Locked Up Means Locked Out: The Effects of the Federal Drug Laws of the 1980s and 1990s on Black Male Students' College Enrollment

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Locked Up Means Locked Out: The Effects of the Federal Drug Laws of the 1980s and 1990s on Black Male Students' College Enrollment

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To the young men who have been or are incarcerated and do not yet believe
that higher education is for them

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Locked Up Means Locked Out: The Effects of the Federal Drug Laws of the 1980s and 1990s on Black Male Students' College Enrollment

Abstract

While research documents that rates of college access and completion have increased during the past several decades, the trend data also reveal differences by race and gender, with Black men having lower levels of college enrollment than other groups and experiencing a slower rate of improvement in college outcomes. This dissertation explores one possible reason for the educational gaps experienced by Black men. Using variation in state marijuana possession and distribution laws and state Truth in Sentencing (TIS) laws, I examine whether the Anti-Drug Act of 1986 and the Violent Crime Control and Law Enforcement Act of 1994, which led to the disproportionate incarceration of Black males for drug possession and manufacture, also helps to explain differences in college enrollment and graduation rates by race and gender. For my analysis, I use the Current Population Survey (CPS) October Supplements from 1984 – 2007 and information state marijuana laws and TIS adoption.

In the first paper, which looks at the effect of the Anti-Drug Act of 1986 on Black male college enrollment, I use a difference-in-differences strategy that exploits both the introduction of tougher federal laws and variation in state laws with regards to penalties for marijuana possession and

distribution. Overall, the results suggest that Black males had a 2.2% point *decrease* in the relative probability of college enrollment after the passage of the Anti-Drug Abuse Act of 1986 as compared to both Black females and non-Black males prior to the law change but the change was not driven by changes in marijuana laws. Instead, it was driven by changes in crack cocaine laws.

For the second paper, which examines the effects of the Violent Crime Control and Law Enforcement Act of 1994, I employ two strategies. The first strategy is a difference-in-differences that employs variation across states in the timing of TIS laws. I also carry out an event study within states that compares the probability of college enrollment for Black men in each year after the passage of TIS laws in states that adopted these policies to the probability in the years prior. Overall, the results suggest that Black males had a decrease in the relative probability of college enrollment after the enactment of TIS policies, when compared to the probability of enrollment for non-Black men prior to the law change.

Together, these studies suggest there is an important link between the criminal justice system and educational attainment that is likely underestimated by this study.

Introduction to the Dissertation

Incarceration rates in the United States have risen at an unprecedented pace over the past forty years. In 2015, 1.53 million persons were incarcerated. By comparison, in 1980, there were only 329,122 persons housed in federal and state prisons. Importantly, this increase in imprisonment did not happen proportionately across racial and ethnic and age groups. While Black men constitute approximately 6% of the population (U.S. Census Bureaus, 2016), the Bureau of Justice (2014) reported that Black males constitute 37% of male state and federal prisoners. In contrast, White males are 32% of male inmates and 31% of the population (Carson, 2015). While Black men are more likely to be incarcerated than both White and Latino men, the most significant disparity in terms of imprisonment rates exists for Black men aged 18 and 19 years old, the age that young men would have been entering college. For this age group, in 2014, Black men were ten times more likely to be incarcerated than White men (Carson, 2015).

Part of the increase in incarceration has come from the adoption of drug laws and the strict enforcement of these laws in some communities. Travis, Western and Redburn (2014) find that between 1980 and 2010, the imprisonment rate for drugs rose over 350%, from 2 to 9 per 100 arrests. In contrast, prison commitment rates for the violent crime of aggravated assault rose at a lower rate of 250%. By 2015, 15.7% of the over 1.53 million persons in state and federal

prisons were imprisoned solely for drug offenses, with close to 50% of those in federal prison (185, 917 persons) serving time for drug offenses (Carson & Anderson, 2016).[1]

At the same time that we see the rapid increase in the number of young Black men incarcerated, we see a stagnation of the college enrollment of the group most affected by incarceration, young men, and in particular Black young men. In 1990, 26% of Black men aged 18 to 24 years old were enrolled in degree granting postsecondary institutions (US Department of Commerce, 2016). According to NCES (2016), ten years later in 2000, 25.1% of Black men were enrolled. By contrast, for White young men, it moved from 35.5% to 36.2% over the decade, and for Black women, from 24.8% to 35.2%. Further, recent trends in Black male college enrollment have been much more variable than that of Black women, White men, and White women, with gaps in enrollment between Black men and White men increasing during the 1990s and 2000s, after narrowing in the early 1980s. Additionally, some research suggests that statistics underestimate the Black-White college enrollment gap, as there are a higher proportion of Black adults than White adults incarcerated in every age group and particularly in the 18 – 24 year old range (Pettit, 2012).

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[1] These statistics undercount the percentage of persons incarcerated for drug crimes as they use the most serious offense committed. There are likely a significant percentage of individuals who are imprisoned for a drug offense but also used a weapon in the commission of the offense, which would solicit a more serious charge. These persons would thus be counted in a different category, even though they might have been arrested for a drug crime.

One possible reason for the stagnation of the Black male college enrollment rate during the 1980s until the turn of the 21st century is the increase in arrests, convictions, and time imprisoned for drug crimes, due to changes in federal legislation through the Anti-Drug Abuse Act of 1986 and the Violent Crime Control and Law Enforcement Act of 1994 and the resulting changes in state drug laws. This dissertation measures the impact of changes in federal laws using variation in the severity and timing of state laws around penalties for drug infractions. To my knowledge, these are the first papers that attempts to quantify the effects of the Anti-Drug Abuse Act of 1986 and the Violent Crime Control and Law Enforcement Act of 1994 on Black male college enrollment.

I carry out this analysis during two discreet time periods. The first period is from 1984 to 1992—after the passage of the anti-drug federal legislation that made penalties for drug crimes more severe than it had been for the prior two decades. The second period is from 1992 until 2007, a time when crime rates were decreasing and arrests were increasing. One reason I separated the analysis into these two periods was the political changes that occurred during the early 1990s. While there were two Republican presidents from 1980 to 1992, a Democrat became president in 1992. Prior research has shown that Republican administrations tend to increase penalties for crimes in line with their law and order platform – thus differences might have existed in the severity or enforcement of federal laws (Lowenthal, 1993). Another reason I separated the analysis into these time periods was that the reasons for arrest changed in the

1990s. According to the Bureau of Justice Statistics (2017), from 1987 to 1995, most drug arrests were for heroin or cocaine. This changed in 1996, when arrests for marijuana related crimes outnumbered those for other drugs ("Drug and Crime Facts, n.d.). While the arrests for heroin and cocaine began to decline in 1989 from a peak number of 732,600 arrests, arrests for marijuana began to rise in 1992 after ten years of decline and doubled between 1991 and 1995.

The analysis for the first time period, based on the enactment of the Anti-Drug Abuse Act of 1986 and modifications that states made to their laws following this federal change, shows that Black males in the United States had a decrease in the relative probability of college enrollment after the passage of the Anti-Drug Abuse Act of 1986 as compared to prior to the law change. The change in the probability of college enrollment was partly due to changes in state cocaine penalties and not state marijuana penalties. The analysis for the period from 1992 to 2002 shows that Black males in the United States had a decrease in the relative probability of college enrollment in states that had TIS laws as compared to prior to the law change.

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Locked Up Means Locked Out: The Effects of the Anti-Drug Act of 1986 on Black Male Students' College Enrollment

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I. Introduction

Although college enrollment and completion rates have increased over the past thirty years, access to higher education has not been uniform across racial groups. In 2012, the respective rates of college enrollment for Black and White 18-24 year olds were 36.4% and 42.1% (NCES, 2014). Figure 1 shows that the growth in Black male college enrollment has been slower than that of Black women, White men, and White women, with gaps in enrollment between Black men and White men increasing during the 1990s and 2000s. Further, some research suggests that statistics underestimate the Black-White college enrollment gap, as there are a higher proportion of Black adults than White adults incarcerated in every age group and particularly in the 18 – 24 year old range (Pettit, 2012). Most datasets, such as the Current Population Survey, that provide data on college enrollment rates only take into account the non-institutionalized population.

In addition to racial gaps, differences in tertiary education outcomes exist by gender. National trends show that 55% of the college graduates in the United States were female in 2011. While females have outpaced males in college entry and completion across racial groups, gender gaps in college enrollment and graduation are larger in the Black community than in other racial or ethnic groups (Goldin, Katz, & Kuziemko, 2006; Fry & Parker, 2012). Among Black college graduates with a bachelor's degree, in 2011, 63% were women but only 37% were men. Further, the gender gap in college completion for Black college

aged adults over the past thirty years *tripled*, after remaining constant for thirty

years prior to 1980 (Bailey & Dynarski, 2011).

One trend that may explain the lower levels of college enrollment for

Black males is the passage of the Anti-Drug Abuse Act of 1986. This federal law

criminalized possession of drugs, established mandatory minimum sentences for

drug possession and trafficking offenses, differentiated penalties for crack

cocaine as opposed to powder cocaine, allowed for seizure of assets, and

increased funding for state and local drug control efforts. The Office of National

Drug Control Policy (1999) reports that drug control funding increased from $2.9

billion in 1986 to $4.8 billion in 1987.

According to the U.S. Department of Justice, Black young men were

disproportionately impacted by the increase in the aggressive pursuit and

criminal conviction of those in possession of even small amounts of drugs

(United States Sentencing Commission, 2011). The U.S. Department of Justice

reported that arrest rates for Black adults doubled between 1980 and 1990, as

seen in Figure 2. The Office of Juvenile Justice and Delinquency Prevention

found that the incarceration rate of Black juvenile males increased 350% between

1980 and 1996 (and doubled between 1986 and 1989) (OJDP, 2014). In

comparison, arrest rates for White juveniles remained relatively constant from

1980-1989 and then decreased from 1989 -1992.

Incarceration for drug offenses could change the educational trajectory of

young adults in multiple ways. Firstly, time in the criminal justice system

impacts academic preparation. Access to quality secondary and tertiary education within jails and prisons is limited, although studies have demonstrated that higher levels of education are associated with lower rates of recidivism (Aos, Miller, and Drake, 2006; Parent, 1994). Secondly, incarceration renders persons ineligible for both federal Pell Grants and student loans while in prison, delaying, and thereby reducing the likelihood of college entry (Horn, Cataldi, & Secora, 2005). Thirdly, drug convictions can limit a young adult's ability to receive student aid from the government even after release (FAFSA, 2016).[2] Fourthly, involvement with the criminal justice system may have a dampening effect on the educational aspirations of youth. Some studies have provided evidence that simply being asked about imprisonment serves as a deterrent in applying for financial aid *and* college, given the existing discrimination against persons formerly incarcerated (Weissman, Rosenthal, Warth, Wolf, & Messina-Yauchzy, 2010). Finally, young adults who have served time in correctional institutions have a 12% lower likelihood of being employed after release when compared to youths who have not had contact with the criminal justice system due to stigma associated with conviction (Freeman, 1994). As approximately 41% of undergraduate college students worked to meet their educational expenses in 2011, the inability to work likely impedes the ability to pay for college for formerly incarcerated adults (NCES, 2014).

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[2] After serving time for drug violations, eligibility for federal financial aid depends on if the offense occurred when they were receiving federal aid. To ascertain their eligibility, young adults must complete an additional worksheet. Behavioral economics suggests that complexity in the financial aid process reduces the likelihood of students attending college (Dynarski & Scott-Clayton, 2006).

Using variation in state marijuana possession and distribution laws, this paper examines whether the Anti-Drug Act of 1986, which led to the disproportionate incarceration of Black males for drug possession and manufacture, also led to differences in college enrollment and graduation rates by race and gender. I employ a quasi-experimental differences-in-differences (DD) strategy to compare college enrollment rates by race/gender group in the years immediately preceding and following the law changes to start to discern a possible effect. Next, I use a DD strategy that exploits the federal law change (i.e., a pre- versus post- comparison) and variations in state laws with regards to penalties for marijuana possession and distribution (i.e., state-level variation in the effects of the law change). To my knowledge, this is the first paper that attempts to quantify the effects of the Anti-Drug Abuse Act of 1986 on Black male college enrollment.

I find that, in the first difference-in-differences model, after the passage of the federal Anti-Drug Abuse Act of 1986, Black males had a marginal 2.2 percentage point *decrease* in the probability of college enrollment, which translates into a 10 percent reduction in college enrollment rates for Black men as compared to non-Black males prior to the law change. Relative to Black females, the college enrollment rate of Black males was 2.4 percentage points lower after the federal law change. From the difference-in- differences model using variation in state laws, I do not find a statistically significant decrease in the likelihood of college enrolment when a state increases their minimum marijuana possession

penalty by one month. However, there is some evidence that while marijuana laws do not have an impact on college enrollment, state cocaine laws and enforcement of cocaine laws led to a decrease in the likelihood of college enrollment.

This work links to existing empirical work on educational outcomes and incarceration (Aizer & Doyle, 2016; Hjalmarsson, 2008). This paper also contributes to the literature around racial inequality and incarceration in the United States (Pettit & Western, 2004). Finally, this paper provides another explanation for the gender gaps in college enrollment and completion, particularly for Black young adults (Bailey & Dynarski, 2011; Di Prete & Buchmann, 2006).

The paper is organized as follows. I first explore the literature around race and gender gaps in college enrollment, state drug policy changes, and previous work on the effects of incarceration on educational attainment in Section I. Next, I lay out the conceptual framework in Section II. I then lay out the data and empirical framework in Section III and Section IV. I present results and sensitivity analysis in Section V. I conclude in Section VI.

I. Educational Outcomes and Incarceration

Gender and racial gaps in college enrollment and completion

Gender differences in college enrollment and graduation rates increased during the 1980s and 1990s, particularly for Black students, as seen in Figure 1. Using the March supplements of the Current Population Survey from 1968 through 1998, Sufi and Black (2002) calculate average college enrollment rates for high school graduates by SES category and time period. They find that in the late 1970s and early 1980s college enrollment for Black 18 and 19-year-old males and females rose to similar rates of enrollment for White persons of the same age before declining in the mid -1980s. Much of the increase in enrollment in the 1970s was driven by enrollment of low-income Black high school graduates, who were more likely to enroll in college than White students of similar income levels. However, by the 1990s, low0income Black students were less likely to enroll in college than their White peers at all income levels. Cameron and Heckman (2001) also find that when controlling for family background and income, Black male young adults were more likely to enroll in college than White persons in the same age group, based on analysis of data from the National Youth Longitudinal Survey of 1979. Although the 1970s saw increases in the probability of college enrollment for Black students, this pattern did not continue for Black males in the following decade, as Black male enrollment slowed.

Numerous theories seek to explain why gender gaps grew between males and females in college enrollment and completion in the 1980s. Buchanan and DiPrete (2006) find that superior female academic performance explains about

65% of the gender gap in college completion for Black students. Using National

Educational Longitudinal Survey (NELS) of 1988 and a decomposition strategy,

they posit that a small portion of the gender gap relates to the education of the

father and paternal absence from the family but most of the gap comes from the

superior performance of women in college. Academic achievement in high

school also plays a role. Differences in high school graduation rates explained

about half of the variation in college graduation rates between the genders

(Bailey and Dynarski, 2011). Goldin, Katz, and Kuziemko (2006) posit that young

women increased their high school achievement from the 1957 to the 1992 high

school graduating cohorts, which accounted for between 30 and 60 percent of the

gender gap in college enrollment. Other factors that contributed to the greater

likelihood of female enrollment in college were women anticipating higher

returns to college due to expanding opportunities to enter the work force over

this time period. However, another possible explanation for the gender gaps in

college enrollment comes from changes in drug laws and enforcement of

controlled substances.

Changes in federal and state policies during the 1980s led to more punitive drug laws

Both federal and state laws around controlled substances, shifted in the

period from the 1970s to the early 1990s, becoming harsher in terms of the

penalties and fines imposed. This in turn led to higher arrest rates, particularly

for Black males (Mustard, 2001). Initially, Democrats, and those on the left

politically, championed changes in sentencing policy for both controlled

substances and other illegal activities in order to increase equity in sentencing.

The influential book *Criminal Sentences: Law without Order,* written in 1973 by a

federal judge named Marvin Frankel, led to heightened political advocacy

around criminal sentencing (Frankel, 1973). This book discussed the disparities

in sentences, particularly with respect to the race of the defendant and the

penalties received in the federal system. These findings led Democratic Senator

Ted Kennedy to push for legislation that set federal guidelines for sentencing

that rendered punishment more just and equitable, moving from discretionary to

determinate sentencing (Stith & Koh, 1993). These efforts became the Sentencing

Reform Act of 1984 (SRA), which established the Sentencing Commission. This

Commission established the maximum and minimum penalties in terms of

months of prison for controlled substance, among other penalties, that went into

effect in 1987. Although initially conceived as a means to make punishment more

equitable, this law increased penalties for most controlled substances, more in

line with Reagan era emphasis on crime and punishment, than equity

(Lowenthal, 1993). However, due to court challenges, full implementation of the

federal guidelines did not occur until 1989 (Nagel, 1990).

Sentencing reform for drug infractions, among other crimes, began with

Democrats who argued for more equity in punishment. However, those on the

right of the American political spectrum also argued for determinate sentencing,

as compared to discretionary, though for a different reason. Republicans

advocated for reform in order to reduce judicial leniency. These pushes, from

both the left and the right, ultimately led to harsher sentences and less discretion

for judges (Lowenthal, 1993). In part due to these changes and the federal

legislation around drugs in 1986, arrest rates for drug crimes increased and

prison sentences were longer than those prior to the sentencing reform in the late

1970s and early 1980s (US Sentencing Commission, 1991). Between 1980 and

1989, the ratio of prison commitments to adult arrests increased from 196 per

1000 to 332 per 1000 (Cohen, 1991).

Some researchers have argued that incarceration rates and the state and

federal policies that increase imprisonment are driven by increases in crime

(Levitt, 1996; Vieraitis, Kovandzic, & Marvell, 2007). They estimate that the

marginal cost of imprisoning is lower than the benefit derived from the reduction

in crime, particularly during in the period from 1978 through 1990, but this

marginal benefit decreases in the period from 1991 through 2004 (Johnson &

Raphael, 2012). Smith (2004) demonstrates that while crime rates remained stable

or decreased during the 1990s, incarceration rates continued to increase over the

same time period. He posits that the political environment, in particular the

political party in power, and racial and social differences within populations

drive incarceration policies – not crime rates. States that have a larger fraction of

Black persons have harsher penalties for crimes and more arrests. Also, states

with Republican legislatures and governors tend to be more punitive (Western,

2006; Yates and Fording, 2005). This finding that laws, which lead to higher

incarceration rates, are based on the fraction of the population that is non- White

mirrors the conclusions of Beckett and Western (2001).

The growth of drug-related arrests and convictions

The gap in Black male and female college enrollment rates grew at the

same time that incarceration rates were increasing for Black males. Following the

Anti-Drug Abuse Act of 1986, the reasons for federal, state, and local arrests

changed dramatically, as did the makeup of the incarcerated population. The

drug arrest rate for possession or use increased 89% from 1980 to 1989 and the

arrest rate for sale or manufacture increased 210% over the same time period

(Snyder, 2011). Changes in the racial make-up of people arrested for drug

infractions changed as well. Between 1980 and 1989, arrest of Blacks for drug

sales and manufacturing or use rose by 219% when compared to the increase in

the arrest rate for Whites of 56%. This disparity in drug arrests by race is also

reflected in the juvenile population (OJJDP, 2014). Drug offense arrests among

Black juveniles increased from 1985 – 1989, remained stable from 1989 – 1992.

Among White youth, rates decreased between 1985 and 1992.

The natural conclusion might be that Black drug use was more prevalent

than White drug use. However, statistics prove this to be untrue. The Monitoring

the Future (MTF) report finds that from 1975 to 2009, Black 8th, 10th, and 12th

graders had consistently lower rates of drug taking than their White peers. In 8th,

10th, and 12th grade, Blacks students were less likely than Whites to report taking

marijuana, cocaine, and crack, and almost all other illicit and legal drugs

(Johnston, O'malley, Bachman & Schulenberg, 2010).

