Colgate Academic Review

Volume 7 (Spring 2010) Article 9

7-20-2012

Segregation and Incarceration: How Life in the Ghetto Leads to Life in Prisons for Young Black Men

Jess Mawhirt

Segregation and Incarceration: How Life in the Ghetto Leads to Life in Prisons for Young Black Men

Jess Mawhirt, Class of 2010

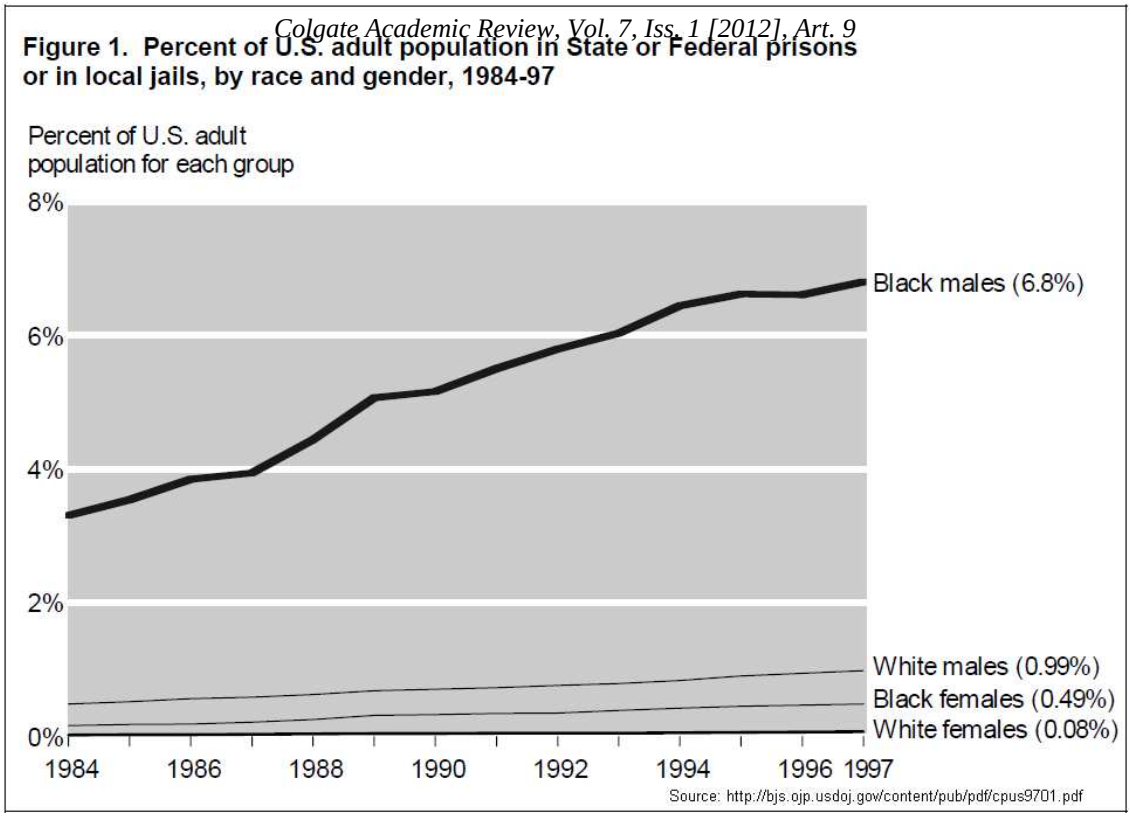
This paper seeks to further understand the causes of high crime rates among young black men. I have extended the work of Cutler & Glaeser (1997) who determined that blacks in highly segregated metropolitan statistical areas (MSAs) have worse outcomes than blacks in less segregated MSAs. One outcome not included in the study is the likelihood of being incarcerated. By obtaining state-level segregation measures and individual level incarceration data from the U.S. Census (1980-2000), I have determined that there is a correlation between these two measures; that black men age 18-65 who live in more segregated states have a higher probability of being in jail than those living in less segregated states. By using an Instrumental Variable, I can determine that this is in fact a causal relationship. Additionally, I examine the mechanism through which segregation influences life incarceration risks of blacks and how improving these areas can have a significant impact on life-trajectories for young black men.

