CPS influences accounts of the racial gap in high school dropout rates and the relative standing of young men in the United States in relation to those in other countries. Researchers have noted the potential

importance of this sample bias, yet to our knowledge few have investigated the issue in great detail (cf. Heckman and LaFontaine 2010; Warren and Halpern-Manners 2009). Past work has noted this phenomenon in passing without detailing the effects on measures of racial inequality or the consequences for society of misrepresenting racial inequality. Biased measures of racial inequality obscure our understanding of black educational progress and are consequential for the development of public policy related to education.

The theoretical implications of our study are equally profound. Research has debated the mobility enhancing or inequality reproducing effects of educational expansion since World War II (Blau and Duncan 1967; Bowles and Gintis 1976). If inequality in educational attainment had declined in recent years, such trends would suggest that education offers a path to social mobility for disadvantaged groups and that even the most disadvantaged Americans might be well-positioned in a global economy. These frameworks are too simplistic now to fully capture the relationship among education, mobility, and American competitiveness because they ignore the role of prisons in siphoning off some of the least educated members of society.

Similarly, there may be reason to believe that peer group processes that lead students to dropout, experience incarceration, and be rendered invisible by national data collection agencies have major implications for how we study educational attainment. Race and class inequality in imprisonment means that socioeconomic status may matter more across educational transitions for children and their peers than previously assumed. Recent research finds that being arrested as a juvenile increases the likelihood of dropping out and failing to complete college (Kirk and Sampson 2013; Hirschfield 2009) and that paternal imprisonment as “marked absence” results in a lower grade point average and a lower likelihood of completing a college degree (Hagan and Foster 2012).

We find that the growing penal system renders a significant number of disadvantaged men invisible to our current methods of social accounting, thereby obscuring the relationship among education, racial inequality, and American competitiveness in a global economy. Black men have experienced no improvement in high school completion rates since the early 1990s, and sizable racial inequality in educational attainment among men remains. Moreover, young black men do not make it into the top twenty in cross-national comparative rankings on education. Such findings suggest the need to revisit conclusions about the egalitarian effects of the educational system and the democratizing effects of the American educational system.

The invisibility of large segments of the population is not confined to national measures of educational attainment. Estimates of voting participation are also skewed by leaving out prisoners. Young African Americans were said to have turned out in record numbers to support Barack Obama for president in 2008, and theorists have spun many hypotheses to explain why; according to available data, poorly educated blacks are turning out to vote at higher rates than their socioeconomic status would imply (Philipot, Shaw, and McGowen 2009; Liu, Austin, and D’Andra Orey 2009). When incarceration rates are accounted for, only 20.4 percent of young black male dropouts voted in the 2008 election—nearly identical to

the 20.7 percent that turned out to vote in the 1980 election that pitted Ronald Reagan against Jimmy Carter (Pettit 2012). Adjusting turnout rates to include inmates suggests that the primary explanation for unexpectedly high turnout rates among African American male dropouts is sample selection. Similar distortions in social indicators resulting from household-based surveys occur in other areas, including unemployment and public health statistics (Pettit 2012).

The collection process for much social science data systematically undersamples disadvantaged groups through a sampling mechanism that preferences living in settled households. Low-skill black men who are more likely to be institutionalized than individuals in other social and demographic groups are underrepresented in conventional data sources through their categorical and systematic exclusion from probability-based samples drawn from households. The sample selection effects of imprisonment have become so large in recent years as to fundamentally obscure the construction of social statistics. The criminal justice system must be considered in the construction of accounts of educational inequalities and the factors thought to produce them. America's prisons and jails represent an institution that not only obscures but also concentrates disadvantage among poor blacks living in inner-city neighborhoods. As a repository for America's high school dropouts, the penal system conceals and concentrates disadvantage.

Notes

1. While disaggregated analyses for women and Hispanics are available from Pettit, Sykes, and Western (2009), this article focuses on the growing invisibility of young, low-skill black men. Hispanic and female comparative analyses do not represent the most disadvantaged groups exposed to criminal justice contact. Their exclusion from the presentation of these results does not reflect their invisibility; rather our focus is on the increasing racial inequality between black and white men. Furthermore, small sample sizes, inconsistent classifications over time, and the low proportion of women incarcerated present additional methodological concerns that are beyond the scope of this article.

2. This age range used for international data, given tiered European educational systems and time to college completion. For the U.S. analysis throughout the article, the age range reverts back to 20–34 because of the age distribution of incarceration in the United States, which is much higher than other comparable European nations.

3. Hispanics are included in the analysis but are omitted from the presentation and discussion. Please contact the authors for these findings.

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