Despite similar rates of drug use for adults and lower levels for juveniles,

all Blacks, and young Black males, specifically, have been disproportionately

impacted by controlled substance legislation and enforcement, both during the

mid 1980s and in the decades following. As early as 1991, the United States

Sentencing Commission (1991) reported that non-Whites were more likely than

Whites to receive a mandatory minimum sentence for similar crimes and "the

greatest expected impact [in the federal prison population] could be attributed to

the Anti-Drug Abuse Act of 1986" (p. 66). Further, Mustard (2001) finds that the

greatest federal sentencing disparities between Black and Whites occurred for

drug trafficking offenses, after controlling for past criminal history. Ironically,

much of this disparity was driven by departures from federal guidelines,

whereby Black males were more likely than White males with similar criminal

histories to receive punishments that were harsher than mandated federal

penalties.

Incarcerated Persons and Educational Outcomes

Education levels are lower for incarcerated persons than for the general

public, with high school completion rates of 59% for those serving time in prison

as compared to 82% for non-incarcerated persons aged 18 and older in 1997

(Harlow, 2003). This is in part due to the fact that incarceration often disrupts the

ability of young adults to attain more education. Based on analysis of data from

the National Longitudinal Youth Survey of 1997, Hjalmarsson (2008) finds that

while convictions without incarceration are not associated with a lower

likelihood of high school graduation, being incarcerated leads to a 19% decrease

in the likelihood of graduation, when compared to those convicted but not

imprisoned. However, a majority of those who are in jail and prison could be

potential college students based on their academic attainment. Twenty two and

a half percent of the incarcerated population had a high school diploma, 23.4%

had a GED, and 12.7% had some post secondary education in 1997 (Harlow,

2003). Thus, more than half of the incarcerated population could be potential

college students.

Perhaps in part due to the limited access of incarcerated persons to

tertiary education, much of the causal research on the effect of incarceration on

educational attainment has focused on the effect of arrest and incarceration at

earlier points in the educational career of a student (Aizer & Doyle, 2015;

Hjalmarsson, 2008). Using administrative data, public school records, and

incarceration data from Chicago, Aizer & Doyle (2015) find that being

incarcerated as a juvenile reduces the likelihood of high school graduation by

approximately 13 percentage points when compared to young adults who have

been charged with a crime but not incarcerated. Further, this study, in addition

to work done by Hirschfield (2009), demonstrates that the timing of incarceration

matters, as incarcerations earlier in the high school career reduce the likelihood

of high school graduation and increase the likelihood of adult imprisonment, as

compared to the effects of imprisonment on educational outcomes at later ages.

While limited in number, more recent descriptive studies examine the

effect of incarceration on college enrollment gaps by race and gender. Kirk and

Sampson (2013) use survey and administrative data from Chicago and a

propensity score approach. They find that young adults who have been arrested

have a .16 lower probability of college enrollment when compared to young

adults without an arrest record.[3] However, they have a relatively small sample

size of 38 individuals. Another study explores the role of incarceration on Black

male and female college graduation rates. McDaniel et al. (2011) used the

National Education Longitudinal Survey of 1988 dataset and estimated that

incarceration did not contribute significantly to the Black gender gap in college

degree completion but likely led to differences at earlier points in the educational

career of students. They computed the proportion of the sample of Black males

that had graduated from college by age 26 as a function of their academic

performance in 8th grade. They then substituted the female rate for the male rate

in the bottom quartile to see how that would change the male college graduation

rate. These researchers estimate that if Black male rates of incarceration were

replaced with the much lower Black female rates of incarceration, it would only

have changed the male college graduation rate by one percentage point.

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[3] The authors include the type of crime – violent, property, or drug crimes – and the self reported frequency of committing crimes in the propensity score.

However, the authors state that incarceration likely had an effect on educational attainment but the effect was prior to college graduation.

This paper aims to address current gaps in the literature in several ways. Firstly, I use earlier cohorts of students than the McDaniel *et al.* study, as the NELS students were too young for us to see the impact of the 1986 law change. Therefore, I am able to shed light on the impact of the federal Anti-Drug Abuse Act of 1986 on Black male college enrollment. Secondly, I compare the educational outcomes of Black men to non-Black men, as well as Black women, given the disparities in college enrollment that exist by race *and* gender. Thirdly, I use a different source of variation to measure the impact of the drug laws. I use variation in changes to state drug policies following the passage of the Anti-Drug Abuse Act of 1986, which provides variation on the impact of drug laws on college enrollment. Finally, I explore college enrollment, as opposed to college completion, as many potential post secondary students are arrested at the age when they would have started college.

II. Conceptual Framework

States have a wide variety of drug laws, from a state, such as Minnesota or Mississippi in which marijuana possession of small amounts (generally less than one ounce) will lead to no punishment to states such as Texas where a first offense marijuana possession could lead to a life sentence (NCJRS, 1988). Given this diversity of legal statutes concerning controlled substances, some states have

laws that closely follow the federal laws and other states greatly diverge, from

the way in which they schedule controlled substances, including marijuana, to

the minimum and maximum prescribed punishments. While the federal

government schedules marijuana in the first of five schedules, defined as having

no currently accepted medical use and a high potential for abuse, some states,

such as North Carolina and Hawaii, schedule marijuana in a lower category that

classify it as having a low potential for abuse ("Drug Scheduling", 2018). I use

this variation in state law in order to explore whether states that have more

lenient marijuana laws also have a higher likelihood of college enrollment for

Black men after the federal law change. My hypothesis is that states that were

less punitive with regards to marijuana possession and distribution prior to the

law change would also be less punitive after 1986. As a result, these states would

have fewer drug arrests after 1986 and higher college enrollment rates for Black

young men when compared to other demographic groups.

Given the increase in arrests and incarceration for young Black men after

1986 as seen in Figure 2 and the growth in college enrollment for Black men

during the 1970s and early 1980s, I posit that an increased likelihood of

incarceration impacted the educational attainment of the marginal college

student, who would have attended college in the absence of arrest and

incarceration. In light of the increase in arrests after 1986, students who would

have been attending college were more likely to be arrested, which in turn

reduced their ability to enroll in college.

Lochner (2007) posits that youth make a choice between pursuing education and not committing crime versus a life of street crime. However, an important factor not taken into account by this model is the way in which behavior that had not been criminalized or not enforced prior to the passage of the law, such as drug possession, leads to an increased likelihood of arrest after the law changes, particularly for young men in urban neighborhoods (Blumstein, 1995). Analysis of the 1980 NLSY cohort found that 34% of 20-23 year old men with 11 or 12 years of schooling reported earning income from illegal activities and 24% of young men with a high school degree reported earning income from illegal activities (Freeman, 1986). Although these individuals were close to or had completed high school, close to a third earned income from acts that could lead to incarceration. One possibility is that the number of young Black men involved in drug possession and drug distribution did not increase in each year from 1986 - 1992. Instead, the amount of funding for drug enforcement increased, which in turn led to increased police activity that increased the likelihood of arrest. As previously stated, between 1980 and 1989, the ratio of prison commitments to adult arrests increased from 196 per 1000 to 332 per 1000, which demonstrates how the likelihood of incarceration rose over this time period (Cohen, 1991). Freeman (1986) posits that the increase in incarceration did not lead to a decrease in crime level in the 1980s and that this implies that persons hitherto uninvolved in criminal activity were more likely to commit a crime due to the collapse of the job market for low skilled workers. An alternate explanation is that activity

deemed illegal that was not enforced, such as drug possession, became a priority

after the passage of the federal law in 1986, which led to an increase in the

likelihood of arrest and incarceration for young Black men who might have

otherwise enrolled in college after the passage of the 1986 Anti-Drug Abuse Act.

Given that the Anti-Drug Abuse Act of 1986 led to a disproportionate

number of arrests and convictions for non-violent drug offences among young

Black men when compared to both Black women and White men, my research

questions are:

RQ1: Did the passage of the Anti-Drug Abuse Act of 1986 cause a fall in relative

college enrollment for Black male students?

RQ2: Did the passage of state laws that increased punishment for marijuana

possession and distribution after the passage of the Anti-Drug Abuse Act of 1986

reduce college enrollment for Black males?

III. Data

I use the October Current Population Survey (CPS) education

supplements, for the years 1984-1992, to examine trends in enrollment by race

and gender. Given the extensive use of this dataset, I provide only a brief

description here. CPS collects data from approximately 56,000 households

monthly, with additional information on educational enrollment and attainment

collected each October. This supplement differentiates between types and intensity of college enrollment for individuals. The CPS also provides information on racial and ethnic affiliation, family composition and financial characteristics, which allows for inclusion of family covariates, from family income to state of residence.

While CPS details state of current residence, it does not indicate the length of residence in the state or prior states of residence. Thus, persons who move into a state were subject to different drug laws in prior periods and I cannot account for their state of previous residence. State samples from CPS within the age group of 18-24 are also relatively small so standard errors with respect to college enrollment will be larger. Another weakness of the CPS October supplements is that it excludes persons who are incarcerated. In light of the much higher lifetime likelihood of going to prison for Black men when compared to White men, 28.5% versus 4.4% in 1991, CPS likely underestimates differences in educational attainment between Black men and non-Black men and Black women and Black men (Bonczar & Beck, 1997; Heckman & LaFontaine, 2010). As a result, my estimates for the probability of college enrollment for Black men will have downward bias.

My second source of data contains the state penalties for marijuana possession and distribution in three years: 1986, 1988, and 1990. For each state and year included, I report the minimum and maximum penalty in months of imprisonment for the first offence of both possession and distribution of 250

grams of marijuana.[4] I use 250 grams because this is the amount that corresponds to the first level of penalty in the federal government. Variations exist in the ways that states report penalties for marijuana possession and distribution. Many states report upper bounds for penalties in numbers of months of imprisonment but not lower bounds. For example, Arkansas in 1986 considers marijuana possession a misdemeanor. The penalty for a misdemeanor is up to one year of punishment. As a result, I report the minimum penalty in months as 0 months and the maximum penalty as 12 months. Forty out of the fifty-one states and districts have a minimum punishment of 0 months in 1986 for marijuana possession and 41 states have a minimum marijuana possession penalty of 0 in both 1988 and 1990 in my data because the minimum amount was not specified.[5] There is greater variation in the minimum penalty in months of imprisonment for marijuana distribution, as it is considered a more serious crime and thus has a harsher penalty. For distribution, 25 states have a minimum distribution penalty of 0 months in 1986 and 27 states have this minimum distribution penalty in 1988 and 1990. If no gram amount of marijuana is specified in the laws and the punishment pertains to any given amount of the controlled substance, I use the specified punishments as the minimum and maximum penalties for 250 grams. If no maximum penalty is provided or if life imprisonment is the penalty, I used 1000 months as the maximum penalty.

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[4] Some states such as Alaska, Arizona, Colorado, Delaware, Michigan, Nebraska, Nevada, and Wyoming have penalties for use separately from the penalties for possession. Given the relatively small number of states that have these additional laws, I only use laws for possession and distribution in the data set.

[5] I Include Washington, DC in the analysis.

Estimates for marijuana possession penalties are based on three USDOJ

publications: *A Guide to State Controlled Substances Act* from 1988 and 1990, *Felony*

Laws of the 50 States and District of Columbia, 1986, as well as state session laws on

marijuana possession and distribution in the specified years from HeinOnline

Sample

     The sample is composed of a nationally representative set of young adults

aged 18-24, though as previously stated it excludes persons who are currently

imprisoned. I chose this age group because persons in this age range had the

highest rates of school enrollment as compared to other age spans from 1984 -

1992. [6] I exclude observations with missing data on race, ethnicity, family income,

and state of residence from the October CPS supplements, which reduced my

sample by approximately 5%.[7] I begin by comparing the college enrollment of

Black males to that of non-Black males. I make this comparison because male

college enrollment has increased at slower rates than that of females since the

1980s. In Figure 3, we see the parallel trends in the fitted values of college

enrollment for Black males and non-Black males prior to the law change in 1986.

As a result of this similar trend, the post secondary outcomes of Black males can

be compared to that of other males. I also compare the probability of college

enrollment of Black males to that of Black females. I use Black females as a

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[6] Rates of enrollment were 38.7% for 20-24 year olds, 13.3% for 25-29 year olds and 6.7% for 30-34 year olds (NCES, 2014).

[7] The only variable that had missing data was the family income variable, which is one of the limitations of the CPS.

comparison group because Black women had higher arrest rates than other women, though their rates were not as high as arrest rates for Black men. Figure 4 shows the similar trends in the fitted values of the probability of college enrollment for Black males and Black females prior to the federal drug law change. I carry out my analysis with CPS October supplement data using individual probability weights, given that they produce representative statistics (BLS, 2012).

Table 1 presents sample means for young adults aged 18 – 24 in the CPS October supplement sample prior to the federal law change and following the federal law change. Over the period from 1984 to 1986, approximately 28% of the sample is enrolled in college, with slightly lower enrollment for Black males at 21% and a slightly higher likelihood of enrollment for non-Black males at 30%. For the entire student sample, we see an increase in the likelihood of college enrollment of 4% points or 14% in the period after the law change from 1987 to 1992. For Black males, the increase is 1% point and for non-Black males, the increase is 3% points. Also, much of the increase in enrollment comes from four-year colleges, where enrollment increases from 21% to 24% of students in this age group enrolled, as compared to two-year colleges, which went from 7% to 8% enrollment for persons aged 18-24.

IV. Empirical Methodology

I first employ difference-in-differences (DD) as a quasi-experimental

strategy to measure the effects of the Anti-Drug Act of 1986 on college

enrollment and graduation rates for Black men. I compare outcomes for Black

men to another demographic group before and after a policy change using DD.

The primary assumption for the difference-in-difference model is that the trends

in enrollment for the two groups being compared were parallel prior to the

change (Wooldridge, 2010). Therefore, differences after a change, once

accounting for the pre-change gap, are attributable to the law. In other words, the

DD strategy accounts for existing time-invariant dissimilarities between the

groups that may bias the estimates (Imbens & Wooldridge, 2007). For the first

research question that explores changes in college enrollment after the passage of

the federal law, I first have pre- and post- law change as the first difference and

race as the second difference, when comparing the college enrollment of Black

men to that of non-Black men. In the next set of analyses where I compare the

outcomes of Black men to that of Black women, I have pre- and post- law change

as the first difference and gender as the second difference. For the second

research question that uses variation in state marijuana laws, I use geographic

variation in changes in state laws for marijuana possession and distribution and

race as the second difference for the all male sample and gender as the second

difference in the all Black student sample. I estimate linear probability models

and cluster my standard errors at the level of the state, in order to correct for

serial correlation in the error terms (Bertrand, Duflo, & Mullainathan, 2004). I

also employ CPS October supplement final person weights in all analysis.

My source of variation for the second research question is the changes in

severities of states' marijuana laws after the passage of Anti-Drug Abuse Act of

1986. I use state variation, as opposed to a smaller geographic unit for a number

of reasons. First, most drug crimes were prosecuted under state law, as opposed

to federal law, with 653,386 of the total 712,557 incarcerated persons being held

in state prison in 1990 (Cohen, 1991; Kaeble, Glaze, Tsoutis, & Minton, 2016).

Second, the CPS only covers large metropolitan statistical areas (MSA). Thus, I

would not have coverage of all states if I used the MSA instead of the state. One

potential limitation of using states as opposed to MSA is that enforcement of

marijuana laws vary within states. For example, New York had the Rockefeller

Drug Laws, enacted in 1973, whereby possessing four ounces of marijuana

carried a sentence of fifteen years to life. Paradoxically, NY CLS Penal § 221.05,

passed four years later in 1977, stated that those in possession of less than an

ounce of marijuana could be fined but not imprisoned, as long as the marijuana

was not shown publicly. Although New York State decriminalized possession of

small amounts of marijuana in 1977, law enforcement officers in New York City

disproportionately stopped young Black and Latino men in urban areas and

forced them to remove drugs from their pockets (Gelman, Fagan, & Kiss, 2007).

Once the drugs were in public view, possession became a misdemeanor, and

could be punished by imprisonment as compared to a fine for an infraction.

While there is extensive research on the policing in New York City (Golub,

Johnson, & Dunlap, 2007; Harcourt & Ludwig, 2007), other states and cities could

have a similar dynamic. However, I am ultimately interested in aggregate

changes to college enrollment for Black males. Even if law enforcement varies

within states, my analysis, which clusters individuals within states, will capture

aggregate changes in college enrollment within states.

In equation 1, my sample is limited to young adult males aged 18 to 24, in

order to compare the outcomes of Black males and non-Black males. I limit the

analysis to males in this age group for three reasons. First, young males are the

group most likely to be arrested, as shown earlier. Second, trends in college

enrollment for White females differ from that of Black males, which would

violate the primary assumption of the DD model. Third, this is the age of college

entry for many young adults, as approximately 60% of enrolled students in 1987

were in this age range (NCES, 1997). Using ordinary least squares, the model can

be expressed as follows:

(1) $College = \beta_0 + \beta_1 After1986 + \beta_2 Black + \beta_3 (After1986*Black) + + \beta_4 X + \gamma_1 S + \gamma_2 R$

$+\varepsilon$

In equation (1), *College*, my outcome variable is a dichotomous variable

indicating whether an individual who is between the ages of 18 and 24 is

enrolled in college. The binary question predictor *After1986*, which equals 1 if the

year is 1987 or later and equals 0 otherwise, captures changes in college

enrollment from pre- law change to post. Although the Anti-Drug Abuse Act

passed October 27, 1986, I use 1987 as the first year in which it was applied

because my data comes from CPS October supplements and the law had not yet

passed in 1986 when the sample was taken. The second difference, captured by

the binary variable *Black,* measures differences in college enrollment between

Black and non-Black males prior to the law change. My variable of interest is the

interaction term *After1986*Black* because it measures the difference in the average

change in the probability of college enrollment for Black males from pre- law to

post- law after differencing out the average change in college enrollment for non-

Black males over the same time period. In the DD model, the interaction term (β_3)

allows the two groups to have a different starting point, or initial enrollment rate,

as well as a different rate of change in enrollment after the law. I also carry out

the same analysis for only Black students in order to compare the difference in

the probability of college enrollment of Black males and females. In this analysis,

my second difference would be gender, which would capture pre- law change

differences in the likelihood of college enrollment for Black young women and

men.

A significant threat to the validity of my analysis comes from the fact that

detected changes in enrollment might have occurred at the same time as the rise

in incarceration for Black males but not because of the trend. For example,

college enrollment for Black males could have changed due to economic

conditions, such as an increase in unemployment rates. However,

unemployment rates for both Black males and White males decreased from

January 1984 through January 1989, with a steeper decline in the unemployment

rate for Black males than White males.

In order to address the aforementioned threats to validity of the analysis, I

control for background characteristics associated with college enrollment (X)

such as age, age squared, ethnicity, family income, and the yearly seasonably

adjusted annual state unemployment rate in all models (Rouse, 1994; Perna,

2000). As college enrollment rates differ regionally, I add state fixed effects to

account for time invariant unmeasured differences in states that might effect

college enrollment (S). I also include year fixed effects (R) in order to account for

trends specific to a particular year that could impact college enrollment.

To refine my analysis and explore how the federal law might have had

differential effects by state context, I employ an alternate second difference:

variation in changes to state laws around marijuana possession and distribution.

For example, while Kentucky had a maximum punishment of one year in prison

for distribution of up to 225 grams of marijuana in 1986, Alabama had a

maximum suggested penalty of fifteen years for distributing the same amount of

marijuana in that year. I hypothesize that the magnitude of the effect of the law

on college enrollment will vary with the magnitude of the state law change after

the passage of the federal law. In order to capture the ways in which states

responded to the unanticipated passage of the Anti-Drug Abuse Act of 1986, I

use the minimum penalty in months of imprisonment for marijuana possession

as my second difference in equation 2. I also add a predictor for the maximum

penalty in a state. I thus compare college enrollment rates in states that became

more punitive with respect to marijuana possession and distribution, as

compared to those that became less punitive or did not change their marijuana

laws.