Introduction:

Incarceration levels for blacks have increased dramatically in the past few decades to astonishing levels. For a black man, the estimated risk of going to prison at some point in his life is 28.5% while that statistic is only 4.4% for white men (Pettit & Western, 2004.) The percentage of the black male population that is in prison at any given time has been rising faster than any other group (see Figure 1 from the U.S. Department of Justice.) The statistics for black men born between 1965 and 1969 (now ages 41-45) are shocking; 30% of black men without college education and 60% of black men without a high-school education had been to prison by 1999. Only 3% of white men born in that same period had served time by 1999. (Pettit & Western, 2004.) The U.S. in general has staggering incarceration rates; the highest in the world and four times the world average, which is in large part due to disproportionate incarceration of blacks (Hartney, 2006.)

The causes and consequences of this trend are extremely important to study and understand. Having a prison record significantly impacts life trajectories, including the ability to find and keep a job. It also further stigmatizes poor and minority individuals and their neighborhoods as being dangerous. In addition, recidivism rates are extremely high; one study finds rates close to 70% within 3 years of release.[1] Many studies have suggested that young black men have turned to crime as a result of a lack of education, fewer economic opportunities, lower wages, high returns to criminal activity and social interactions with criminals, (Petit & Western, 2004; Freeman, 1996; Grogger, 1998; Case & Katz, 1991; Glaeser,

[1] Langan, 2002



Sacerdote & Scheinkman, 1996.) However, it seems plausible that many of these causes could in fact be symptoms of segregation.

If incarceration rates are higher for black men living in segregated areas than for black men living in less segregated areas, it could be true that segregation is responsible for the above mentioned causes leading to worse outcomes. For examples, lower wages could certainly lead to high crime for any group and in any area, but if lower wages combine with other problems that are specific to segregated areas to create a higher risk of incarceration, then segregation itself could be to blame.

In order to explore this thesis, I have formulated a regression to quantify the relationship between segregation and incarceration risks for black men. I have incorporated an instrumental variable, using a shift-share methodology to predict segregation rates that would occur if people did not move across state borders. This instrumental variable will be necessary to establish a causal relationship. In addition, I have created a mechanism through which this relationship could potentially operate. Through previous studies, I show that segregation leads to low spending on education which leads to low wages and economic opportunities that lead to high crime rates. I show that this mechanism is a plausible explanation for why younger black men from more segregated states are more likely to go to jail than black men from less segregated states.

This paper is organized as follows: In the next section I will present the background literature for both

incarceration studies and segregation studies. Section three describes the data acquisition and explains the measurements used. Section four describes summary statistics. Section five includes the primary model and the initial results of that model. In section six I discuss the controls and results. In section seven, I discuss the mechanism through which the causal relationship operates and in section eight I conclude the paper.

Background Literature and Trends

There is extensive literature on segregation measurements, trends and consequences as well as incarceration causes, trends and consequences. Much of the crime literature that focuses on race differentials suggest causes that could be particular problems of segregated neighborhoods.

Petitt & Western estimate comparative incarceration risks by race, education level, and age (determined by birth year groups.) They calculate the cumulative risk of imprisonment and find that men have a much higher chance of going to jail if they are uneducated, young, and black and briefly discuss the possibility of these findings being related to living in poor urban neighborhoods. They find that a black male high-school drop-out had a 61.8% chance of being either in jail or dead by the age of 34, compared to only 14.0% for white male drop-outs.

Freeman (1996) assesses why this might be the case for uneducated men. He finds that the rewards of crime for those who have low skills and low earning potential far exceed the punishments. He argues that because real earnings for the least educated fell significantly from the 1970s to the 1990s, uneducated individuals turned to the drug trade in response to the increased demand for drugs. Incomes from selling drugs or other criminal activity increased relative to legitimate earnings such that youths and adults could easily make $10-30 per hour. He argues that the opportunity cost of crime is lower for the uneducated, especially for those growing up in low-income neighborhoods where there is less stigma attached to criminals. He estimates the cost of imprisonment is significant for the rest of society to bear, with an average annual cost per prisoner of $22,000, which could arguably go to better uses if in fact incarceration does not deter crime.