The first difference is the change in state marijuana possession and

distribution penalties and the second difference is race as follows in equation 2.

(2) *College=*

$\beta_0 + \beta_1$ *State marijuana penalty min (max)*$+ \beta_2$ *Black +*

β_3 *(Black* State marijuana penalty min (max)) +*

β_4**X**$+ \gamma_1$ **S** $+ \gamma_2$ **R** $+\varepsilon$

The variable $_{State}$ *marijuana penalty min (max)* is a continuous variable that

indicates the penalty in months of imprisonment for an amount of marijuana

possessed or distributed in a given year. I include the interaction term *Black* $_{State}$*

marijuana penalty min (max), which is my variable of interest. This difference

estimates the difference in average enrollment for Black males in states with

more lenient penalties after the law change as compared to Black males in states

with more lenient penalties prior to the law change by subtracting out

(controlling for) two confounding trends: (1) changes in college enrollment for

Black men across all other states (2) changes in college enrollment for young

men living in more lenient states. Thus, this term measures not only pre- and post- law differences in college enrollment differentiated by race, but it also allows for differences in college enrollment based on whether an individual lived in a state in which the law was more (or less) severe in terms of the marijuana possession and distribution laws after the passage of the 1986 Anti- Drug Act (Puhani, 2012).

I hypothesize that young Black men who reside in a state with less punitive marijuana possession and distribution laws will have a lower likelihood of being imprisoned for these infractions when compared to Black males living in more punitive states because these states would have been less likely to make draconian law changes after the passage of the federal law. As a result, they would have a higher likelihood of college enrollment after the law changes than Black males in states that were more punitive. If my coefficient of interest is negative and statistically significant, this indicates that the relative likelihood of enrollment for Black men decreases as a state becomes *more punitive* with respect to marijuana laws following the passage of the Anti-Drug Abuse Act of 1986 when compared with changes in the likelihood of enrollment rates prior to the law change, after controlling for general trends in the likelihood of postsecondary enrollment for male students in less punitive states and trends in college enrollment for Black males in other states.

V. Results

Difference- in –differences: Changes in college enrollment after the 1986 law change

Table 2 provides the estimates for the first difference-in-difference analysis. This table indicates that Black males had a marginally lower probability of being enrolled in college after the law change. Overall, Black male students were less likely to be enrolled in college prior to the law change when compared to non-Black males, as seen by the consistently negative and statistically significant co-efficient on *Black* in this male only sample. From Column (3) that includes all covariates and state fixed effects, the coefficient of interest, the interaction term *After1986*Black,* is negative and marginally significant with a point estimate of -.0222. This can be interpreted as a 2.22% point, or 2.22/21=10%, decrease in the probability of a Black male enrolling in college after the passage of the Anti Drug Act of 1986 as compared to Black men prior to the law change.[8] Further, this estimate aligns with national data demonstrating that while the total numbers of Black males enrolling in higher education increased, their share of the undergraduate population fell slightly during this time period, from 4.2% in 1980 to 3.9% in 1990 (USDOE, 1995).[9] I also explore whether the findings vary by the type of institution, namely, four-year or two-year colleges in the fourth and fifth columns of Table 2. There are no statistically significant findings for enrollment in either two-year or four-year enrollment. However, the relatively small sample size of Black students means that I might not have

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[8] The college enrollment rate for Black men prior to the passage of the federal law was .21 in my sample.
[9] The share for White men was 39.5% in 1980 and 35.6% in 1990.

enough power to detect small effects when I differentiate between two- year and four-year colleges.[10]

Next, I measure whether I see changes in the likelihood of college enrollment when comparing the enrollment of Black males to that of Black females in the DD model, as Black women also had increases in arrest rates during this time period though not at the same level as Black men (Hester, 1989; Jankowski, 1992).[11] Here, I find marginally significant decreases in the likelihood of college enrollment by Black men in the years following the passage of the Anti-Drug Abuse Act of 1986, when compared to Black male enrollment in the years prior in Table 3. The point estimate for the interaction term *After1986*Male,* in Column (3) for the model with covariates and state and year fixed effects, has a similar direction and magnitude to the one from the all male sample. It shows a 2.24% point decrease in Black male enrollment when compared to Black men prior to the law change. I did not find significant differences in enrollment for Black males after the policy change when looking at the probability of enrollment in two-year or four-year colleges in Table 3 Columns (4) and (5). As previously mentioned, one reason that the analysis might not be detecting effects is the relatively small sample size of the Black population of 18-24 years olds in the CPS, particularly when I am looking at changes within states.

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[10] In order to detect a mean difference of .01 in the probability of college enrollment with power of .8 and a confidence level of .95, I would need a sample size of approximately 28,500 persons. My sample size for Black students in the analysis is 15,147.

[11] In 1985, state prisons housed 9,791 Black women (204, 280 Black men) and 10,077 White women (224,647 White men). By 1990, there were 17,753 Black women (326,845 Black men) and 16,813 White women (306,897 White men) in state prisons (Hester, 1989; Jankowski, 1992).

Difference- in –differences: Changes in college enrollment based on state law changes

Table 4 presents the effects of marijuana laws on college enrollment for

males based on their state of residence and the change in state law from 1986 to

1981. Overall, the results show that states that became more punitive, for their

minimum marijuana possession penalties, had slight decreases in college

enrollment for Black males.[12] From the coefficient on *Black* State marijuana*

penalty in Column (1) of table 4, Black males in a state that had a one month

increase in their minimum marijuana possession penalty after the federal law

change had a .22 % point, or 1%, decrease in the likelihood of college enrollment.

However, this result is only marginally significant. Although a small point

estimate, if I look at the effects of the change for a year (12 months) instead of one

month, I find a decrease of 2.6% points in the Black male college enrollment rate

when a state increases their minimum possession penalty by one year. When

looking at the effects of the change in the maximum penalty from the coefficient

Black* State marijuana penalty max 88-86, I do not see a significant effect. When

using Black women as a comparison group in Table 5, we see similar results to

those for the analysis comparing the college enrollment of Black men to other

men for the minimum penalty. However, the results are also not statistically

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[12] Nine states changed their maximum distribution penalties from 1986 to 1988 and twelve states changed their minium distribution penalties in this time period.

significant – possibly due to the smaller sample size for the sample with only

Black students.

Sensitivity Analysis

While there is some variability with regards to severity of penalties for

marijuana laws, drugs such as cocaine and heroin receive the harshest penalty

allowed in almost all states. In particular, there were severe penalties associated

with cocaine in the federal law and much of the news coverage in the 1980s was

around crack or freebase forms of cocaine and their evils (Orcutt & Turner, 1993).

Fryer, Heaton, Levitt, and Murphy (2013) find that crack cocaine had a large

impact on a number of social indicators for Black persons in the 1990s, from birth

rates to death rates. According to the Bureau of Justice Statistics (2017), from 1987

to 1995, most drug arrests were for heroin or cocaine. This changed in 1996, when

arrests for marijuana related crimes outnumbered those for other drugs.

In order to test whether marijuana might be the incorrect controlled

substance to detect the changes in Black male college enrollment after the

passage of the Anti-Drug Abuse Act of 1986, I take two approaches. First, I carry

out the state level analysis using minimum and maximum penalties for cocaine

possession and distribution. This first approach explores the effects of changes in

the law. I also carry out the analysis using the state level crack index from Fryer,

Heaton, Levitt, and Murphy (2013), and replace the state marijuana laws with the

state crack index for each year. The crack index the authors created proxies for

the prevalence of crack in cities and states from 1980 to 2000 and adjusts for the

racial makeup of a state. The state yearly crack measure includes percentage of

arrests for either possession or distribution of cocaine or a derivative, per capita

number of Drug Enforcement Agency arrests and seizures related to cocaine and

derivatives, and per capita deaths related to cocaine. This second approach

explores the effects of both the law and the enforcement of the law.

Using variation in changes of state laws for cocaine in Table 6 column 1,

there is a small but significant decline in the relative probability of Black male

college enrollment when the maximum cocaine penalty increases by a month

within a state. We do not see enrollment changes when the minimum penalty

increases.[13] In Table 7 that uses the Fryer et al crack index as the primary

predictor, the coefficient on the interaction between the crack index and Black is

significant and negative and indicates a 2.34% point decrease in the likelihood of

college enrollment when the crack index increases by one unit. The point

estimates for the change in the likelihood of college enrollment are of a similar

magnitude and direction, though slightly smaller, when I use Black women as

the comparison group in Table 8. While both approaches suggest that increases

in the severity of crack laws led to significant decreases in the college enrollment

of Black men when compared to their White peers, the crack index has a much

larger point estimate. One reason that the crack index might have a larger effect

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[13] I carry out the same analysis for Black male students using Black females as the control group but do not find effects, which could be due to the small sample size as previously stated.

is that the index not only measures arrests, it also includes a proxy for enforcement, namely how many DEA busts occurred, as well as the death toll related to cocaine.

Finally, I explored other possible explanations for changes in college enrollment such as changes in laws around financial aid and changes in college costs. If income constrained students had less access to government grants and loans during the 1980s, this could have changed the likelihood of college enrollment for Black students. While the Higher Education Act was reauthorized in 1986, there were no significant changes to the funding levels for programs from the prior reauthorization (Keppel, 1987). Providers of higher education might have also instituted policies that impacted the demand for higher education, such as lowering tuition or increasing the amount of aid disbursed. I verified that tuition prices had not decreased, as lower prices might lead to increased enrollment. According to National Center for Education Statistics (2000), average undergraduate tuition, fees, room and board for both two-year and four-year institutions increased at a relatively constant rate over this time period, although two-year prices increased at a slightly slower rate from 1984- 85 through 1986-87.

Discussion of results

This paper seeks to understand whether increases in marijuana possession and distribution penalties by states, following the passage of the federal Anti-Drug Abuse Act of 1986, decreased the likelihood of college enrollment for Black

males. While traditional college-aged Black males were disproportionately arrested for drug possession and distribution infractions following the introduction of the federal law (US Sentencing Commission, 1991), it was unclear if these laws also had an impact on the likelihood of college enrollment for Black young men.

The analysis for the first research question, based on the federal law change, shows that Black males in the United States had a marginally lower probability of college enrollment after the passage of the Anti-Drug Abuse Act of 1986 as compared to Black males prior to the law change, once I account for trends in college enrollment over the period. These results were robust to alternative specifications. For the second research question, increases in a state's minimum possession penalty following the federal law change did not change the likelihood of Black male college enrollment. We also do not see significant effects when looking at the effects of changes in the maximum possession penalty or the minimum or maximum distribution penalties. However, an increase in the maximum?? crack penalty led to decreases in the relative college enrollment of Black men.

Types of Penalties Matter: Maximum versus Minimum Penalty for Marijuana Possession

The results of this study are somewhat surprising. I anticipated that an increase in a states' maximum marijuana possession penalty would have a

negative effect on Black male college enrollment. After 1986, a number of states became more punitive by increasing the minimum and maximum penalty for marijuana possession and distribution (Holden, 1988). Other states imposed mandatory minimum penalties for drug possession. As a result, Black and Latino young men were more likely to be arrested and incarcerated for drug infractions when compared to their White peers (Meierhoefer, 1992). Further, Black and Latino individuals received longer prison sentences than White persons for similar crimes in both federal and state courts (Steffensmeier, Ulmer, J., & Kramer, 1998; Steffensmeir & Demuth, 2000; US Sentencing Commission, 1991). Given the increased likelihood of arrest for Black young men, I expected that an increase in both the minimum or maximum marijuana penalty would lead to decreases in Black male college enrollment. However, my results demonstrate that states that had increases in the minimum marijuana possession penalty had small and marginally significant decreases in college enrollment for Black men when compared to both Black women and non-Black men. In contrast, when looking at cocaine, increases in the maximum cocaine penalties led to decreases in relative college enrollment for Black men

The population of Black males arrested could explain why an increase in the minimum marijuana possession penalty was more deleterious to college outcomes than an increase in the maximum penalty. Perhaps, the young Black men who were arrested for marijuana possession crimes *and* students on the margin of attending college were more likely to be arrested for possession of

small amounts of drugs. The increases in state marijuana minimum

imprisonment terms could be the difference between being arrested, convicted,

but *not* incarcerated prior to 1986, as compared to being convicted and serving

time in prison after 1986. Prior research demonstrates that while arrests have a

negative impact on the likelihood of college enrollment, time served in prison is

more detrimental to educational outcomes (Aizer and Doyle, 2015; Hjalmarsson,

2006). For example, Aizer and Doyle (2015) found that incarcerated individuals

have a lower likelihood of high school graduation when compared to young

adults who are arrested and convicted but do not serve time in jail or prison.

In order to explore the role of having a higher likelihood of serving *any*

time in prison on college outcomes, I looked at the correlation between a state

having a mandatory minimum drug penalty and the likelihood of college

enrollment. A mandatory minimum penalty mandates that a state enforce a jail

or prison term if a person is convicted of a drug offense. Thus, states that have

mandatory minimum laws should be more likely to assign prison terms to those

convicted of drug possession and distribution because the sentence is codified.

Estimates suggest that mandatory minimum drug laws increased state prison

populations by about 35% between 1985 and 1995 (Caulkins & Chandler, 2006). I

find a negative and statistically significant correlation between a state having

mandatory minimum drug laws in 1988 and the probability of college enrollment

for Black students. As previously hypothesized, the mechanism might be the

difference between serving time and not serving time in prison, as opposed to

the length of the jail sentence. This correlation might explain why the maximum sentence did not have a detectable effect on the probability of college enrollment. It is unlikely that the difference between serving a maximum marijuana possession sentence of 10 months, as opposed to 12 months, has an impact on the likelihood of college enrollment. But, serving one month in 1988 as compared to no prison in 1986 could have a large impact on the likelihood of college enrollment for the marginal student.

However, when looking at changes in cocaine laws, I find significant effects only for increases in the maximum penalty and not the minimum penalty. This is the opposite finding for marijuana. One possible explanation is that different populations were being arrested for marijuana possession and cocaine sales and both were marginal college students.

The point estimates were quite small for the decreases in the likelihood of college enrollment for Black men. Insufficient power could be another reason that I do not find changes, particularly for the *Male* State marijuana penalty minimum* interaction. The sample is even smaller when looking at two-year and four-year enrollment. As the point estimate from the interaction term of interest *Black* State marijuana penalty max* was less than 1% in a number of the models for overall college enrollment, I would anticipate difficulty in detecting an effect size with the sample size.

College enrollment for Black students: An intersection of race and socioeconomic status

Another possible reason for the lack of change in Black male college when the marijuana penalty increases might be related to class differences in college enrollment. Research suggests that college enrollment increased for upper income young adults at the same time that it was stagnating among low-income persons (Bailey & Dynarski, 2011). Thus, higher income Black students might have been more likely to attend school and offset losses in enrollment by lower-income Black. Kane (1994) finds that while college enrollment declined for Black young adults in the early years of the 1980s, there was a rebound in college enrollment rates in the latter part of the decade, in part due to higher parental education levels, which led to a greater likelihood of college enrollment for Black students with parents who had college degrees.

Lags in legislation and effects of drug laws on arrests

The timing of the drug legislation and enforcement also played a role in the likelihood of college enrollment for Black males. Black adult arrest rates for drug infractions increased sharply from 1986 to 1988, peaked in 1988, and then fell sharply from 1989 to 1992, as seen in Figure 2. For Black juveniles, arrest rates peaked after the passage of the Violent Crime Control and Law Enforcement Act of 1994. Thus, perhaps, the effects of the marijuana laws on Black male college enrollment actually had a longer lag time than can be captured in a study that ends in 1992.

There are numerous theories about this decline in drug arrests in the period from 1989 to 1992. This decrease in arrests was likely not due to declines in the crime rate. Data from the annual *FBI Uniform Crime Report* show that overall crime rate rose from 1988 to 1991, as did the violent crime rate. Crime rates did not begin to fall until 1991. Another potential explanation for the decline in arrests is political changes. In 1989, George H.W. Bush became president, which could have led to decreased spending on crime control due to increased uncertainty over future budgets. This scenario is not credible as the drug control budget passed in 1989 was larger than that of previous years (White House, 1998). Further, both the former president Ronald Reagan and the president in 1989 were Republicans. The Republican Party is generally associated with an increase in penalties for crime (Smith, 2004). An alternate explanation is that an economic slowdown occurred in 1989, which in turn became the economic recession of 1990 and 1991 (Blanchard, 1993). The economic slowdown could have led to priority changes within police departments – whereby they did not focus as much on drug crimes. It is hard to evaluate the role of the economic slowdown on the drug arrest rate. There is limited research on the relationship between drug arrests and the business cycle and a weak relationship between crime and economic downturns, more generally (Cook & Zarkin, 1985).

VI. Conclusions

While numerous statistics demonstrate that increases in rates of Black

male college enrollment and attainment rates have not mirrored those of their

Black female or White male counterparts, the reasons for these gaps have not

been fully explained. Based on the findings from this paper, the probability of

college enrollment for Black males decreased after the federal law changed.

However, it does not seem largely attributable to increases in state penalties for

marijuana possession and distribution over the relatively short period from 1986

to 1992. There is some evidence that the more salient drug with respect to

changes in Black male college enrollment is crack cocaine.

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Table 1: Sample Means of Population Aged 18- 24 Years Old from 1984-1992

	Pre - Law	Post - Law

Variable	1984-86 Mean	1987-92 Mean
Male	0.48	0.48
Black	0.12	0.12
HS Graduate	0.83	0.84
Enrolled in college	0.28	0.32
Enrolled in college (Black males)	0.21	0.22
Enrolled in college (Non-Black males)	0.30	0.33
Enrolled in 2-yr coll.	0.07	0.08
Enrolled in 4-yr coll.	0.21	0.24
Minimum penalty marijuana possession (months)	1.19	0.23
Maximum penalty marijuana possession (months)	11.61	66.19
Minimum penalty marijuana distribution (months)	7.62	8.71
Maximum penalty marijuana distribution (months)	119.95	138.76
N	47,596	80,669

Source: Authors calculations from CPS October supplements 1984 - 1992 and author's dataset on recommended marijuana penalties by state for the years 1986, 1998, and 1990

Notes: The sample is composed of persons aged 18-24 at the time of the survey. Sample means are calculated based on averages of the variable values over the years before the law change and after the law change. The period prior to the law change includes the years 1984, 1985, and 1986. The years following the law change include 1987 – 1992. Minimum (maximum) marijuana penalty shows the recommended minimum (maximum) months of imprisonment for a first offense marijuana possession or distribution charge without aggravating factors.