Grogger (1998), like Freeman, finds that incentives toward crime are higher when wages are low and that the rising crime rates of youth in the 1970's and 80's was probably a response to falling wages during that time period. However, he finds that because blacks earn less than whites, they participate in crime to a greater extent. He argues that the black-white wage gap explains a substantial amount of the differential in crime between blacks and whites. Because blacks earn a lower wage than whites, they have a lower opportunity cost to committing crime in the same way that young people (who earn lower wages than older people) have a lower opportunity cost.

Both Freeman and Grogger are supported by Licher (1988) who finds

that underemployment increases in the 1970's and 80's for young blacks and whites with low-education. However, this effect is worsened for blacks due to urban racial polarization. In addition, Glaeser, Sacerdote and Scheinkman (1996) find that social interactions play a role in encouraging younger urban individuals to commit crimes, and that the presence of intact family units lessened this effect, suggesting that areas with a prevalence of single-parent or incomplete households might be more susceptible to peer-pressure related criminal behavior among teens and young people. Case & Katz (1991) find similar results; the behavior and examples of older family members have significant impacts on the actions of the youth in terms of criminal behavior, drug abuse, schooling etc. They find that for young people living in neighborhoods where other youths are engaged in criminal activities, the probability of being involved in crime increases. In addition, Massey, Condran and Denton (1987) find that in segregated environments, even higher-income blacks have lower average SAT scores than low-income whites because of the neighborhood effects of being educated in poor schools with less motivated class-mates. These studies have shown that many of the attributes we ascribe to segregated areas do in fact cause crime. My study will determine if segregation itself causes crime and incarceration.

Massey and Denton (1989) introduce five major ways to conceptualize measure and analyze segregation levels. The five dimensions are evenness, exposure, clustering, centralization and concentration. I will rely on evenness and exposure as they are arguable better measures of segregation. If a region is uneven, some areas have a higher percentage of minority residents than other areas. If it lacks exposure, the chances for people of different races to interact are slim. Massey and Denton find that segregation does exist, that 29% of all urban blacks in the U.S. live in very highly segregated MSAs, including the six most segregated cities, Baltimore, Chicago, Cleveland, Detroit, Milwaukee, and Philadelphia. For my purposes, the states that contain these hyper-segregated cities, Maryland, Illinois, Ohio, Michigan, Wisconsin and Pennsylvania should possess higher than average state segregation levels.

Cutler and Glaeser (1997) advance the literature by finding that segregation seriously worsens outcomes for blacks. While they consider the positive externalities of ghettos, they conclude that a one-standard deviation reduction in segregation (or a 13% reduction) will eliminate all differences in black and white outcomes, including high school graduation rates, idleness, earnings, and the likelihood of being a single mother. We already know that being a college drop-out can have serious life consequences, including imprisonment, so it is reasonable to conclude that segregation can likely be an indirect cause of incarceration via education levels. I will explore this possibility later.

Data Acquisition & Variables

I acquired U.S. decennial Census data from 1980, 1990, and 2000 from the Integrated Public Use Microdata Samples

(IPUMS-USA[2]). The analysis is restricted to men age 18 to 65. I did not include women because they make up a small portion of people in jail or prison, for example, less than 8% in 1997.[3] I used the IPUMS variable "race" (general version)" to determine if an individual was black (race=2) or white (race=1). I specifically left out Asians and Hispanics from my data because most (not all) of the previous literature specifies segregation as largely a black problem and because I am predominantly interested in the life-course of blacks that can lead to gang violence and imprisonment. Education was measured by the IPUMS variable "yearsed" where the min was 0 years and the max was 17 years.

Because there is no variable in the U.S. Census to indicate whether or not a particular individual is in jail at the time of the census, I used the method used by Borjas, Grogger & Hanson, 2006 to isolate prisoners. The census has a variable for people living in "Group Quarters" (IPUMS variable GQ). These people could be living in college dorms, retirement homes, mental institutions, jail, prison, or other group living arrangements. Borjas, Grogger, and Hanson determine that a person is institutionalized (in a correctional or mental or other type of institution) if gq =2 or 4. (In my data, institutionalized individuals have a gq value of 3 or 4.) It is impossible to determine which of these individuals are in prison or in mental institutions. However, according to the Department of Justice, in the 1990's, individuals with mental health issues living in prison (283,800 people in 1998) amounted to more than double those living in *actual* mental health institutions (less than 100,000.)[4] On the whole 1,734,900 Americans were in jail or in prison in 1997. If the proportion of those in mental institutions to those in correctional institutions is constant over time, we can assume that those in mental institutions only account for 5% of our group quarters data. Even so, we must keep this in mind when drawing conclusions from the data.

State diversity can be measured through ELF (Ethno-Linguistic Fractionalization) (Easterly & Levine, 1997.) ELF ranges from 0 and 1 and in this case measures the probability that two randomly selected individuals in a state belong to different racial groups. In a highly diverse state, ELF is expected to be high and vice-versa. The highest ELF is 0.66 for California in 2000 and the lowest ELF is 0.028 for Vermont in 1980.

Segregation can be measured through dissimilarity and isolation measures (Massey & Denton, 1988a.) Dissimilarity is a measure of "evenness," or the degree to which the percentage of minorities in an area equals the percentage of minorities in the larger area. In this study, the variable *disb* is measured from 0 to 1 and it represents how well the percentage of blacks in the zip codes of a state reflects the percentage of blacks in that state. The following is the equation for dissimilarity used by Massey and Denton.

[2] Ruggels, 2010

[3] USDOJ, Correctional Populations of the U.S., 1997

[4] Karaim, 2002

$$D = \sum_{i=1}^{n} \frac{t_i|p_i - P|}{2TP(1 - P)},$$

Where *t* and *p* are total population and minority proportion of the zip codes and *T* and *P* are the same measures for the whole state.

Isolation measures "exposure," or the degree of potential contact between minorities and majorities. In my dataset, the variable *isob* is measured from 0 to 1 and measures the state average probability that blacks will come into contact with each other. As expected, states with low black populations like Vermont have low *isob* values. The following is the equation, also from Massey and Denton, for isolation.

$$_xP_x^* = \sum_{i=1}^{n} \left[\frac{x_i}{X}\right]\left[\frac{x_i}{t_i}\right],$$

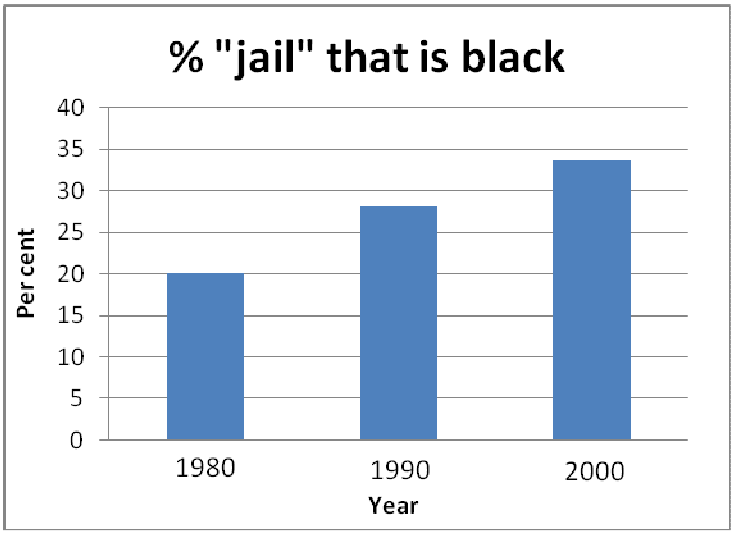
Where *x* and *t* are number of blacks and the total population of zip-code *i* and where *X* is the total population of the state.