Table 2: Changes in College Enrollment for Male Persons Aged 18-24 Years Old after the Passage of the Anti-Drug Abuse Act of 1986 (1984-1992)
Control Group: Non- Black males

	(1) Attend Any College	(2) Attend Any College	(3) Attend Any College	(4) Attend 4 Yr College	(5) Attend 2 Yr College
After1986 * Black	-0.0181	-0.0237**	-0.0222*	-0.0184	-0.0037
	(0.0121)	(0.0117)	(0.0116)	(0.0125)	(0.0077)
After1986	0.0284***	0.0157**	0.0157***	0.0180***	0.0060**
	(0.00684)	(0.00595)	(0.00584)	(0.00473)	(0.0028)
Black	-0.0966***	-0.0699***	-0.0637***	-0.0527***	-0.0127*
	(0.0111)	(0.00873)	(0.00943)	(0.00927)	(0.0070)
Constant	0.3010***	-3.3910***	-3.3660***	-4.2280***	0.8160***
	(0.00879)	(0.324)	(0.313)	(0.280)	(0.2560)
Dem. included		X	X	X	X
State and year FE			X	X	X
Observations	61,562	61,562	61,562	61,204	61,204
R-squared	0.007	0.093	0.099	0.072	0.045

*** p<0.01, ** p<0.05, * p<0.1
Source: Authors calculations from CPS October supplements 1984 - 1992
Notes: Sample is composed of male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment. The outcome for column 4 is enrollment in a four-year college and the outcome for column 5 is enrollment in a two-year college. The demographic factors in columns 2 – 5 include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 3: Changes in College Enrollment for Black Persons Aged 18-24 Years Old after the Passage of the Anti-Drug Abuse Act of 1986 (1984-1992)

Control Group: Black females

	(1) Attend Any college	(2) Attend Any College	(3) Attend Any College	(4) Attend 4 Yr College	(5) Attend 2 Yr College
After1986 * Male	-0.0201	-0.0231*	-0.0224*	-0.0171	-0.0094
	(0.0123)	(0.0128)	(0.0132)	(0.0123)	(0.0091)
After1986	0.0304**	0.0132	0.0128	0.0138	0.0113*
	(0.0117)	(0.0104)	(0.0105)	(0.0103)	(0.00565)
Male	-0.0159	-0.0344***	-0.0356***	-0.0108	-0.0213***
	(0.0101)	(0.0104)	(0.0105)	(0.00994)	(0.00751)
Constant	0.2200***	-2.0540***	0.9160*	0.5240	0.3360
	(0.0125)	(0.4580)	(0.5010)	(0.4200)	(0.3240)
Dem. included		X	X	X	X
State and year FE			X	X	X
Observations	15,147	15,147	15,147	15,035	15,035
R-squared	0.002	0.063	0.072	0.056	0.033

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1984 - 1992

Notes: Sample is composed of Black persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment. The outcome for column 4 is enrollment in a four-year college and the outcome for column 5 is enrollment in a two-year college. The demographic factors in columns 2 – 5 include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 4: Changes in College Enrollment for Black Persons Aged 18-24 Years Old in States Based on the Severity of Marijuana Possession Penalties from 1986 to 1991

Control Group: Black females

	Change from 1986 to 1991		
	(1) Attend Any College	(2) Attend 4 Yr. College	(3) Attend 2 Yr. College
Male* Minimum penalty (months)	-0.0008 (0.0021)	-0.0018 (0.0011)	0.0009 (0.0020)
Male*Maximum penalty (months)	-0.0002 (0.0004)	0.0005 (0.0004)	-0.0003 (0.0003)
Male	-0.0397*** (0.0134)	-0.0118 (0.0195)	-0.0262* (0.0146)
Minimum penalty (months)	-0.0015 (0.0033)	0.0012 (0.0013)	-0.0023 (0.0025)
Maximum penalty (months)	0.0011 (0.0007)	0.0011 (0.0010)	-9.02e-05 (0.0008)
Constant	-0.7380 (0.8480)	-1.1840 (0.7590)	0.3570 (0.5030)
Dem. included	X	X	X
State and year FE	X	X	X
Observations	4,914	4,884	4,884
R-squared	0.084	0.068	0.033

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1986 - 1991 and author's dataset on recommended marijuana penalties by state for the years 1986, 1988, and 1990.

Notes: Sample is composed of Black persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1984 to 1991. The outcome for the last three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1986 to 1990. The variable Minimum penalty is the minimum recommended state penalty for possession in the year in question. The demographic factors in all columns include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 5: Changes in College Enrollment for Male Persons Aged 18-24 Years Old in States Based on the Severity of Marijuana Possession Penalties from 1986 to 1991
Control Group: Non-Black Males

	Change from 1986 to 1991		
	(1) Attend Any College	(2) Attend 4 Yr. College	(3) Attend 2 Yr. College
Black* Minimum penalty (months)	-0.0022* (0.0013)	-0.0012 (0.0015)	-0.0009 (0.0008)
Black* Maximum penalty (months)	-0.0003 (0.0003)	-0.0004 (0.0004)	0.0002 (0.0002)
Black	-0.0397*** (0.0134)	-0.0118 (0.0195)	-0.0262* (0.0146)
Minimum penalty (months)	0.0010* (0.0006)	0.0014** (0.0006)	-0.0007** (0.0003)
Maximum penalty (months)	0.0006 (0.0005)	0.0006 (0.0005)	9.70e-05 (0.0003)
Constant	-3.5060*** (0.505)	-4.3440*** (0.404)	0.7950** (0.314)
Dem. included	X	X	X
State and year FE	X	X	X
Observations	20,030	19,934	19,934
R-squared	0.104	0.075	0.047

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1986 - 1991 and author's dataset on recommended marijuana penalties by state for the years 1986, 1988, and 1990.

Notes: Sample is composed of male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1984 to 1991. The outcome for the last three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1986 to 1990. The variable Minimum penalty is the minimum recommended state penalty for possession in the year in question. The demographic factors in all columns include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 6: Changes in College Enrollment for Male Persons Aged 18-24 Years Old in States Based on the Severity of Cocaine Possession Penalties from 1986 to 1991

Control Group: Non-Black Males

	Change from 1986 to 1991		
	(1)	(2)	(3)
	Attend Any College	Attend 4 Yr. College	Attend 2 Yr. College
Black* Minimum penalty (months)	0.0004 (0.0003)	-0.0001 (0.0002)	0.0005 (0.0003)
Black* Maximum penalty (months)	-6.49e-05** (3.06e-05)	1.78e-06 (1.03e-05)	-6.13e-05 (3.69e-05)
Black	-0.0618*** (0.0142)	-0.0207** (0.0081)	-0.0427** (0.0173)
Minimum penalty (months)	0.0002 (0.0002)	0.0002 (0.0002)	-7.40e-05 (0.0001)
Maximum penalty (months)	8.25e-05 (0.0001)	-6.45e-05 (4.16e-05)	0.0002* (9.23e-05)
Constant	-3.4720*** (0.5080)	0.7880** (0.3130)	-4.2990*** (0.4050)
Dem. included	X	X	X
State and year FE	X	X	X
Observations	20,030	19,934	19,934
R-squared	0.104	0.047	0.075

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Authors calculations from CPS October supplements 1986 - 1991 and author's dataset on recommended marijuana penalties by state for the years 1986, 1988, and 1990.

Notes: Sample is composed of male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1984 to 1991. The outcome for the last three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1986 to 1990. The variable Minimum penalty is the minimum recommended state penalty for possession in the year in question. The demographic factors in all columns include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 7: Changes in College Enrollment for Male Persons Aged 18-24 Years Old in States Based on the Severity of Crack Epidemic from 1986 to 1991
Control Group: Non-Black Males

	(1) Attend Any College	(2) Attend 4 Yr. College	(3) Attend 2 Yr. College
Black* Crack_index	-0.0234***	-0.0231***	0.0001
	(0.0081)	(0.0079)	(0.0035)
Crack_index	-0.0028	0.0009	-0.0019
	(0.0045)	(0.0039)	(0.0021)
Black	-0.0473***	-0.0302*	-0.0190***
	(0.0148)	(0.0153)	(0.0062)
Constant	-5.355***	-5.253***	-0.128
	(0.486)	(0.510)	(0.492)
Dem. included	X	X	X
State and year FE	X	X	X
Observations	46,742	46,426	46,426
R-squared	0.096	0.072	0.045

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1986 - 1991 and Fryer (2013) crack index from https://scholar.harvard.edu/fryer/publications/measuring-crack-cocaine-and-its-impact..

Notes: Sample is composed of male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1984 to 1991. The outcome for the last three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1986 to 1990. The state yearly crack measure includes percentage of arrests for either possession or distribution of cocaine or a derivative, per capita number of Drug Enforcement Agency arrests and seizures related to cocaine and derivatives, and per capita deaths related to cocaine. The crack index also adjusts for racial composition of states. The demographic factors in all columns include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 8: Changes in College Enrollment for Black Persons Aged 18-24 Years Old in States Based on the Severity of Crack Epidemic from 1986 to 1991

Control Group: Black females

	(1) Attend Any College	(2) Attend 4 Yr. College	(3) Attend 2 Yr. College
Male* Crack_index	-0.0166**	-0.0114	-0.00641
	(0.0067)	(0.0069)	(0.0046)
Crack_index	-0.0073	-0.0118	0.0074*
	(0.0074)	(0.0079)	(0.0042)
Male	-0.0284*	-0.0056	-0.0198**
	(0.0149)	(0.0142)	(0.0078)
Constant	-3.046***	-3.048***	-0.0187
	(0.862)	(0.648)	(0.542)
Dem. included	X	X	X
State and year FE	X	X	X
Observations	11,060	10,971	10,971
R-squared	0.073	0.057	0.038

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1986 - 1991 and Fryer (2013) crack index from https://scholar.harvard.edu/fryer/publications/measuring-crack-cocaine-and-its-impact.

Notes: Sample is composed of Black persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1984 to 1991. The outcome for the last three columns is any college enrollment, enrollment in a four-year college and any enrollment in a two-year college in the period from 1986 to 1990. The state yearly crack measure includes percentage of arrests for either possession or distribution of cocaine or a derivative, per capita number of Drug Enforcement Agency arrests and seizures related to cocaine and derivatives, and per capita deaths related to cocaine. The crack index also adjusts for racial composition of states. The demographic factors in all columns include age, age squared, Latino ethnicity, state average unemployment rates for each year, and a binned variable for family income that is topcoded at $75,000. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Figure 1: Percentage of 18- to 24-year-olds enrolled in degree-granting institutions by gender and race - 1972 to 2012
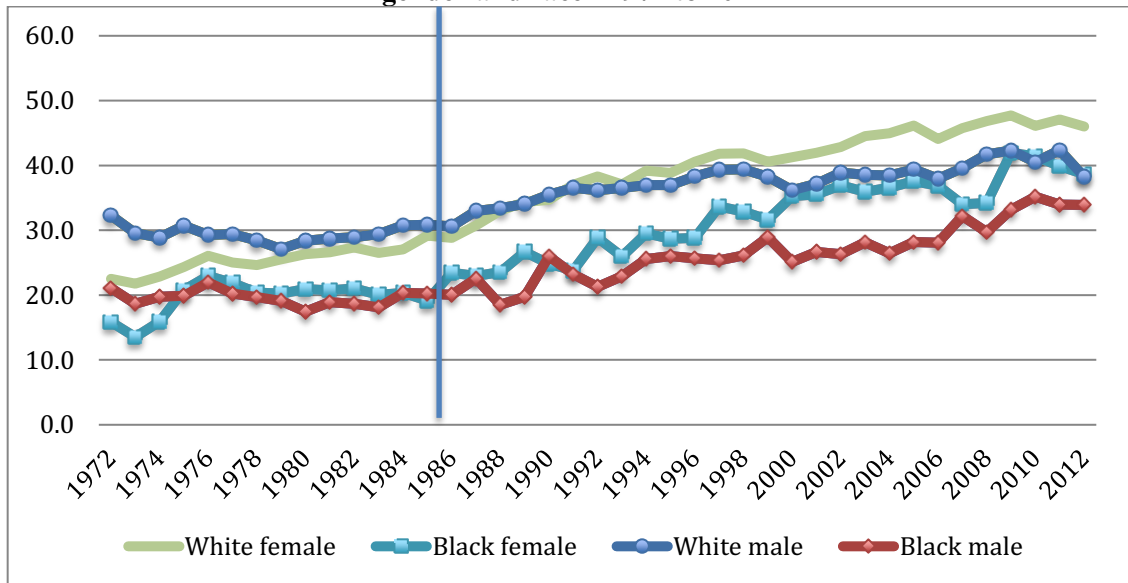
Source: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October, 1972 through 2012. (This table was prepared May 2013.)

Notes: The red diamond markers denote the probability of college enrollment for Black men. The turquoise square line is the trend line for Black women. The blue circular markers denote the probability of college enrollment for White men. The solid green line is the linear trend line for White women.

Figure 2: Drug Possession Arrest Rate (per 100,000 individuals) for Adults and Juveniles by Race 1980 - 2012

Source: Snyder, H. and Mulako-Wangota, J., Arrest Data Analysis Tool (07-Mar-17) at www.bjs.gov
Notes: Data on arrests come from the FBI Uniform Crime Reporting (UCR) program. Arrest rate defined as arrests per 100,000 persons. The green line with the boxed markers is the Black adult arrest rate. The red line with the triangular markers is the White adult arrest rate. The blue line with the circular markers is the Black juvenile arrest rate. The purple line with the diamond markers is the White juvenile arrest rate. A juvenile is defined as a person who is less than 18 years of age at the time of arrest.

Figure 3: Probability of College Enrollment and Fitted Values for Males Aged 18-24   - 1984 - 1995

Source: 1984 – 1995 CPS October supplements

Notes: The red markers denote the probability of college enrollment for White men. The orange solid line is the linear trend line for White men prior to the law change. The red line is the linear trend or White men after the law change. The blue circular markers denote the probability of college enrollment for Black men. The solid green line is the linear trend line for Black men prior to the law change. The solid light blue line is the linear trend line for Black men after the law change.

Figure 4: Probability of College Enrollment and Fitted Values for Black Persons Aged 18-24 - 1984 - 1995
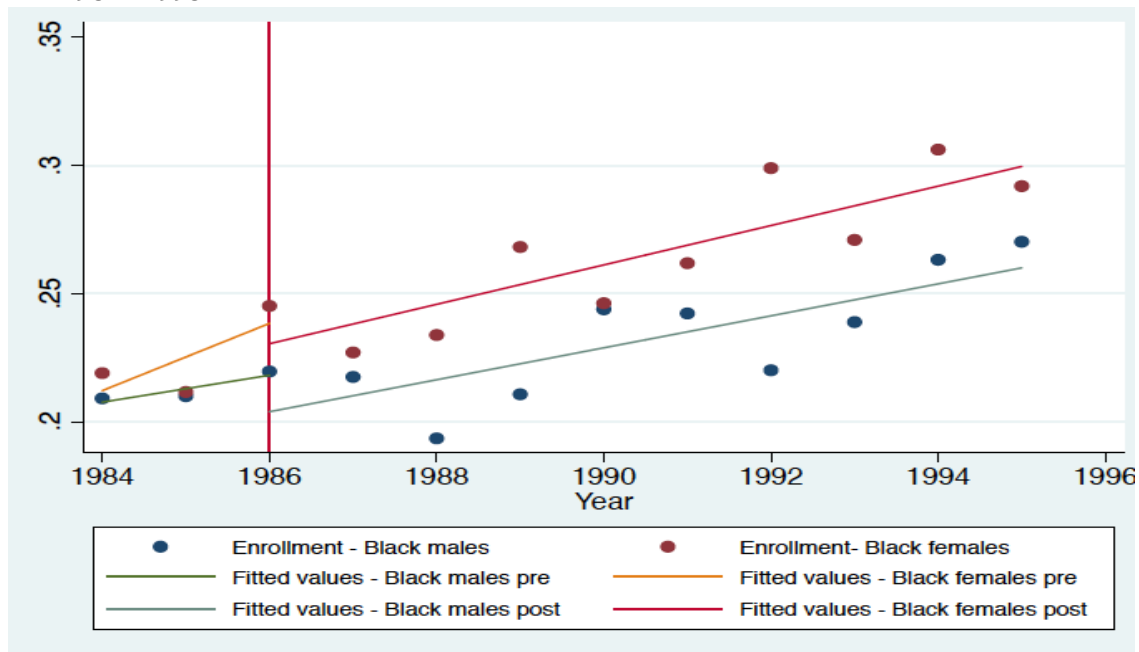
Source: 1984 – 1995 CPS October supplements

Notes: The red markers denote the probability of college enrollment for Black women. The orange line is the linear trend line for Black women prior to the law change. The red line is the linear trend line for Black women after the law change. The blue circular markers denote the probability of college enrollment for Black men.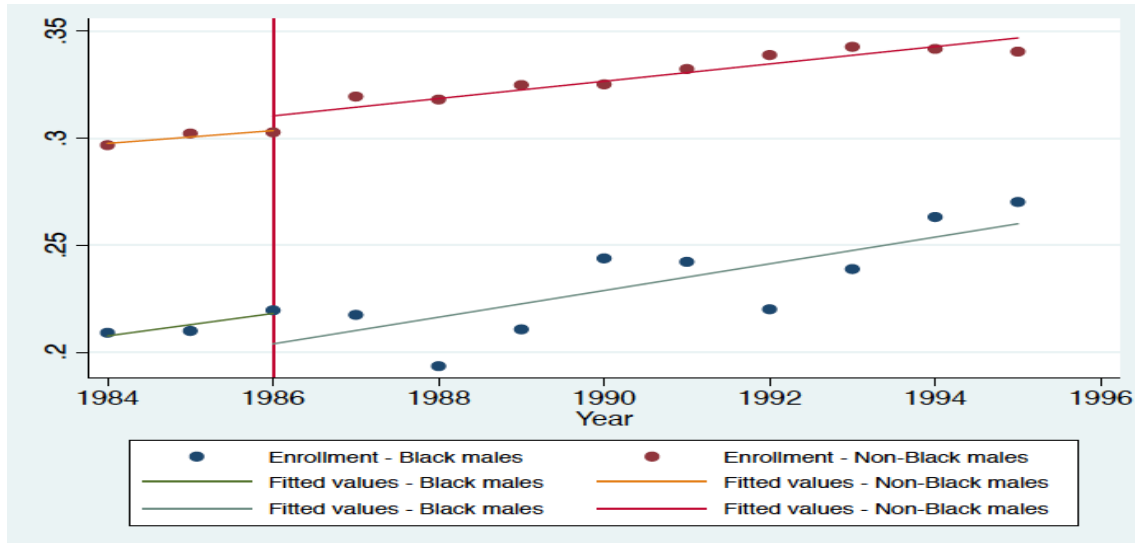 The solid green line is the linear trend line for Black men prior to the law change. The solid light blue line is the linear trend line for Black men after the law change.

Figure 5: Change in marijuana minimum distribution penalty from 1986 to 1988 by state

Source: Authors dataset on recommended marijuana penalties by state for the years 1986, 1988, and 1990
Notes: States in yellow did not change their maximum recommended prison terms for marijuana
distribution from 1986 to 1988. States in red became more punitive and increased the recommended
maximum number of months of prison for marijuana distribution. States in green became less punitive –
reduced the maximum recommended number of months of imprisonment for marijuana distribution.

**Educational Opportunity and the Criminal Justice System:
The Effects of the Violent Crime Control and Law Enforcement Act of 1994 on
Black Male Students' College Enrollment**

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I. Introduction

Increasingly, American scholars have noted that the country's laws, many

of which were passed in the 1980s and 1990s, are tied to the mass incarceration of

Americans (Alexander, 2012; Moore & Elkavich, 2008; Petit & Western, 2004;

Pfaff, 2017). The crisis in incarceration has particularly affected Black and Latino

communities and more specifically Black and Latino males when compared to

their White counterparts. While Black men constitute approximately 6% of the

population in the United States, the Bureau of Justice (2014) reported that Black

males constitute 37% of male state and federal prisoners. In contrast, White males

are 32% of male inmates and 31% of the population (Carson, 2015; U.S. Census

Bureaus, 2016). Not only were Black men more likely to be incarcerated than

White men, they were also more likely to serve longer sentences – even when

accounting for the alleged crime and past convictions (Mustard, 2001). Nearly 3

percent of Black males had sentences of a year or longer, as compared to 1.1% of

Latino men and .5% of White men.

Some of the current trends in more punitive laws are a result of the

passage of the Violent Crime Control and Law Enforcement Act of 1994, Public

Law 103-322. This law provided $9.7 billion in funding for prisons and $6.1

billion in funding for prevention programs as well as $2.6 billion in additional

funding for other agencies (NCJRS, 1994). The funding to construct prisons was

available to states contingent on enforcement of truth in sentencing (TIS) laws

that reduced prisoners' eligibility for parole by requiring that they serve at least

85% of the sentence. The law also expanded the use of the death penalty,

mandated harsher penalties for crimes committed by gang members, allowed for

adult prosecution of juveniles 13 years of age and over who committed violent

crimes, and instituted the three strikes law in the federal court system. Finally,

this bill removed Pell Grant eligibility for incarcerated persons.

One of the tenets of the 1994 law change was the TIS grant program.

Designed to increase punishment for violent crimes, this law punished not only

those who committed crimes such as murder and assault, it also increased the

punishment for those who were caught selling drugs if they were suspected or

proven members of street gangs (US Congress, 1994). Further, TIS laws specified

that the majority of a prison sentence must be served, as opposed to being

suspended or allowing sentencing under an alternate punishment. One reason

that TIS laws increased the likelihood of prison was that every state had

mandatory minimum sentencing and 18 states had moved to a determinate

sentencing model, whereby the judge could impose prison within a preset range

of months or years by 1994 (Austin, Jones, Kramer & Renninger, 2004). The

mandatory minimum sentence made it more likely that persons convicted of

offenses would go to prison, and the TIS law ensured that they would serve the

majority of the sentence.   The TIS program thus both served as a barometer of

the trend in more punitive laws for crimes in the United States in the early 1990s

and also served as an encouragement to states to adopt these policies through the

use of federal grants (Delahunt, Stupak, Fazio, & Etheridge, 1998). Sabol et al.

(2002) found that between 1995 and 1999, twenty-one states made changes to their TIS laws – with nine states enacting TIS for the first time and the other twelve states modifying existing laws to increase the percentage of time served for crimes, as seen in Figure 1.

TIS legislation in 1994 increased the arrest rate within states (Shephed, 2002). The increase came partially from an increase in drug arrests and convictions. Travis, Western and Redburn (2014), find that between 1980 and 2010, the imprisonment rate for drugs rose over 350%, from 2 to 9 per 100 arrests. By comparison, prison commitment rates for the violent crime of aggravated assault rose 250%. Caulkins and Chandler (2006) also demonstrate that an increasing number of persons held in state and federal prisons were incarcerated for drug crimes. In 1986, 2.9% of persons in state prisons were there for drug possession and 5.4% were in for drug trafficking. By 1997, of the persons housed in state prisons, 8.8% were there for drug possession crimes and 13.3% were there for drug trafficking.

More broadly, the aforementioned statistics suggest that there was an increased likelihood of incarceration following an arrest after the passage of the 1994 law as compared to prior (Western & Wildeman, 2009). In 1990, there were 292 persons incarcerated for every 100,000 residents. By 2000, the rate had increased to 478 for every 100,000 residents – which amounted to an average annual increase of 5.3% (Beck & Harrison, 2001). This increase in overall arrest rates continued until 2007, when rates peaked at 1 person incarcerated per 100

residents for males and 506 per 100,00 residents (Gelb, 2017; West & Sabol, 2008).

Extensive research demonstrates that Black and Latino persons are

disproportionately arrested and convicted of crimes, even after controlling for

offense rates- thus much of the increase in incarceration is concentrated in these

communities (Beckett, Nyrop, and Pfingst, 2006; Mitchell & Caudy, 2015; Tonry,

2004; US Sentencing Commission, 1991). For Black juvenile and adults, as shown

in Figure 2, the rate of arrest for drug infractions climbed steadily from 1992

through 2002 for adults, and for juveniles, it increased from 1992 through 1999

before dipping and then rising again. When we compare these trends to the

trends of White males for drug possession and manufacture, arrest rates for both

adults and juveniles rise at a slower rate than that of their Black peers from 1992

through 1998 and then level off.

At the same time that incarceration rates were increasing, we see a

stagnation of the college enrollment of the group most affected by incarceration,

young men, and in particular Black young men. In 1990, 26% of Black men aged

18 to 24 years old were enrolled in degree granting postsecondary institutions

(US Department of Commerce, 2016). According to NCES (2016), ten years later

in 2000, 25.1% of Black men were enrolled. By contrast, for White young men, it

moved from 35.5% to 36.2% over the decade, and for Black women, from 24.8%

to 35.2%. The inertia in the black male college enrollment rate occurred at the

same time as the increase in incarceration of not simply Black men, but young

Black men at the age that they would most likely have entered college. While

Black men were more likely to be incarcerated than both White and Latino men,

the most significant disparity in terms of imprisonment rates existed for Black

men aged 18 and 19 years old, the age that young men would have been entering

college (Carson, 2015). For this age group in 2014, Black men were ten times

more likely to be incarcerated than White men.

In light of the rise in incarceration at the same time as we see a stagnant

college enrollment rate for Black men, I hypothesize that higher rates of

incarceration might have led to a stagnation in college enrollment for Black men

after the law change in 1994 while other demographic groups continued to

realize relative gains in educational attainment. Using variation in the year of TIS

law adoption in states, this paper examines whether the Violent Crime Control

and Law Enforcement Act of 1994 led to differences in college enrollment rates

for Black men as a result of disproportionate incarceration of Black men. I first

compare college enrollment rates by race group in the years immediately

preceding and following the law changes to start to discern a possible effect

using a differences-in-differences-in differences (DDD) strategy that exploits the

federal law change (i.e., a pre- versus post- comparison) and variations in state

laws with regards to adoption of TIS laws (i.e., state-level variation in the effects

of the law change). To my knowledge, this is the first paper that attempts to

quantify the effects of the 1994 Violent Crime Control and Law Enforcement Act

on Black male college enrollment. I find that, in the DDD model, after the

reception of federal funding in states for TIS enactment, Black males had a 29%

decrease in the probability of college enrollment as compared to Black males prior to the institution of TIS laws and non-Black males.

The paper is organized as follows. I first explore the literature around changes in sentencing, truth-in-sentencing laws, and existing explanations for the college enrollment and attainment gap. Next, I outline the research design and empirical framework. I then present results and sensitivity analysis.

II. Background and Literature Review

Sentencing Reform

More punitive drug laws through determinate sentencing

Commencing in the 1970s with the Rockefeller Drug Laws in the state of New York, individual states and the federal government began to move towards determinate sentencing for crimes (Semen & Wilson, 2006). Determinate sentencing meant that rather than permitting judges to set sentences for crimes committed based on the mitigating or aggravating factors, state legislatures determined the possible range of a sentence. Judges, in turn, would only be able to prescribe punishments within the determined range. Prior to the move towards determinate sentencing, judges had extensive discretion with respect to punishments under an indeterminate sentencing structure (Deiss, 1994). Given that the determinate sentences were on average more punitive than the sentences imposed by judges *and* the sentences longer, arrest rates and incarceration rates, particularly for Black males, increased (Mustard, 2001).

The movement towards determinate sentencing occurred in part due to support from the left and right of the political spectrum (Lowenthal, 1993). Democrats supported changes in sentencing policy for crimes in order to increase equity in sentencing. Democratic Senator Ted Kennedy helped establish the United States Sentencing Commission – the federal body that regulated sentences (Stith & Koh, 1993). This Commission determined the maximum and minimum penalties for federal crimes thereby reducing judicial discretion. On the other hand, Republicans sought reform in order to increase punishments for crimes – in line with their "tough on crime" stance following the unrest due to the social and political movements of the 1960s and 70s (Beckett & Western, 2001).

The increase in the penalties for crimes and incarceration were not related to a decrease in the rates of crime – one of the stated goals of these policies (Smith, 2004). Crime rates peaked in 1991 and decreased throughout the 1990s while the number of persons incarcerated and the length of sentences continued to increase (Blumstein, 1998). While some researchers have suggested that the decline in crime was partially due to the increase in incarceration, more recent evidence has suggested that this is not the case as both crime rates and incarceration rates have declined since 2007 (Kovandzic & Vieraitis, 2006; Levitt, 2004).

Federal and State Truth in Sentencing Laws

States established truth in sentencing (TIS) laws, or laws that required that

sentences not be diminished through parole or early release, as part of the

movement towards determinate sentencing, reduced discretion for judges, and

the eradication of parole (Sabol et al, 2002). While five states, including

Pennsylvania, Washington, Oregon, and Kansas had laws that required those

imprisoned to serve a certain percentage of their sentences prior to the passage of

the federal law in September 1994, numerous states changed their laws to include

TIS laws after the passage of the federal legislation as seen in Figure 1. The

federal government furnished grant money to states that brought their laws into

compliance with federal TIS laws. The TIS laws, as originally written in the

Violent Crime Control and Law Enforcement Act of 1994, provided funding to

states to increase their prison and jail capacity in order to ensure that persons

who committed violent offenses would serve out at least 85% of their sentence

(Delahunt, Stupak, Fazio, & Etheridge, 1998; US Congress, 1994). These

conditions were amended by the Appropriations Act of 1996 and eligibility for

the grants expanded. Sabol et al. (2002) recount that a major change to the

provisions of the TIS grant program in 1996 was permitting states with either

determinate or indeterminate sentencing to receive grants, whereas in 1994, only

states with determinate sentencing were eligible. Another change involved

expanding truth in sentencing to include states that had persons committing

violent offenses serving *on average* 85% of their sentence even if 85% was not

codified in their laws– which allowed states with indeterminate sentencing to apply for grants.

In 1996 and 1997, the two years in which the TIS grant disbursed funds, twenty-seven states, out of 30 applicant states, received funding based on their state laws that required incarcerated persons to serve at least 85% of their sentence for violent crimes (Delahunt, Stupak, Fazio, & Etheridge, 1998).[14] Of those 27 states, 20 states changed their laws to either include TIS after the passage of the federal law in 1994 or to increase the percentage of the sentence that persons were required to serve. Further, the state trend in passing TIS laws continued even after the end of the grant disbursement in 1997. By 1999, 41 states and Washington DC had codified TIS laws, with varying requirements for the percentage of the sentence to be served – from 50% in Massachusetts to 100% in Wisconsin (Ditton & Wilson, 1999; Sabol et al, 2002).

States varied in the types of infractions that were subject to truth in sentencing laws. Though initially conceived to apply to individuals who committed violent crimes, some states applied TIS laws to all crimes. For example, Oregon, which passed sentencing reform laws in 1989, put in place TIS laws for all crimes. They set up a grid, which took into account past infractions and the severity of the crime to determine the range of punishments (Merritt, Fain, & Turner, 2006). The judge could then use that grid to determine

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[14] In 1996, 25 of the 30 applicant states received grants and 27 states received grants in the following year (Delahunt, Stupak, Fazio, & Etheridge, 1998).

punishment. States also used other means of ensuring that TIS laws were followed. By 1999, a number of states, including Arizona, Delaware, Illinois, Mississippi and 13 others, abolished parole boards (Sabol et al, 2002). These changes in state sentencing policy ultimately meant that most persons found guilty of a crime were subject to truth-in-sentencing policy - not simply those convicted of committing violent offenses. Given the rise in imprisonment rates in both federal and state prisons, TIS laws likely had an impact on the increase in incarceration for crimes other than violent crimes (Beckett et al., 2011; Sabol et al., 2002; Shepherd, 2002).

Although amounts for TIS grants were relatively small, the TIS grants had an impact due to the changes that they engendered in state laws, both for states that received grants and for states that did not receive grants. In 1996, the Department of Justice disbursed $195.8 million to states with amounts ranging from $45.8 million in California in 1996 to $76,022 in North Dakota for construction or maintenance of prisons (Delahunt, Stupak, Fazio, & Etheridge, 1998).

The directionality of the influence of federal TIS law on state laws has been debated. Some scholars have argued that federal TIS laws reflected the direction of existing state laws, as a number of states had TIS laws prior to the passage of the federal law (Delahunt, Stupak, Fazio, & Etheridge, 2008; Sabol et al., 2002). Further, 12 states that received federal grants for TIS laws stated that the grants did not provide incentive to change their laws based on a federal

government survey on the impact of these laws. On the other hand, a report by a researcher commissioned to study the impact of TIS found that federal TIS grants were an important factor for state law change in 4 states and somewhat important in 11 other states (Delahunt, Stupak, Fazio, & Etheridge, 1998). Because the federal government incentivized some states to change their laws in order to qualify for funding, it can be argued that federal TIS laws led to states becoming more punitive.

Although the influence of the federal government law change in 1994 on state legislation around harsher penalties and longer sentences for infractions can be debated, evidence suggests these policies increased the likelihood of serving a sentence in prison (Olson, 2009; Shepherd, 2002; Stemen et al., 2005). The BJS found that between 1990 and 1997, drug infractions accounted for 19% of the growth in persons incarcerated in state prisons (US Bureau of Justice Statistics, 1999). These trends meant an increased likelihood of incarceration for young men and particularly, young college-aged Black men, as the increase in rates of incarceration disproportionately affected men of color aged eighteen through thirty-four (Petit, 2012; US Sentencing Commission, 2001).

Given that the Violent Crime Control Act and Law Enforcement Act of 1994 led to a disproportionate number of arrests and convictions for many offenses, among young Black men when compared to all other demographic groups, my research question is: Did the passage of the Violent Crime Control Act and Law Enforcement Act of 1994, and in particular the enactment of Truth-

in-Sentencing laws, cause a fall in relative college enrollment for Black male students?

III. Research Design

Data Set

My ideal data set would cover 1992 through 2007 and provide individual details on students' college enrollment status, college graduation dates, and demographics, as well as data about the institutions that they attended. It would also include information about their arrests and incarcerations and local and state spending on the criminal justice system. The reason that I end the analysis in 2007 is that the Great Recession changed the willingness and ability of the majority of states to invest in incarceration in the same way that they invested prior to the Great Recession (Brown, 2013; Gottschalk, 2010). As a result, states began modifying laws and decreasing budgets for policing. In order to avoid some of the potentially confounding effects of this reversal in policy, I end the analysis at 2007. Given that this data set does not exist for the time period in question, I use two data sets, the Current Population Survey and a state level dataset that denotes whether or not a state had Truth-in-Sentencing laws and the year that they adopted this policy.

I use the October Current Population Survey (CPS) supplements, for the years 1992-2007, to examine trends in enrollment by race and gender. CPS collects data from approximately 56,000 households each October. This

supplement provides information on school enrollment and educational

attainment, differentiating between types and intensity of college enrollment for

individuals. The CPS also provides information on racial and ethnic affiliation,

family composition and financial characteristics, which allows for inclusion of

covariates, from family income to employment status. I also account for the state

in which an individual lives. Although the CPS is a nationally representative

dataset, it does not survey the institutionalized population, which is one

limitation of this data source. Young Black men are overrepresented in the

institutionalized population but the educational outcomes of individuals

currently involved with the criminal justice system are not captured in this

dataset. The CPS October supplement also surveys state of current residence

which means that I do not capture persons who recently moved and were subject

to another state's laws prior to the data collection period.

My second source of data contains the state laws on Truth–in–Sentencing.

I have compiled data on the date the law was enacted, the percentage of the

sentence that must be served, how important a factor the federal law was on the

passage of state laws, and whether a state abolished their parole board. The data

on TIS laws came from two government funded publications on TIS: *Truth-in-*

Sentencing: Availability of Federal Grants and *The Influences of Truth-in-Sentencing*

Reforms on Changes in State Practices and Prison Populations.

Sample

The sample in Table 1 is composed of a nationally representative sample of young adults aged 18-24. I chose this age group because persons in this age range have higher rates of college enrollment as compared to older persons during the time period in question. I exclude observations with missing data on age, race, ethnicity, family income, and state of residence from the October CPS supplements.[15] For TIS states, I have a sample of approximately 63,000 persons from 1992 – 2007. For non-TIS states, I have a sample of approximately 122,500 over the same time period. When looking at the population differences between the TIS and non-TIS states over the period from 1992 – 1995 in Table 1, TIS states have a larger Black population than non-TIS states – 16% in TIS states versus 11% in non-TIS states. College enrollment rates are also slightly higher in TIS states at 35% of the population aged 18 – 24 as compared to 32% of the population in non-TIS states. These lower levels of enrollment in non-TIS states are also true for all males (.30 vs. .34) prior to the federal law change. In contrast, college enrollment rates for Black males are similar between TIS (25%) and non- TIS states (24%). Although non-TIS states do have a higher initial level of college enrollment for all students and male students, this is not problematic for this analysis because the pre-trends in college enrollment growth are parallel for Black men in TIS states and non-TIS states as seen in Figure 3. There are also parallel trends in college enrollment in the period from 1992 – 1994 for Black men and non-Black men. Using data from the Bureau of Economic Analysis (BEA) on personal per-

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[15] Rates of enrollment were 38.7% for 20-24 year olds, 13.3% for 25-29 year olds and 6.7% for 30-34 year olds (NCES, 2014).

capita income, income in TIS states is slightly higher both before and after the

law change, which is also seen in the higher percentage of persons in TIS states

with income over $75, 000, 11% as compared to 8% in non-TIS states.

Unemployment is also slightly higher in TIS states, 6.59 verses 6.07 in non-TIS

states. Non-TIS states also have slightly lower educational attainment prior to

the law change with 21.6% of the population holding a Bachelors degree or

higher, as compared to 22.8% in TIS states.

For the analysis, I compare the college enrollment of Black males in TIS

states to that of Black males in non-TIS states. I make this comparison because

male college enrollment has increased at slower rates than that of females since

the 1980s. As a result of this similar trend, the post-secondary outcomes of Black

males can be compared. I also compare the enrollment of Black men in TIS states

to the enrollment of White men in TIS states, given some of the population

differences in states with TIS laws and those without.

Empirical Framework 1: Adjacent state comparison using difference-in-differences (DD)

I employ difference-in-differences (DD) as a quasi-experimental

identification strategy to measure the effects of the Violent Crime Control and

Law Enforcement Act of 1994 on college enrollment and graduation rates for

Black men. I compare the college outcomes for Black men living in states with

federally funded TIS laws to the college enrollment of Black men living in states without these laws before and after the law change using DD. The primary assumption for the difference-in-difference model is that the trends in enrollment for the two groups being compared were parallel prior to the change (Wooldridge, 2010). As seen in Figure 3, the pre-law change trends are approximately parallel for Black males in states with TIS laws and those without TIS laws prior to 1995, though states with TIS laws had higher levels of college enrollment for Black men than states that did not have TIS laws. I also test whether there were systematic differences between states that adopted TIS and those that did not by estimating the relationship between state characteristics prior to 1995 and the timing of the passage of TIS laws in Table 2. I have three outcomes. The first outcome is whether or not a state received a TIS grant in either 1996 or 1997 in column 1. The outcome in Column 2 is whether a state enacted TIS laws in 1994 or prior years and the third outcome in Column 3 is whether a state adopted TIS laws in 1995. For the outcome of whether or not a state received a grant in either 1996 or 1997 or both, there is no association between college enrollment for 18-24 year olds and whether a state received a TIS grant. States that received TIS grants had a larger Black population, a smaller Latino population, and a higher proportion of the population with family incomes above $75,000 when compared to states that did not receive grants. Also states with TIS grants had higher unemployment rates, higher violent crime rates and a larger proportion of persons with at least a BA degree than non-TIS states.

Although differences exist between TIS and non-TIS states, some of the

differences would lead to a higher likelihood of college enrollment for the state

population and some would lead to a lower likelihood of college enrollment. For

example, while higher rates of income are associated with an increased

likelihood of college, higher rates of violent crime could be associated wit lower

college enrollment rates (Bailey & Dynarski, 2011; Lochner, 2004). Given these

opposing factors, it is unclear that TIS states are systematically different in ways

that would impact college enrollment. Therefore, differences after the TIS law

change, once accounting for the pre-change gap, are attributable to the law. In

other words, the DD strategy accounts for existing time-invariant dissimilarities

between the groups that may bias the estimates (Imbens & Wooldridge, 2007).