The segregation data was also obtained from the U.S. Census using the method seen in Massey, Denton, 1989. The original race data was obtained by zip-code. However, there is evidence that prisoners are often moved to zip codes other than their zip code of residence. In fact there is increased frustration over the gerrymandering of political districts based on large prison populations. Opponents argue that prisoners (who cannot vote) from largely urban areas are moved to rural area prisons and inaccurately represent non-prison populations. (For example, 30.5% of the rural Brown County, IL population is incarcerated. The county appears to be diverse but 99.6% of blacks there were actually transplanted inmates.)[5] For these reasons, segregation and incarceration cannot be measured on the zip-code level in my analysis, but must be aggregated to the state level. This causes potential problems. Certain areas of some states might not be segregated at all, while cities in those states can be hyper-segregated.

In addition, it is important to address the possibility of inter-state prisoner transfers. If prisoners are not incarcerated in their home-states, then it would be difficult to draw any conclusions from my models. Due to over-crowding and security-risks, most states can and do choose to transfer a small number of prisoners to other states. There are both regional agreements between states as well as cost-saving contracts between correctional facilities. There are multiple protections and stipulations that must be in place before states can transfer prisoners, for example, they must be considered to be 'rarely-visited' or 'long-term.' (State restrictions vary, for example, in the state of Alaska, no Alaskan natives can be transferred, and in Ohio, sex offenders and those awaiting execution cannot be transferred.)[6] Recently, however, Pennsylvania sent 2,000 prisoners to Michigan and Virginia to ease the severe and extremely expensive over-crowding in its prisons.

[5] Paley, 2010
[6] Biasca, 2006

Figure 2:



However, this transfer agreement of only 2,000 people was seen as controversial.[7] This is a good indication that large transfers are still rare.

Due to restrictions and expenses, the number of inter-state transferred prisoners in 2005 was less than 5,000 men and women nation-wide.[8] The total prison population of the U.S. in 2005 was 2,320,359.[9] This means that 99.8% of prisoners in 2005 were incarcerated in their home-state, with only 0.2% transferred. With so few inter-state transfers, it is reasonable to assume that the overwhelming majority of prisoners in my sample are in fact incarcerated in their state of residence.

Summary Statistics

My data contains 2,236,017 observations, 2,064,195 of which were either black or white. I dropped 171,822 observations that were of another race. 11.78% of the resulting observations were black and 88.22% were white. There are very revealing differences between whites and blacks in my sample.

According to my calculation of the variable "jail," 4.01% of the observations were in jail; 9.6% of the blacks were in jail compared to 3.3% of whites. In the U.S. in 1997, 34.5% of inmates were black males[10], however, over the last 30 years, the average in my sample is 28%. This differential is in fact due to the increased proportion of those in jail that are black. In 1980 only 20.1% of those in jail were black; that number rose to 28.1% in 1990 and 33.7% in 2000, such that the average conceals this important upward trend. (See Figure 2 below)

The average number of years of education is 12.61. The average years of education for whites in the sample is 12.73 years while the average for blacks is 11.72 years, which is a difference of a whole year. Figure 3 shows that educational attainment for all observations (including those not who are not incarcerated) is lower for blacks than for whites. In addition, the pie charts below (Figure 5 & 6) show that of those who are in "jail" in my sample, blacks are less likely to have any education past high school than whites. In fact, 41% of white prisoners had some college education while only 23% of black prisoners did. In addition, 35% of black prisoners were high school drop outs compared to only 20% of whites.

[7] Barnes, 2009
[8] Biasca, 2006
[9] Harrison & Beck, 2006
[10] Bureau of Justice Statistics, USDOJ

Figure 3:

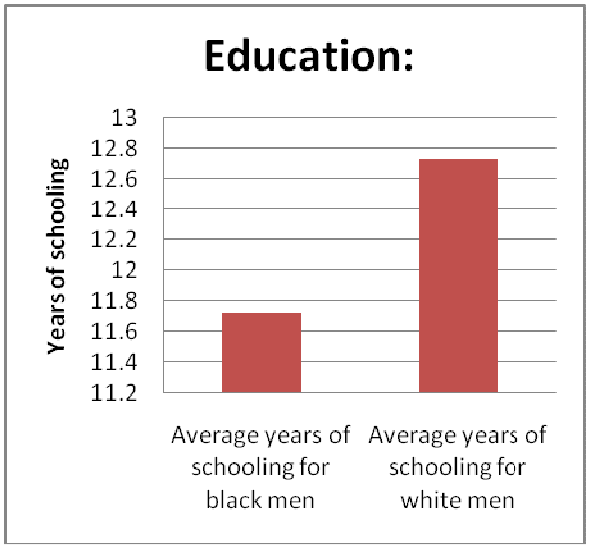
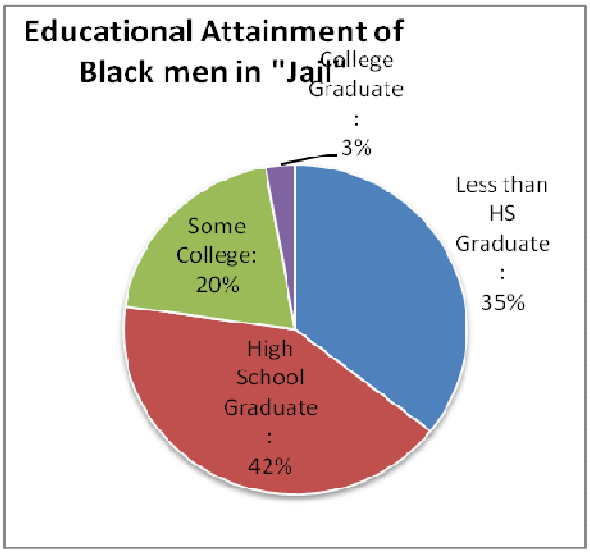


Figure 4:



The average age of the individuals in the sample is approximately 39 years old. However, the average age of those in jail was only about 29 years, ten years younger. 59% of my sample is married; however, while 61% of the white population is married, only 39% of the black population is married. In addition, the average state population density is higher for blacks (248.819 people/square mile) than it is for whites (235.101) in my sample.

The average racial fractionalization (or average state diversity) is 0.38 with the maximum and minimum by state and year being 0.66 for California in 2000 and 0.028 for Vermont in 1980. The average state black-specific dissimilarity (or evenness) is 0.59. The minimum was South Carolina in 1980 at 0.36, while the maximum was Wisconsin in 1980 with a very high 0.82. The average state black-specific isolation (or exposure) is 0.38. Arizona in 2000 has the lowest measure (0.006) and Illinois in 1980 has the highest (0.65).

As I mentioned before, previous work by Massey & Denton has shown that the most segregated cities are located in six states (Maryland, Illinois, Ohio, Michigan, Wisconsin and Pennsylvania). In all years, these six states are in the top thirteen most segregated states when measured by isolation. When measured by dissimilarity, five out of these six states fall into the top nine most segregated states for all three census years; the one exception in all cases being Maryland. Michigan and Illinois, home to Detroit and Chicago, are consistently the top two segregated states when measured by isolation and in the top four when measured by dissimilarity. These results increase my confidence in using these statistics as accurate measures for segregation.

Below, Table 1 shows the dissimilarity data sorted by values for year 2000. Only the 20 most segregated states are shown. The aforementioned six states are highlighted to demonstrate their high levels of segregation.

Table 1:	**1980**	**1990**	**2000**
North Dakota	0.711329	0.637969	0.540646
Kansas	0.613902	0.582375	0.549115
Iowa	0.629343	0.607512	0.550264
Maryland	0.553557	0.578105	0.556451
Connecticut	0.610418	0.583934	0.560976
Minnesota	0.680671	0.637085	0.578137
Massachusetts	0.668681	0.611289	0.578235
New Jersey	0.650763	0.621204	0.586884
Colorado	0.650976	0.633571	0.599502
Arkansas	0.59158	0.602176	0.608947
Tennessee	0.611998	0.625357	0.624735
New York	0.673047	0.663504	0.643495
Ohio	0.692788	0.674489	0.656717
Nebraska	0.767836	0.713212	0.659391
Pennsylvania	0.726254	0.712848	0.674941
Indiana	0.722335	0.702566	0.676884
Illinois	0.760745	0.72048	0.681031
Missouri	0.742566	0.710704	0.706228
Michigan	0.763684	0.775979	0.746995
Wisconsin	0.821375	0.812679	0.762923

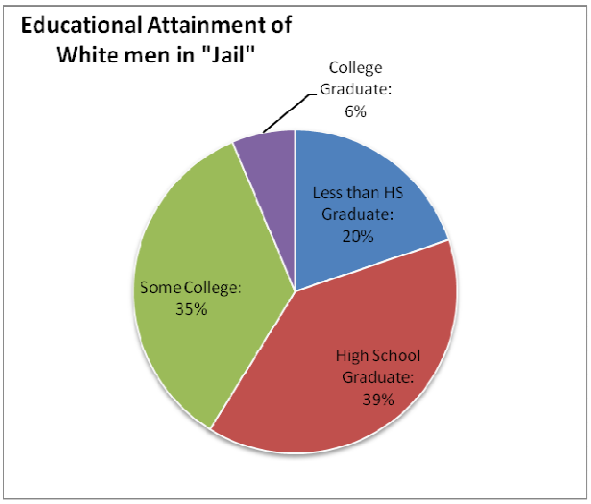
Empirical Model / Initial Findings

My first ordinary least squares regression is to see the preliminary relationship between my variables and the probability of going to jail for blacks. I have defined the regression as follows:

$Jail_{isy} = f(age_i, married_i, yearsed_i, black_i, elf_{sy}, isob_{sy}, disb_{sy}, dropout_i, popdensity_s, y1990, y2000) + random\ error_{ijt}$

Jail originates from group quarters and is defined as I have previously discussed and represents the probability for an individual *i* living in state *s* in year *y* will be incarcerated. The variables age, married, and black are self-explanatory. Yearsed is the number of years of education, elf is diversity, isob is isolation of blacks, disb is dissimilarity of blacks, dropout is a dummy variable to control for dropouts, popdensity is a measure of population density per state, and y1990 and y2000 are year dummy variables. The first regression is for both blacks and whites. The second regression is for whites only and the third is for blacks only.

Figure 5:

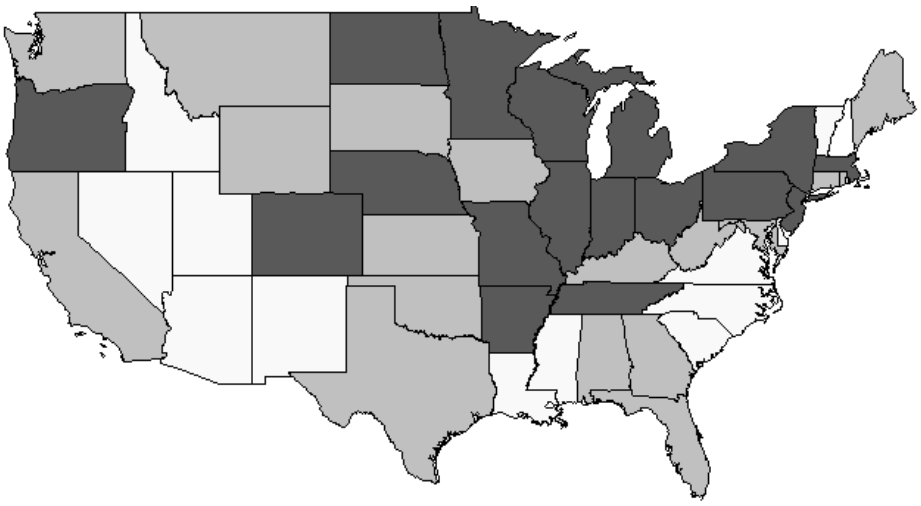


In table 2 you see that being black increases your probability of going to jail by 3.9 percentage points. In addition, being older, being married, and having more education make blacks and whites less likely to be in jail. Being a high school dropout makes blacks 3.2 percentage points more likely to be in jail, but being a high school dropout

actually makes whites *less* likely to go to jail. In addition, we see that whites become less likely to be in jail in 1990 and 2000 while blacks and more and more likely. In fact, in 1990, they are 2.2 percentage points more likely and in 2000 4.1 percentage points more likely. This finding is expected because as we have seen from Figure 2, blacks become a higher portion of inmates are the decades progress.