I commence with a simple linear probability model (LPM) as it accurately

predicts probabilities with a binary dependent variable (Hellevik, 2007). Some

econometricians argue for the use of a logistic model rather than an LPM for a

binary dependent variable because the LPM does not estimate the structural

parameters of a non-linear model (Horace and Oaxaca, 2006) and the LPM does

not address measurement bias in the outcome (Olsen, 1980). However, Pischke

(2012) demonstrates that even if the conditional expectation function (CEF) is

non-linear the linear regression function provides the best approximation to the

CEF and exactly provides the CEF when the CEF is linear. Essentially, this means

that the LPM performs as well as logistic models unless the probabilities are

close to 0 or 1. As the probabilities of college enrollment within states are not

close to either full college enrollment or no college enrollment, the LPM provides

relatively consistent and unbiased estimators and also ease of interpretability for

this study. I thus use linear probability models in this paper and include robust

standard errors to correct for possible bias in the estimator that might arise from

the use of LPM. Further, I cluster standard errors by state to address

heteroskedastic variance across states and serial correlation in the standard

errors over the years covered that could cause bias (Bertrand, Duflo, &

Mullainathan, 2004). I employ CPS October supplement final person weights in

all analysis to make the sample representative of the population in the United

States (Solon, Haider, & Wooldridge, 2015).

I measure the effect of adopting TIS laws on college enrollment by

comparing college enrollment after the adoption of the policy to that of persons

aged 18- 24 prior to the policy change in states that adopted TIS laws and

received federal government funding. The variable TIS_{sit} is binary and equals 1 if

the individual lives in a state that both has TIS laws and has received a federal

grant to fund their TIS laws and the year is any year after the state has enacted

the policy. TIS_{sit} equals 0 if an individual lives in a state has not yet enacted the

TIS policy or if it never enacted the policy. This variable shows the association

between living in a federally funded TIS state and the probability of college

enrollment – using variation in not only the adoption of TIS laws but the timing

of the adoption. If TIS_{sit} is negative and statistically significant, then persons in

states that have TIS laws have a lower probability of college enrollment than

persons in states without these laws. I carry out this analysis first for all students

ages 18-24, then all male students aged 18-24, and finally for Black men aged 18-

24. I would anticipate that there would not be an association between living in a

TIS state and college enrollment for young adults in general or for White males

because the mechanism by which TIS impacts college enrollment is through a

rapid increase in young adult arrests. This increase in young adult arrests

during the 1990s occurred most dramatically for young Black persons. I thus

expect a negative association between living in a federally funded TIS state and

college enrollment, which would mean that Black students who live in a TIS state

have a lower likelihood of college enrollment than those who live in a state that

did not receive federal funding for TIS.

(1) $College_{sit} = \beta_0 + \beta_1 TIS_{sit} + \gamma_1 S_{sit} + \gamma_2 R_{sit} + \varepsilon_{sit}$

I include state fixed effects (S_{sit}) and year fixed effects (R_{sit}) in my model. State

fixed effects, or adding a dummy variable for each state, account for

characteristics of a state that do not change over time but might bias the results

due to correlation with the independent variable, TIS_{sit}. Year fixed effects control

for aggregate trends that occur over time. Although adding fixed effects uses up

degrees of freedom, fixed effects allows for more consistent estimation. After

adding state and year fixed effects, my variation comes from within state

variation in the effects of TIS laws on college enrollment over time (Hoynes,

Page, & Stevens, 2011). I will get unbiased estimates of the effect of the law on

Black male college enrollment if there are no state characteristics that are

correlated with college enrollment and TIS laws. In order to control for possible

correlates with TIS laws and college enrollment, in addition to adding state fixed

effects, I include the average annual unemployment rate of states, as well as the

average tuition, board, and fees of public colleges nationally in each year.

Previous work has shown that young adults and particularly traditional college

aged persons are more likely to enroll in college during economic downturns

when unemployment rises (Long, 2004). I thus account for the potentially

confounding effect of state unemployment on the probability of college

enrollment. Similarly, when the overall cost of college increases, enrollment

decreases (Heller, 1997; Hemelt & Marcotte, 2011). In order to account for this

relationship between cost and the probability of enrollment, I control for the

annual price of public colleges in my analysis.

Next, I add a second predictor *TIS_Neighbor$_{sit}$* to equation (1). *TIS_Neighbor$_{sit}$*

is a binary variable where 1 indicates that a person resides in a state where any of

the geographically adjacent states also has a TIS law *and* received federal funding

in either 1996 or 1997 or both years and 0 indicates that none of the adjacent

states have a TIS law. This variable measures the effects on college enrollment of

living in a state when the adjacent state also has adopted TIS laws following the

convention of Ross (2012). The model is:

(2) $College_{sit} = \beta_0 + \beta_1 TIS_{sit} + \beta_2\, TIS\_Neighbor_{sit} + \gamma_1\, S_{sit} + \gamma_2\, R_{sit} + \varepsilon_{sit}$

The variable TIS_{sit} shows the relationship between an individual living in state

having a TIS grant and the probability of college enrollment for the individual.

The coefficient on *TIS_Neighbor* shows whether residing in a state adjacent to a

state with a TIS grant has an effect on college enrollment for the individual. Prior

work has shown that there are increases in arrest rates for violent crimes, and

potentially other crimes, when TIS is enacted in a state (Ross, 2012). Given that

arrest and conviction rates are higher for Black men, I would expect a decrease in

the likelihood of college enrollment for Black men in states that implement and

receive federal funding for TIS laws. In terms of the effect of *TIS_Neighbor* on

college enrollment in a state, the effect is less clear. Ross (2012) finds that if an

adjacent state implements TIS and the state of residence does not have this law,

then crime rates increase in the adjacent state without TIS, as the crime migrates

to the geographical area with more lenient laws. In response to these increases in

crime in non-TIS states, states and municipalities provide additional resources

for policing. The author also finds that if both states have TIS, then crime rates

fall in both states. In this context, having a neighboring state with TIS laws when

a state does not have this policy could either lead to lower arrest rates for males

in the non-TIS state *or* higher arrest and imprisonment rates in both states as a

response to increases in crime in the non-TIS law state. When both the state and

its neighboring states have TIS, I would expect a decrease in the probability of

college enrollment due to higher arrest and conviction rates of young Black men.

(3) $College_{sit} = \beta_0 + \beta_1 TIS_{sit} +$

$\beta_2\ TIS\_Neighbor_{sit} + \beta_3\ (TIS_{sit}\ {}^*TIS\_Neighbor_{sit}) +\ \gamma_1\ S_{sit} + \gamma_2\ R_{sit} + \varepsilon_{sit}$

After adding the variable *TIS_Neighbor* , I follow the approach of Ross

(2012) and add an interaction between the TIS_{sit} and the *TIS_Neighbor* variable in

equation 3. This interaction demonstrates whether having an adjacent state with

the same sentencing law has an additional effect on college enrollment within a

given state. If the interaction is negative and statistically significant, then Black

men are less likely to enroll in college if both the state of residence and the

adjacent state adopt TIS policies, when compared to the probability of college

enrollment when only one state has TIS laws. Equation 3 will produce unbiased

results of the effect of having TIS laws in the state of residence and neighbor

states on Black male college enrollment if Black men in TIS and non-TIS states

had parallel enrollment trends prior to the enactment of TIS, as seen in Figure 3,

and if enactment of TIS laws in a state was not initially determined by college

enrollment, which I demonstrate in Table 2.

Empirical Framework 2: Difference-in-difference-in-differences

I next employ a difference-in-difference-in-differences. My first difference

is whether or not a state adopted Truth in Sentencing Laws (TIS) after 1994 and

received a federal grant. The second difference is gender and the third difference

is race. In equation 2, my sample is limited to young adults aged 18 to 24, in

order to compare the post secondary outcomes of other students to that of Black

males, as this is the age of college entry for many young adults. Using ordinary

least squares, the model can be expressed as follows:

(4) $College_{sit} =$

$\beta_0 + \beta_1\ Black_{sit} + \beta_2\ TIS_{sit} + \beta_3\ Male_{sit} + \beta_4\ Black_{sit}{}^*TIS_{sit} + \beta_5\ Black_{sit}{}^*Male_{sit} + \beta_6$

$TIS_{sit}{}^*Male_{sit}$

$\beta_7\ (Black_{sit}{}^*TIS_{sit}{}^*Male_{sit}) + \beta_8\ X_{sit} + \gamma_1\ S_s + \gamma_2\ R_t + \varepsilon_{sit}$

The variable TIS_{sit} is a binary variable that indicates if a state received federal

funding in either 1996 or 1997 or both years for enactment of TIS laws and 0 if a

state never received federal funding for TIS laws.[16] $Black_{sit}$ and $Male_{sit}$ are binary

variables that indicate gender and race. The interaction term $Black_{sit}{}^*TIS_{sit}{}^*Male_{sit}$

is my variable of interest. This coefficient estimates the difference in average

enrollment for Black males in states that adopted TIS after the law change as

compared to Black males in states without this policy by subtracting out

(controlling for) three confounding trends: (1) changes in college enrollment for

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[16] I also carry out the DDD analysis with a variable that accounts for the timing of the TIS laws, not just whether or not states had TIS laws and received funding, and the point estimates are similar in both size and magnitude. I thus only discuss the results for this model.

Black persons (2) changes in college enrollment for young men (3) changes in

enrollment for young adults in TIS states. Thus, this term measures not only pre-

and post- law differences in college enrollment differentiated by race, but it also

allows for differences in college enrollment based on whether an individual lived

in a state in which the law changed after the passage of the Violent Crime

Control and Law Enforcement Act of 1994 and a state received federal

government funding (Puhani, 2012).

I hypothesize that young Black men who reside in a state with TIS laws

will have a higher likelihood of being imprisoned when compared to Black males

living in other states because states with TIS received funding to build more

prisons and increased the likelihood of serving more time in prison after the

passage of the federal law (Shepherd, 2002). As a result, Black young men in

states with TIS laws would have a lower likelihood of college enrollment after

the law changes than Black males in states without TIS laws. If my coefficient of

interest is negative and statistically significant, this indicates that the change in

the likelihood of enrollment for Black students would be *lower* following the law

change in states that had adopted TIS laws and received federal funding when

compared with changes in the likelihood of enrollment rates prior to the law

change, after controlling for general trends in the likelihood of postsecondary

enrollment for male students and trends in college enrollment for Black students.

Empirical Framework 3: An event study

As a third empirical approach, I carry out an event study because persons in the study are treated at different times and this method allows for the dynamic nature of the law changing across states, as compared to the pre and post averages obtained from the DD analysis carried out earlier in this paper (Sandler & Sandler, 2014). An event study differentiates the effects of adoption of TIS laws and government funding on Black male college enrollment by the timing of the law change across states. Event studies have been used in labor economics to explore the effects of an introduction of social programs such as the Supplemental Program for Woman Infants and Children (WIC) on infant health outcomes and in business economics for the calculation of stock returns after shocks such as a merger or acquisition (Hoynes, Page & Stevens, 2011; Shleifer, 1986).

McWilliams and Seigel (1997) state that four assumptions underlie the use of an event study –markets are efficient, the event was unanticipated, there were no confounding events, and that the distribution of the error terms prior to the event and during the event are normal. In the context of measuring the effects of the increase in incarceration following the 1994 law change on college enrollment for the group most affected by the policy change, the corollary to a market efficiency hypothesis, whereby all actors in a market possess the same information, is that knowledge of the passage of the law and its provisions are the same for all state lawmakers. Given that all state lawmakers, in theory, have equal access to information on laws enacted by Congress, I argue that the belief

in the likelihood of the bill passing was on average, the same for state

lawmakers. In terms of the second condition, the passage of the law was

arguably a surprise given that it was introduced in October of 1993 but not

passed until September of 1994. In comparison, another major bill around crime

and enforcement, the 1986 Anti-Drug Abuse Act, was introduced in September of

1986 and passed in October of 1986. The long duration between introduction and

passage of the 1994 Act, and the legislative proceedings, suggest that the passage

of the bill was a complex endeavor and thus not a guaranteed, or perhaps even

expected, outcome (Congress, 1994). While Democrats generally supported the

bill, some Republicans felt that the bill was too lenient on crime (Palmiotto, 1998).

The political discord indicated that rapid passage of the bill was not an expected

outcome. Finally, I will address the possibility of confounding events by

controlling for factors relevant to college enrollment – including yearly state

unemployment rates and changes in average yearly tuition and room and board

for public colleges. I have also included both state and year fixed effects in order

to account for invariant state characteristics and year specific trends.

Estimating Annual Impact of TIS on College Enrollment

In equation (5), *College*, my outcome variable is a dichotomous variable

indicating whether a young Black male who is between the ages of 18 and 24 is

enrolled in college. The treatment variable is an indicator of the number of years

before, during, and after the event occurs in a particular state. In equation 5, ω_0

equals 1 in the year that TIS laws are voted into law and 0 in any other year and

ω_3 equals one in the third year after the law is enacted and 0 in any other year

(Hoynes, Page & Stevens, 2011). I omit the year prior to the law change as my

base year. Thus, the coefficient for each indicator measures the impact of a state

TIS law on college enrollment in a given year after the passage of the law. The

years prior to and following the event will vary depending on the year of the

enactment of the state TIS law. While eleven states changed their laws to include

TIS in 1995, others states enacted TIS laws in 1996 and 1997, as seen in Figure 1.

The year that TIS was enacted is the event year. The period following the event

will be the five years following the law change. I control for characteristics

associated with college enrollment (X) such as age, family income, the seasonably

adjusted annual state unemployment rate and average annual public tuition,

room, and board fees (Rouse, 1994; Perna, 2000). As college enrollment rates

differ regionally, I add state fixed effects to account for time invariant

unmeasured differences in states that might effect college enrollment (S). I

include year fixed effects (R) in order to account for trends specific to a particular

year that could impact college enrollment. Standard errors are clustered at the

level of the state. I also carry out this analysis for young White males residing in

TIS states in order to compare changes in the likelihood of college enrollment

over time to that of Black males.

(5) *College* $_{ist}$= $\sum_{-5}^{5} \delta_i 1 \ (\omega_{ist} = i) + \beta_1 X + \gamma_1 S + \gamma_2 R + \varepsilon_{ist}$

Rather than days, which are the units of analysis used in business event studies, I employ years as the unit of time, following the convention of the use of event studies to study the introduction of WIC on county birth weights and the effects of job displacement on fertility (Hoynes, Page & Stevens, 2011; Lindo, 2008). I use years, as opposed to days for two reasons. One, college enrollment is calculated on a yearly basis. Thus, a change from one day to the next would not be measured. Secondly, using years allows me to account for lags in the time between the passage of a law and the time that it would take for a state government to change their laws and for police departments and corrections departments to respond to new directives and increases in funding. While five years is a relatively long period of time for an event study, particularly since some event studies have been used within relatively shorter time periods, laws which increase both the number of persons imprisoned and the amount of time served will have a greater impact over a period of years as opposed to days or even months because the time from arrest to sentencing varies widely (Reaves, 2013). Further, a lag time exists between the time that laws are enacted and when they are implemented. For example, although federal TIS laws were enacted in 1994, the government did not disburse grants to states for prison construction until 1996 and 1997.

I hypothesize that laws that lead to the disproportionate arrest and increased incarceration of young Black men, as happened after the passage of the

1994 Violent Crime Act, will lead to a negative shock in the supply of young

Black men who are able to enroll in college. This could occur through their

physical removal from communities by imprisonment and reduced access to

secondary and tertiary education, an increased likelihood of imprisonment as

opposed to other sanctions after the passage of the law, or by removing their

eligibility through the denial of access to federal and state financial aid and jobs

with which to finance employment and education (Hjamarlsson, 2006). It is

beyond the scope of this study to explain which of the aforementioned

mechanisms had the greatest effect on changes in college enrollment for Black

men. From my analysis, the coefficients for the indicator variables that denote

years prior to the event should be zero. If there are statistically significant

associations between the indicator variables for the years prior to TIS, this

suggests that changes in college enrollment are due to other factors outside of the

law change. If I have negative coefficients for the year indicators after TIS is

enacted that are statistically significant, then it suggests that Black males were

less likely to enroll in college after the implementation of TIS laws in a given

state.

IV. Results

Difference- in- difference: Changes in college enrollment based on TIS adoption of

neighbors

        Table 3 shows the effect of a state and its adjacent states passing TIS laws

and receiving federal TIS grants on Black male college enrollment. Columns (1) -

(3) include all students aged 18 to 24 years old in the period from 1992 through

2000. Columns (4) – (6) are for the results for the sample of White males aged 18 –

24 and Columns (7) – (9) are results for Black males in this age group.

For the linear probability model that measures the effect of having a TIS

law and receiving federal grant funding on college enrollment, there is no change

in college enrollment after enacting a TIS law for the population of all persons

aged 18-24 in Column (1) or for White males in Column (4). However, for Black

males from the model in Column (7), living in a state with TIS laws that received

federal funding is associated with a decrease of 5 percentage points in the

likelihood of enrolling in college, which is a .05/.25 =20% decrease in college

enrollment.[17]

Next, I add in a variable that takes into account the effects of having TIS in

a geographically adjacent neighboring state. As previously mentioned, the effect

of having a neighbor with TIS on college enrollment in a state is not immediately

apparent. Ross (2012) demonstrated that if both states have TIS, then crime rates

fall in both states due to higher arrest rates. Higher arrest rates in turn could lead

to lower college enrollment rates for Black male young adults. In the sample of

all students from Column (2) and the sample of White male students is Column

(5), having a TIS law in the state of residence has no effect on college enrollment

but having TIS in an adjacent state is associated with a 7 to 8 percentage point

decrease in the likelihood of college enrollment. Interestingly, the results are

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[17] From Table 1, the college enrollment rate for Black men in TIS states is .25 prior to the law change.

different for young Black males in Column (8). Here, having a TIS law in the

state of residence is associated with a 5% point reduction in the probability of

college enrollment and having an adjacent neighbor state with TIS laws is

associated with a 100-percentage point increase in the college enrollment rate. It

is important to note that Black young adults, and Black male young adults, are

much more likely that their White peers to live in a state with TIS *and* a state that

neighbors a state with TIS. While 65% of Black males aged 18-24 in my sample

lived in a state with TIS laws, only 56% of White males in this age cohort lived in

a state with TIS. Further, while 72% of Black male young adults lived in a state

where one of the adjacent states had TIS, 64% of young White males lived in a

state that had an adjacent state with TIS laws. This is in part due to geographic

differences. As seen in the map in Figure 1, states with TIS laws tended to be in

the South and Midwest. According to 2010 Census data, 55% of Black people in

the United States lived in the South and 18% in the Midwest (Rastogi, 2011).

Further, almost all of the states with large Black populations of over 1 million

Black persons (New York, California, Georgia, North Carolina, Ohio, Virginia)

had TIS laws. Due to this geographic concentration of Black people in the United

States, in my specification checks, I explore whether the results change if I limit

the analysis to the South. The results are robust to this geographic limitation.

Columns (3), (6), and (9) in Table 3 add the interaction between TIS laws

in the state and the adjacent state for all students. This is the difference-in-

difference (DD) estimate that measures the additional effect on college

enrollment of having an adjacent state with a TIS law. For the sample of all

students aged 18-24 in Column (3), having TIS in the state of residence is

associated with a 2.89% point increase in college enrollment, having TIS in a

neighboring state is associated with a 6.85% point decrease in the probability of

college enrollment and the interaction term for having TIS in the state of

residence and the adjacent state is associated with a decrease of 4.45% point in

the probability of college enrollment. The results for young White males in

Column (6) are the same direction and larger magnitude.

However, for the Black male sample, from Column (9), having TIS in the

state of residence is associated with a 13.5% point decreases in the likelihood of

college enrollment for Black men. In contrast, the all student sample and the

male sample had a higher likelihood of enrollment following when their state

had TIS laws. For the effect of having a neighbor with TIS laws, there is an

associated increase of 100 percentage points. For the interaction term, there is an

8.5% point, or 33% increase in the probability of college enrollment. Thus, the

results for Black males in Columns (8) and (9) differ from the results for the

whole student sample and the male only sample. In Table 4, I explore whether

the effects of TIS laws on Black male college enrollment vary by the type of

enrollment- two-year or four-year college – or enrollment intensity – full-time or

part-time. The results are of similar magnitude and direction as the results for

any college enrollment for Black men from Table 3 for four-year college

enrollment and full-time college enrollment. However, the association between

having a neighbor with TIS on two-year college enrollment is negative.

One possible reason that having TIS laws in both the state of residence

and a neighboring state could lead to a decline in college enrollment for the

larger population aged 18-24 is the redirection of resources towards incarceration

as opposed to higher education (Schiraldi & Ziedenberg, 2002). As previously

mentioned, the amounts of the federal grants to states to implement TIS were

relatively small, about 1% of states' annual correctional costs, and constructing

prisons is a costly endeavor. Given the small federal contribution, much of the

funding came from state resources – which likely meant reductions in spending

or spending freezes in other areas and possibly in higher education. Kane (2003)

shows that state appropriations for higher education had been declining since

the 1980s – an increase in prison construction would put additional pressure on

limited state budgets. Schiraldi and Ziedenberg (2002) provide evidence that

over the period from 1985 to 2002, state spending on corrections increased at a

rate six times that of spending on higher education, using data from State Budget

Officers annual reports. There is also evidence that states shouldered much of the

burden for corrections expenditures. Delahunt, Stupak, Fazio, & Etheridge (1998)

find that of the 24 states that did not have TIS laws meeting federal requirements

in 1996 and 1997, 16 states stated that they did not have the law due to the high

cost and relatively small federal contribution.

Why might having a neighboring state and the state of residence have TIS laws lead to a higher likelihood of enrollment for Black men when it led to a lower likelihood of enrollment for other students? It is an interesting, and puzzling finding, that having a neighbor with the same law leads to increases in college enrollment for Black males. While I anticipate that having TIS in a state would lead to lower likelihood of college enrollment for Black males in light of the greater likelihood of arrest and incarceration, I would also expect that having TIS in an adjacent state would lead to lower enrollment for Black men, when compared to Black men who do not live in states with TIS. One potential explanation comes from the demographic distribution of persons in TIS states. Table 1 shows that there was a smaller percentage of Black persons living in states without TIS laws - 11% in non- TIS versus 16% in TIS states. In part due to these geographic differences, there is a negative association between having TIS laws and the size of the Black population. Also, the pre-1994 law change level of college enrollment was slightly lower for the population aged 18-24– 32% in non-TIS states versus 35% in TIS states. Perhaps the increase in enrollment was greater in TIS states because the pre-law levels were lower for all students and Black students. If initial levels of college enrollment are relatively low than it is possibly easier to increase college enrollment, as compared to increasing college enrollment in places where the levels of enrollment are higher.

Another explanation for the positive interaction effect of living in a state with TIS laws and having a neighbor with TIS laws on Black male college

enrollment comes from the effects of TIS on crime and police expenditure. Ross

(2012) finds that when a state implements TIS laws, local police enforcement

tends to decrease as resources are allocated towards punishment (through a

longer sentence) and resources are allocated away from local policing. As most

arrests come from local policing, reductions in enforcement would lead to a

decline in arrests. This decline in arrests, particularly in urban areas, would in

turn mean that more young Black males are not involved with the criminal

justice system. If young Black men are less likely to be arrested, perhaps they are

more likely to have access to college and more likely to enroll in college. This

finding aligns with the theory that reductions in arrest for the college-aged

population lead to higher college enrollment.

A final theory is that TIS laws did not lead to large increases in the

likelihood of arrest for Black young men. Instead, the increase was not much

larger than in the previous decade. Instead, it was a continuation of an upward

trend in the incarceration of young Black men (Pfaff, 2017).

Difference- in difference-in –differences: Changes in college enrollment based on state TIS

Given some of the population differences between TIS states and those

without these laws as seen in Table 2, I also compare the college enrollment of

Black young men to that of non-Black men in TIS states in Table 5. In Column (2),

while the variable *Black* is not statistically significant, the interaction term *TIS ***

Black is negative and statistically significant. Interpreting the coefficient on the

variable, for Black males in TIS states, there is a 30% point decrease in the

likelihood of college enrollment when compared to non-Black male students in

TIS states. Similarly to the results of the adjacent state analysis in Table 3 and

Table 4, the interaction term for the triple difference *TIS * TIS neighbor * Black* is

positive and statistically significant. Thus, Black students are more likely to

enroll in college when both their state of residence and an adjacent state has TIS

laws, as compared to Black students in non- TIS states, after controlling for three

confounding trends – (1) trends in college enrollment impacting young adults

residing in TIS states and (2) trends in enrollment impacting students who live in

states that adjoin states with TIS laws and (3) trends in enrollment for Black

students.

In Table 6, I present the effects of the Violent Crime Control and Law

Enforcement Act of 1994 on the probability of college enrollment for Black males,

using a DDD specification. This analysis uses the entire sample aged 18-24 with

complete demographic data. The results demonstrate that Black males who lived

in states that enacted TIS laws and received federal funding to construct prisons

and enforce 85% of the sentence served did not have statistically significant

differences in college enrollment. Although not significant, the point estimates

are similar in magnitude to those in Table 3 for the effects on college enrollment

of being a black male young adult in a state with TIS. Also the predictors, *Black*

and *Male* are negative and statistically significant in Table 6 Column (1). When

looking at the level of institution in Column (2) and (3), I find that the results are

not statistically significant. From Column (5), full time college attendance

decreases for Black males in TIS states by 6.69% points, when compared to the

enrollment of Black males in non-TIS states but there are no significant effects for

part-time attendance.

Event Study: Effects of TIS Laws by Year

In Table 7, I report the results from the event study, which measures the

impact of the TIS laws on college enrollment in each individual year. This

approach explores the variation in the effects of TIS laws on college enrollment

by year after the passage of the law. Here, I measure whether the laws had more

of a deleterious effect in latter years as compared to earlier years of the policy. I

would expect a greater effect of TIS laws on Black male college enrollment after

year 1 because laws take time to enact and finance. As previously mentioned,

while the federal law passed in 1994, it was not until 1996 that federal funding

was disbursed. Years prior to the law change should not have any systematic

patterns in college enrollment. For the sample of young Black men in Column (1),

in the year that the TIS law was passed, and in the first, second, fourth, and fifth

year after the law passed, we see significant decreases in the likelihood of college

enrollment for Black males. The point estimates of the decrease in enrollment

increase after Year 1 – from 4.6% points in year 1 to 9.7% points in the fourth year

after the passage of the law. This suggests that the effects of the law increased as

time went on. For the sample of young White males, we do not see significant

changes in the probability of college enrollment after the law changes. I explore

these changes graphically in Figure 4. In this figure, we see a downward trend in

enrollment and more variable enrollment for Black males after the passage of TIS

laws.

Robustness checks

I verified that the results were robust to different geographic

specifications. As the majority of Black persons in the United States reside in the

Southern geographic region, I carried out the analysis for both the effects of TIS

law and the effects of having a state of residence and neighboring state with TIS

laws with a sample limited to the South. My results were robust to both of theses

specifications – with similar point estimates and direction.

V. Conclusion

We would expect states that adopted TIS sentencing to have increases in

the state prison population because the law led to longer sentences and an

increased likelihood of prison as opposed to another form of punishment for all

crimes (Shepherd, 2002; Stemen et al., 2005). Both the DD analysis using adjacent

states and the DDD analysis provide some evidence that having a state

implement TIS and receive federal funding leads to a decreased likelihood of

college enrollment for Black males. The point estimate for the decrease in the

likelihood of college enrollment from both of these analyses are close and

demonstrate an approximately 30% decrease in the probability of enrollment for

Black males after a state adopts Truth–in–Sentencing laws. Given that 20% of the increase in state incarceration can be attributed to the increase in imprisonment for drug infractions, and the increase in incarceration was concentrated among young men and particularly young Black men aged 18-24, these laws likely had a deleterious effect on the ability of young men to enroll in college. As previously mentioned, Western et al (2010), show that some of the rise in incarceration over the time period from 1980 to 2010, came from drug crimes, although TIS laws purportedly targeted violent crime. The Black young men in the age group most likely to attend college were also most likely to be arrested and imprisoned (Carson, 2015). Being imprisoned and having a greater likelihood of being sentenced to prison for young Black males decreased the likelihood of college attendance in light of the difficulties in accessing secondary education to complete high school degrees while incarcerated and an inability to receive federal financial aid to pursue postsecondary studies while incarcerated (FAFSA, 2017; Kirk & Sampson, 2013; US Congress, 1994). Further, many colleges and potential employers asked questions about felonies and incarceration that decreased the likelihood of acceptance for persons formerly incarcerated (Bernberg & Krohn, 2003).

Prior research and statistics clearly demonstrate that Black men have been disproportionately arrested, convicted, and served longer sentences for the same crimes when compared to their White peers (Mustard, 2001; Tonry, 1994; US Sentencing Commission, 2001; US Sentencing Commission, 2001). This increasing

incarceration has had many effects on the lives of Black men (Western, 2006).

However, to date, less evidence has existed on the effects of this incarceration on

Black male college enrollment (DiPrete & Buchmann, 2006; Kirk & Sampson,

2013). This paper provides evidence that the Violent Crime Control and Law

Enforcement Act of 1994 led to a decrease in the likelihood of college enrollment

using variation in timing and adoption of state Truth–in–Sentencing Laws. Given

that these results suggest that Black males have decreased access to higher

education, at a time when the difference between earnings between a high school

graduate and a college graduate are increasing, this study has implications for

policy makers looking to increase access to and retention in higher education.

Further work should investigate the mechanisms by which increased

arrests lead to adverse educational outcomes and the links between the drug

laws and college enrollment for Latino males.

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Table 1: Sample Means of CPS Population Aged 18- 24 by TIS Grant Status 1992 - 2007

	Time Period: 1992 to 1995		Time Period: 1996 to 2000	
	Non-TIS States	Received TIS Grants in 1996 or 1997	Non-TIS States	Received TIS Grants in 1996 or 1997
Black	0.11	0.16	0.12	0.16
Male	0.50	0.50	0.50	0.50
Latino	0.16	0.14	0.17	0.14
Asian/Pacific Islander	0.02	0.03	0.03	0.05
American Indian	0.01	0.01	0.02	0.01
Enrolled in college	0.32	0.35	0.34	0.37
Enrolled in college (Black male)	0.26	0.25	0.27	0.26
Enrolled in college (male)	0.30	0.34	0.33	0.35
18 – 20 years old	0.42	0.42	0.44	0.44
21 – 24 years old	0.58	0.59	0.56	0.56
Less than $20,000	0.36	0.33	0.31	0.28
$20,000 – $40,000	0.27	0.26	0.26	0.25
$40,000 – $60,000	0.15	0.14	0.15	0.15
$60,000 – $75,000	0.06	0.06	0.06	0.07
More than $75,000	0.08	0.11	0.12	0.14
% Bachelor degree or more	21.6	22.8	23.4	24.4
Per capita personal income ($)	21,096	22,605	29,942	31,388
Unemployment rate	6.07	6.59	4.65	4.98
N	15,655	34,004	47,401	88,449

Source: Authors calculations from CPS October supplements 1992 – 2007, author's dataset on Truth-in Sentencing (TIS) status by state, the Bureau of Economic Analysis data on annual per-capita personal income by state, and Bureau of Census data on educational attainment for persons aged 25 and over.

Notes: The sample is composed of persons aged 18-24 at the time of the survey. Sample means are calculated based on averages of the variable values over the years before the federal law change and after the law change. I weighted averages using CPS October supplement weights for persons over the age of 16.

Table 2: Determinants of TIS Laws

	Received TIS grant	TIS passed in 1994 or Prior	TIS Passed in 1995
	(1)	(2)	(3)
1992- 1995 Demographic Characteristics			
College enrollment	0.0063	-0.0152**	0.0156***
	(0.0059)	(0.0064)	(0.0057)
Male	-0.0036	-0.0026	-0.0040
	(0.0053)	(0.0058)	(0.0051)
Black	0.0516***	-0.0088	0.0413***
	(0.0079)	(0.0086)	(0.0076)
Latino	-0.1090***	0.0104	-0.0731***
	(0.0085)	(0.0092)	(0.0081)
Asian or Pacific Islander	-0.0382**	0.0407**	-0.0494***
	(0.0160)	(0.0174)	(0.0154)
American Indian	-0.0902***	-0.0662*	-0.0930***
	(0.0322)	(0.0350)	(0.0310)
Age 21 to 24	-0.0077	0.0137**	-0.0197***
	(0.0055)	(0.0060)	(0.0053)
Income of less than $20,000	-0.0089	0.0131	-0.0091
	(0.0110)	(0.0119)	(0.0106)
Income of $20,000 - $39,999	-0.0129	0.0182	-0.0265**
	(0.0112)	(0.0122)	(0.0108)
Income of $40,000 - $59,999	-0.0148	0.0444***	-0.0541***
	(0.0122)	(0.0132)	(0.0117)
Income of $60,000 - $75,000	-0.0179	0.0537***	-0.0597***
	(0.0148)	(0.0161)	(0.0142)
Income of more than $75,000	0.0294**	0.0592***	-0.0487***
	(0.0133)	(0.0144)	(0.0127)
State Unemployment Rate	0.0232***	0.104***	-0.0889***
	(0.0026)	(0.0028)	(0.0025)
State Per capita Income	1.65e-05***	-5.15e-05***	6.01e-05***
	(1.44e-06)	(1.56e-06)	(1.38e-06)
State % Persons with BA or more	0.0071***	0.0446***	-0.0376***
	(0.0010)	(0.0011)	(0.0010)
State Violent Crime Rate	0.0003***	-0.0003***	0.0007***
	(1.23e-05)	(1.33e-05)	(1.18e-05)
National Public Tuition and Charges	3.30e-05	0.0006***	-0.0005***
	(0.000165)	(0.000179)	(0.000158)
Constant	-0.456	-5.436***	4.919***
	(1.545)	(1.677)	(1.484)
State and year FE	X	X	X
Observations	24,845	24,845	24,845
R-squared	0.110	0.118	0.208

Source: Authors calculations from CPS October supplements 1992 – 1995 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.
Notes: Sample is composed of persons aged 18-24 at the time of the survey. All models are linear probability models. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 3: Impact of Truth-in-Sentencing in Residence State and Adjacent State on the Probability of Attending College for 18-24 Year Olds (1992 - 2000)

Sample	All students			White males			Black males		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
TIS	-0.0150	-0.0150	0.0289***	-0.0142	-0.0142	0.1120***	-0.0542*	-0.0542*	-0.1350***
	(0.0114)	(0.0114)	(0.00548)	(0.0202)	(0.0202)	(0.0088)	(0.0273)	(0.0273)	(0.0192)
TIS neighbor state		-0.0689***	-0.0685***		-0.0880***	-0.0876***		1.007***	1.004***
		(0.0092)	(0.0093)		(0.0191)	(0.0192)		(0.0415)	(0.0415)
TIS * TIS neighbor			-0.0445***			-0.1270***			0.0850**
			(0.0122)			(0.0190)			(0.0319)
Constant	0.7402***	0.7730***	0.7730***	0.6349***	0.7230***	0.7240***	1.1482***	0.1410	0.1370
	(0.0909)	(0.0936)	(0.0934)	(0.1349)	(0.148)	(0.148)	(0.3892)	(0.404)	(0.406)
Dem. included	X	X	X	X	X	X	X	X	X
State and year FE	X	X	X	X	X	X	X	X	X
Observations	101,169	101,169	101,169	40,912	40,912	40,912	5,330	5,330	5,330
R-squared	0.105	0.105	0.105	0.106	0.106	0.106	0.088	0.088	0.088

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Authors calculations from CPS October supplements 1992 - 2000 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.

Notes: Sample is composed of persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome is any college enrollment in the period from 1992 to 2000. The variable TIS is binary and equals 1 after a state had enacted an 85% TIS law and received grant money in either 1996, 1997, or both years and 0 otherwise. The variable TIS neighbor is whether any adjacent neighboring state had enacted an 85% TIS law by 1999 and received grant money in either 1996, 1997, or both years. The demographic factors in all columns include age, Latino ethnicity, dummies for family income that is topcoded at $75,000, state average yearly unemployment, and average public university tuition, room, and board. Where noted, models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 4: Impact of Truth-in-Sentencing in State of Residence and Adjacent State on the Probability of Attending College for Black Males Aged 18-24 Years Old (1992 - 2000)

	Attend Any College	Attend 4 Yr College	Attend 2 Yr College	Attend College PT	Attend College FT
	(1)	(2)	(3)	(4)	(5)
TIS	-0.1350***	-0.1340***	6.60e-05	-0.0267**	-0.1080***
	(0.0192)	(0.0201)	(0.0118)	(0.0102)	(0.0237)
TIS neighbor state	1.0040***	1.0430***	-0.0524*	-0.0184	1.0090***
	(0.0415)	(0.0438)	(0.0288)	(0.0144)	(0.0391)
TIS * TIS neighbor	0.0850**	0.0725***	0.0052	0.0385***	0.0392
	(0.0319)	(0.0220)	(0.0212)	(0.0122)	(0.0240)
Constant	0.1370	0.2110	0.0218	0.2140	0.0186
	(0.406)	(0.308)	(0.200)	(0.155)	(0.329)
Dem. included	X	X	X	X	X
State and year FE	X	X	X	X	X
Observations	5, 330	5,324	5,324	5,324	5,324
R-squared	0.088	0.078	0.050	0.025	0.088

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1992 - 2000 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.

Notes: Sample is composed of Black male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first column is any college enrollment for Black male students, the second column is college enrollment in a 4-year college in the period from 1992 to 2000 for all students. The outcome for the third column is any college enrollment for Black male students in a 2- year college in the period from 1992 to 2007. The outcome for the fourth and fifth column is any part-time or full-time college enrollment for Black male students. The variable TIS is binary and equals 1 after a state had enacted an 85% TIS law and received grant money in either 1996, 1997, or both years and 0 otherwise. The variable TIS neighbor is whether any adjacent neighboring state had enacted an 85% TIS law by 1999 and received grant money in either 1996, 1997, or both years. The demographic factors in all columns include age, Latino ethnicity, dummies for family income that is topcoded at $75,000, state average yearly unemployment, and average public university tuition, room, and board. Where noted, models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

**Table 5: Impact of Truth-in-Sentencing in Residence State and Adjacent State on the
Probability of Attending College for Male 18-24 Year Olds (1992 - 2000)**

Sample	All male students	
	(1)	(2)
TIS	-0.0083	0.1562***
	(0.0078)	(0.0199)
TIS neighbor state	-0.0612***	-0.0710***
	(0.0148)	(0.0169)
Black	-0.0628***	-0.0385
	(0.0118)	(0.0256)
TIS * TIS neighbor	-0.0112	-0.1744***
	(0.0149)	(0.0255)
TIS * Black		-0.3020***
		(0. 0255)
TIS Neighbor * Black		-0.0252
		(0.0306)
TIS * TIS neighbor * Black		0.2952***
		(0.0330)
Constant	0.7402***	0.7489***
	(0.0909)	(0.1416)
Dem. included	X	X
State and year FE	X	X
Observations	49,711	49,711
R-squared	0.082	0.10

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1992 - 2000 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.

Notes: Sample is composed of male persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome is any college enrollment in the period from 1992 to 2000. The variable TIS is binary and equals 1 after a state had enacted an 85% TIS law and received grant money in either 1996, 1997, or both years and 0 otherwise. The variable TIS neighbor is whether any adjacent neighboring state had enacted an 85% TIS law by 1999 and received grant money in either 1996, 1997, or both years. The demographic factors in all columns include age, Latino ethnicity, dummies for family income that is topcoded at $75,000, state average yearly unemployment, and average public university tuition, room, and board. Where noted, models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 6: Impact of Truth-in-Sentencing on Probability of Attending College for 18-24 Year Olds (1992 - 2000)

	Attend Any College	Attend 4 Yr. College	Attend 2 Yr. College	Attend College PT	Attend College FT
	(1)	(2)	(3)	(4)	(5)
TIS grant state	0.0258**	0.0935***	-0.0596***	-0.0384***	0.0724***
	(0.0107)	(0.0101)	(0.0061)	(0.0043)	(0.0129)
Black	-0.0767**	-0.0528**	-0.0218	-0.0076	-0.0671**
	(0.0335)	(0.0233)	(0.0135)	(0.0077)	(0.0311)
Male	-0.0467***	-0.0246**	-0.0201***	-0.0173***	-0.0274***
	(0.0089)	(0.0107)	(0.0049)	(0.0030)	(0.0089)
TIS * Black	0.0340	0.0113	0.0207	0.0018	0.0302
	(0.0344)	(0.0247)	(0.0152)	(0.0080)	(0.0324)
TIS * Male	0.0125	0.000251	0.0110*	0.0053	0.0060
	(0.0105)	(0.0113)	(0.00613)	(0.0037)	(0.0110)
Black * Male	0.0220	0.0068	0.0148	-0.0105*	0.0321
	(0.0390)	(0.0300)	(0.0187)	(0.0058)	(0.0353)
TIS* Black * Male	-0.0624	-0.0285	-0.0290	0.0094	-0.0669*
	(0.0408)	(0.0327)	(0.0216)	(0.0079)	(0.0379)
Constant	0.633***	0.414***	0.200*	0.161**	0.453***
	(0.0776)	(0.1020)	(0.1030)	(0.0701)	(0.0799)
Dem. included	X	X	X	X	X
State and year FE	X	X	X	X	X
Observations	101,584	101,556	101,556	101,556	101,556
R-squared	0.107	0.087	0.041	0.010	0.113

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Authors calculations from CPS October supplements 1992 - 2000 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.

Notes: Sample is composed of persons aged 18-24 at the time of the survey. All models are linear probability models. The outcome for the first column is any college enrollment in the period from 1992 to 2000. The outcome for the second column is college enrollment in a 4-year college in the period from 1992 to 2007 for all

students. The outcome for the third column is college enrollment in a 2- year college in the period from 1992 to 2007. The outcome for the fourth and fifth column is any part-time or full-time college enrollment. The variable TIS is whether a state had enacted an 85% TIS law by 1999 and received grant money in either 1996, 1997, or both years. The demographic factors in all columns include age, Latino ethnicity, dummies for family income that is topcoded at $75,000, state average yearly unemployment, and average public university tuition, room, and board. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.

Table 7: Yearly Impact of Truth-In-Sentencing on Probability of College Enrollment for 18-24 Year Old Males

| Sample	Black Males	White Males
	(1)	(2)
TIS Year - 5	0.0215	0.0129
	(0.111)	(0.0281)
TIS Year - 4	0.0980	-0.0240
	(0.0603)	(0.0258)
TIS Year - 3	0.0257	-0.0594***
	(0.0864)	(0.0203)
TIS Year - 2	0.0822**	0.0024
	(0.0397)	(0.0153)
TIS Year Enacted	-0.0584**	0.0069
	(0.0246)	(0.0223)
TIS Year + 1	-0.0459*	-0.0072
	(0.0231)	(0.0207)
TIS Year + 2	-0.0671*	0.0031
	(0.0363)	(0.0213)
TIS Year + 3	-0.0733	-0.0026
	(0.0465)	(0.0215)
TIS Year + 4	-0.0966***	0.0083
	(0.0346)	(0.0244)
TIS Year + 5	-0.0659	-0.0064
	(0.0436)	(0.0267)
Constant	1.180***	0.677***
	(0.416)	(0.129)
Dem. included	X	X
State and year FE	X	X
Observations	9,482	74,910
R-squared	0.090	0.106

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors calculations from CPS October supplements 1992 - 2002 and author's dataset on Truth-in Sentencing (TIS) status by state for the years following the federal law change in 1994.

Notes: Sample is composed of males aged 18-24 at the time of the survey. All models are linear probability models. The outcome is any college enrollment in the period from five years prior to the enactment of a state's TIS laws to five years after the enactment- bounded by the time period from 1992 - 2002. The omitted category is one year prior to the passage of a TIS law. All models contain state fixed effects and year fixed effects. Robust standard errors in parentheses are based on clustering persons within states. Regressions weighted using CPS October supplement weights for persons over the age of 16.
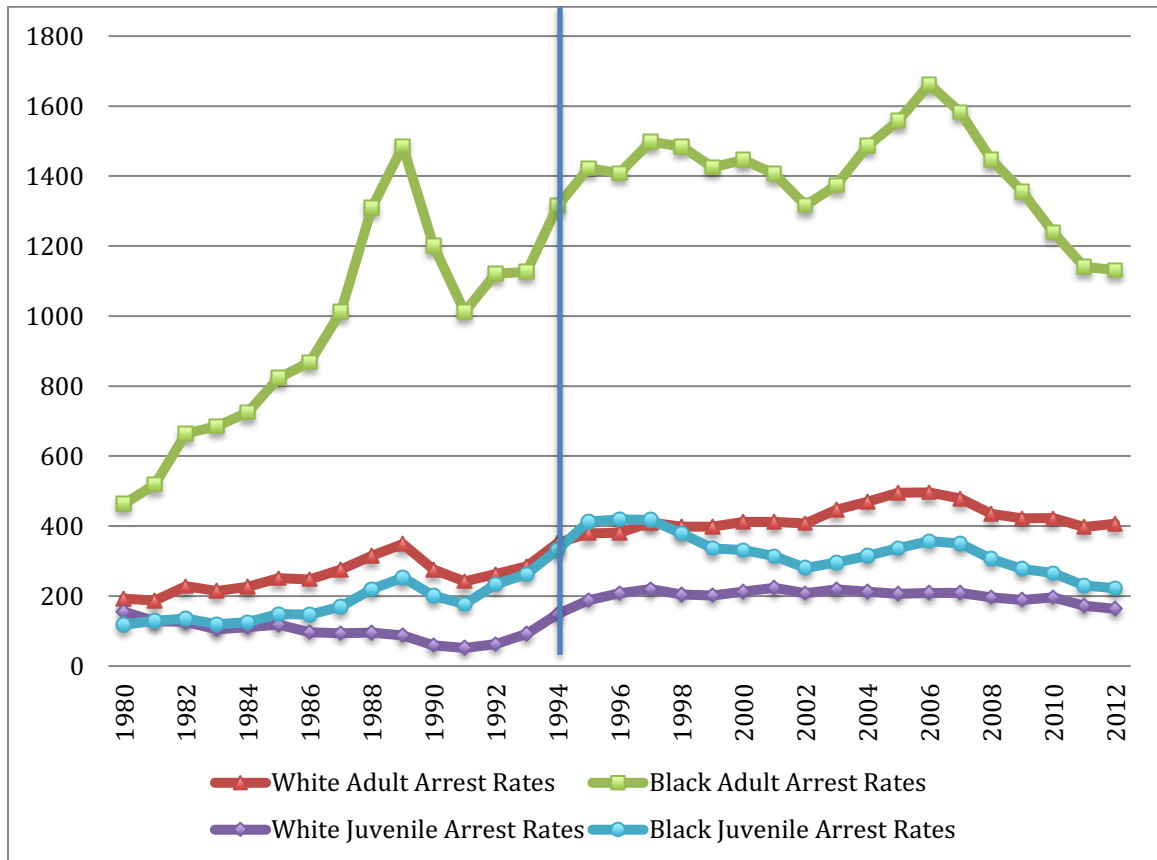
Figure 1: States with Truth in Sentencing Laws (85%) by the Year Law was Enacted
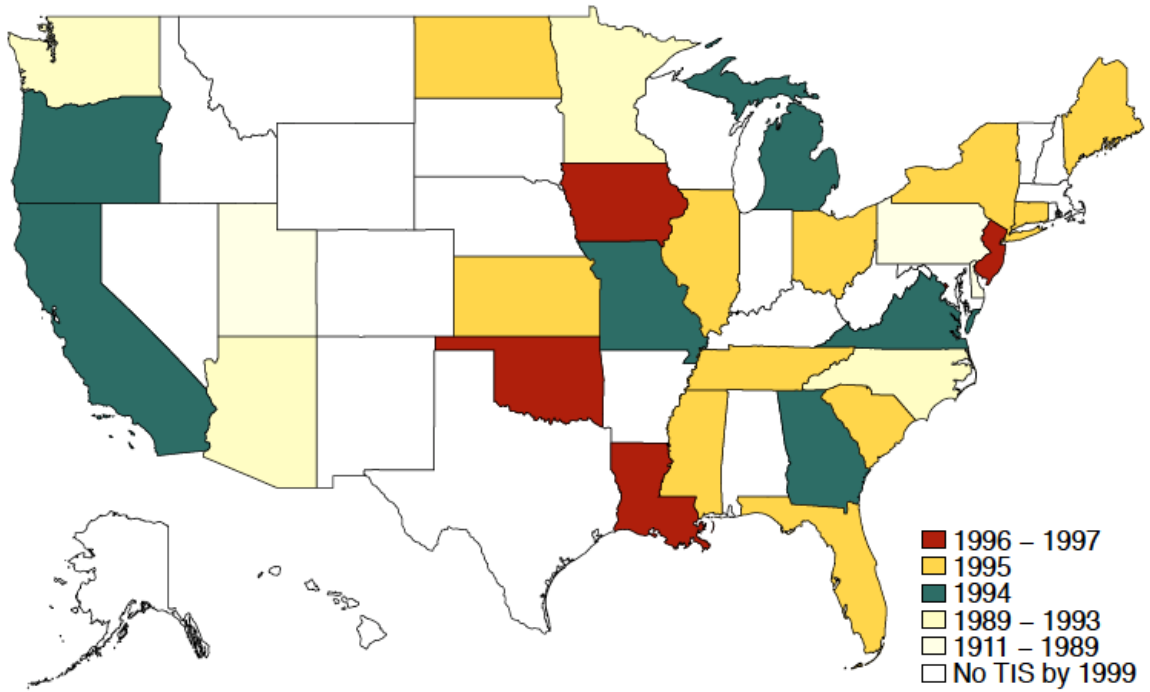
Source: Authors dataset on Truth in Sentencing (TIS) Laws by year that states enacted the laws based on Sabol (2002).
Notes: States in White had not adopted TIS laws by 1999. Other states are coded by year of adoption of law.

Figure 2: Drug Possession Arrest Rate (per 100,000 individuals) for Adults and Juveniles by Race 1980 - 2012

Source: Snyder, H. and Mulako-Wangota, J., Arrest Data Analysis Tool (07-Mar-17) at www.bjs.gov
Notes: Data on arrests come from the FBI Uniform Crime Reporting (UCR) program. Arrest rate defined as arrests per 100,000 persons. The green line with the boxed markers is the Black adult arrest rate. The red line with the triangular markers is the White adult arrest rate. The blue line with the circular markers is the Black juvenile arrest rate. The purple line with the diamond markers is the White juvenile arrest rate. A juvenile is defined as a person who is less than 18 years of age at the time of arrest.

Figure 3: Probability of College Enrollment and Fitted Values for Black Males Aged 18-24 - 1992 - 2007
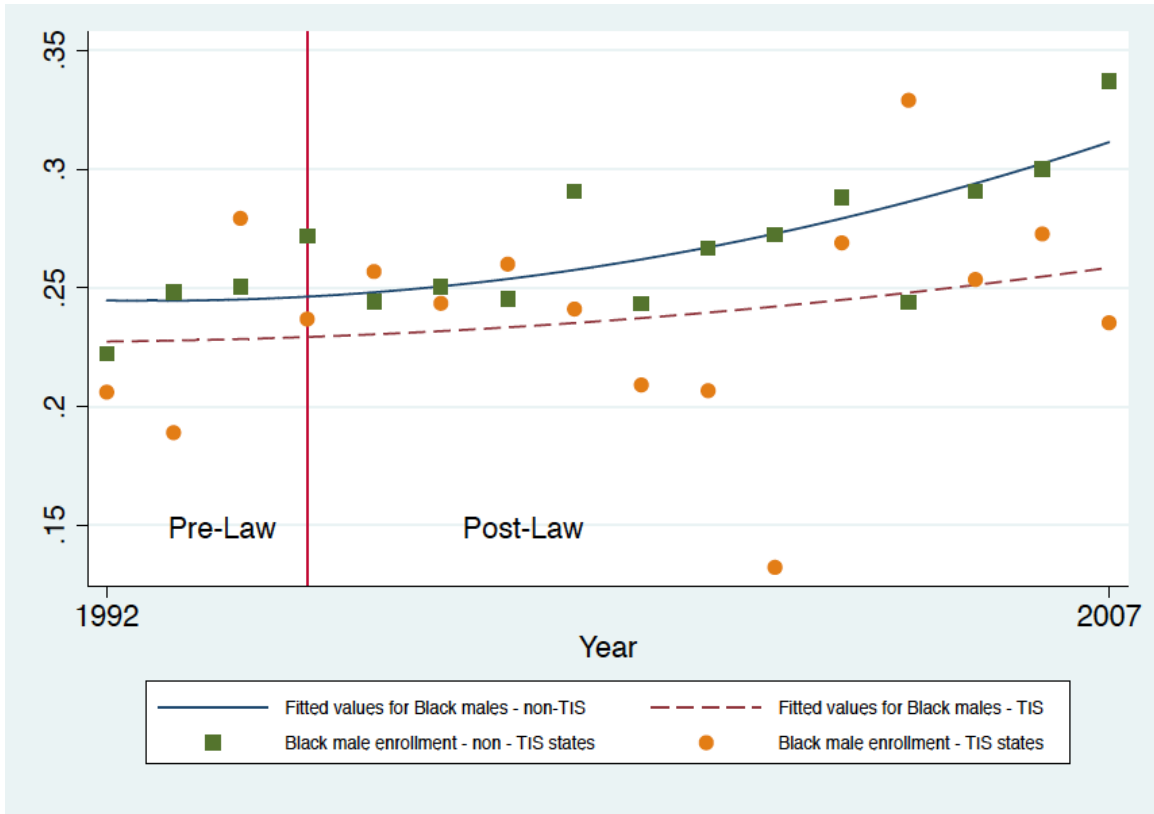
Source: 1992 – 2007 CPS October supplements
Notes: The green square markers denote the probability of college enrollment for Black men in non-TIS states. The blue solid line is the quadratic trend line for all Black men in non- TIS states. The red dashed line is the quadratic trend for Black men in TIS states. The orange circular markers denote the probability of college enrollment for Black men in TIS states.

Conclusion to the Dissertation

Summary of findings

This dissertation measured the effects of the drug laws of the 1980s and 1990s on Black male college enrollment over two time periods – from 1986 to 1992 and from 1992 through 2007. To my knowledge, this is the first work that attempts to measure the effects of the federal drug laws on Black male college enrollment, although some work has been done on the links between incarceration and college completion (Kirk & Sampson, 2013; McDaniel, DiPrete, Buchman, & Shwed, 2011). While traditional college-aged Black males were disproportionately arrested for drug possession and distribution infractions following the introduction of the federal law (US Sentencing Commission, 1991), it was unclear if these laws also had an impact on the likelihood of college enrollment for Black young men. To answer these questions, I measured the effects of the drug laws on Black male college enrollment in two separate time periods, using variation in state laws. The first source of variation was changes in the severity of state marijuana legislation over the period from 1986 – 1992 and the second source of variation was whether or not a state adopted Truth - in – Sentencing (TIS) laws from 1992 through 2007.

The analysis for the first time period, based on the enactment of the Anti-Drug Abuse Act of 1986 and modifications that states made to their laws following this federal change, shows that Black males in the United States had a 2.2% point decrease in the relative probability of college enrollment after the

passage of the Anti-Drug Abuse Act of 1986 as compared to prior to the law

change. However, the change in the probability of college enrollment for this

demographic was likely not due to the changes in the severity of marijuana laws

in the period from 1986 to 1992, as states with larger increases in penalties did

not have larger decreases in college enrollment for Black men when compared to

states that did not change their penalty. However, there were significant

decreases in relative college enrollment after changes in state cocaine penalties.

In the second period, after the passage of the Violent Crime Control and

Law Enforcement Act of 1994, I find some evidence that the passage of state TIS

laws led to a relatively lower probability of college enrollment for Black young

men after the passage of these laws as compared to the college enrollment of

Black men prior to the passage of TIS laws in states. The results have

implications for understanding educational gaps by race and gender as the

country looks to increase access to and retention in higher education and reform

the criminal justice system, and in particular the educational and employment

outcomes of persons formerly incarcerated for drug possession and distribution.

Policy Implications

Given the rise in arrests for drug infractions of young Black men and the

deleterious effect of this criminal justice contact on college enrollment, we need

to further explore not only the impact of these policies on educational outcomes

but also how to redress these outcomes. Extensive research demonstrates

education reduces the likelihood of recidivism for incarcerated and formerly

incarcerated persons (Gerber & Fritsch, 1995; Saylor & Gaes, 1997; Wilson, 1994).

This training can take many forms – from vocational programs to college degrees

though some types of education appear to be more effective than others. When

separating effects for different types of educational programs based on a survey

of the existing literature, Batiuk et al. (2005) find that completion of college

programs reduce recidivism when compared to no education program using

data from Ohio. When comparing college programs to other educational

interventions, college had the largest effect on reducing recidivism. Other studies

also suggest that a college education provides the greatest reduction in

reoffending. A 2013 Rand meta analysis of existing studies found a 13% point

decrease, or 43 percent lower odds, in the likelihood of recidivating after

participating in an educational program, when compared to those in prison who

had not completed any education programs, although these studies did not

account for selection bias (Davis, Bozick, Steele, Saunders, & Miles, 2013). For

high school and GED programs, the reduction amounted to 30 percent lower

odds. The cost saving of this decrease in recidivism for 100 inmates was close to a

million dollars, as compared to the cost of education, which was about $1400 to

$1700 per person.

Policy Implication: Increase Access to Federal Financial Aid for Incarcerated Persons

One possible way to increase the educational attainment of incarcerated

persons is for the federal government to continue to expand access to Pell grants

for incarcerated individuals. There are three decades of positive findings on the

effects of access to college education on reducing recidivism and increasing the

likelihood of future employment for formerly incarcerated persons. While the

1994 Violent Crime Control and Law Enforcement Act removed eligibility of Pell

for incarcerated persons, in 2015, the Obama administration created the second

chance experimental program, which allowed 67 colleges to offer Pell grants to

12,000 incarcerated persons. Expanding this program will allow even more

individuals to gain the skills needed to find jobs and not return to prison.

States Must Invest in Financial Aid for Incarcerated Persons

        States could also invest in providing access to financial aid for

incarcerated persons. The cost of recidivism is likely higher than the cost of

providing aid that will then allow persons to find jobs. Numerous studies find

that more educated persons not only contribute economically, but also derive

other benefits from additional education such as higher levels of happiness and

job satisfaction (Hillygus, 2005; Oreopoulos & Salvanes, 2011).

Further Research

        While this dissertation provides some evidence that there is a link

between the educational outcomes of young Black men and federal and state

drug laws, there is a paucity of research on this subject. Many questions remain.

My future work will address whether the drug laws of the 1980s and 1990s had

an effect on the probability of college enrollment for young Latino men, given the

disproportionate arrest rates in this community. Also, given the increases in

marijuana possession arrests and resulting incarceration, it is worthwhile to

measure the effects of severity in marijuana laws on Black and Latino college

enrollment after 1990. Additionally, arrest rates for women have risen for drug

related crimes over the period from 1980 to 2007, though not as dramatically as

male rates (Chesney-Lind & Pasko, 2013). This trend will likely continue to rise

in the face of the current opioid epidemic. Although generally women have

higher rates of college enrollment and completion then their male peers across

demographic groups, a higher likelihood of criminal justice interaction decreases

the likelihood of post-secondary education. The effect of these arrests and

resulting incarceration on educational attainment merit study.   My future

research will also explore the extent to which the benefits of a college degree

accrue to formerly incarcerated persons who receive college degrees, given some

of the challenges such as disenfranchisement and stigma faced by formerly

incarcerated persons (Alexander, 2012).

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