Table 2	White & Blacks	Whites only	Blacks only	
age	-.0010*** (0.0000)	-.0009*** (0.0000)	-.0022*** (0.0001)	
married	-.0809*** (0.0003)	-.0738*** (0.0003)	-.1310*** (0.0013)	
yearsed	-.0047*** (0.0001)	-.0052*** (0.0001)	-.0039*** (0.0002)	
black	0.0393*** (0.0001)	dropped	dropped	
elf	-.0059*** (0.0011)	-.0118*** (0.0010)	.0123** (0.006)	
isob	-.0059*** (0.0012)	.0097*** (0.0011)	-.1840*** (0.0063)	
disb	-.0228*** (0.0019)	-.0423*** (0.0018)	.0776*** (0.0072)	
dropout	-.0133*** (0.0005)		-.0225*** (0.0004)	.0315*** (0.0019)
popdensity	-0.000002*** (0.0000)		-0.000002*** (0.0004)	-.00001*** (0.0000)
y1990	-.0006*** (0.0003)		-.0034*** (0.0003)	.0215*** (0.0016)
y2000	.0014*** (0.0004)		-.0038*** (0.0003)	.0411*** (.0017)
Observations:	2,063,910		1,843,507	220,403
R-squared:	0.0710		0.0618	0.0831
Adjusted R-squared:	0.0710		0.0618	0.0831
*** Significant at 1% level				
** Significant at 5% level				
*Significant at 10% level				

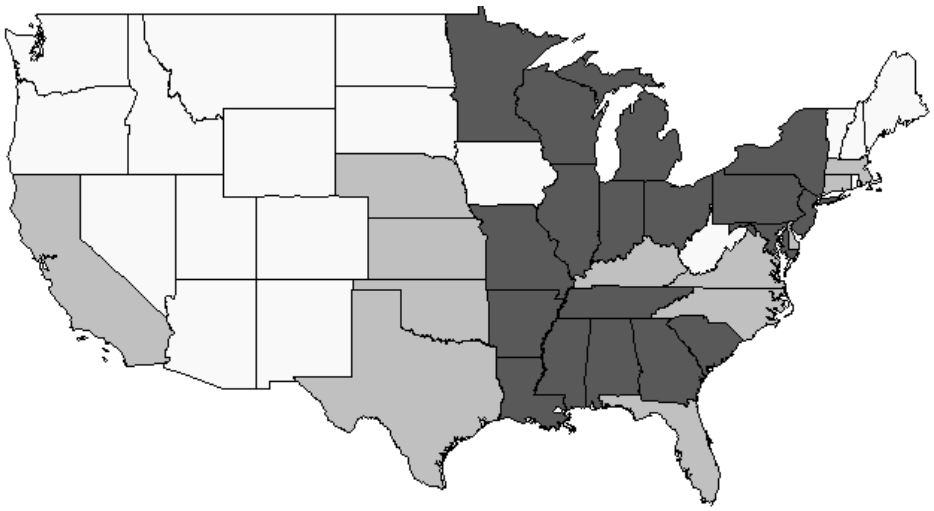
State diversity makes whites less likely to be in jail while it increases the likelihood for blacks. In addition, blacks living in more dissimilar (more uneven /



Segregation by state: Evenness of Blacks
Note: more than 0.6 is dark grey, 0.5-0.6 is light grey, and less than 0.5 is white.

more segregated) states are 7.8 percentage points more likely to be in jail while whites living in more segregated states are actually 4.2 percentage points *less* likely to be in jail. This means that dissimilarity of blacks helps whites and hurts blacks.

However, when segregation is measured by isolation (exposure), we see the opposite effect. The problem with isolation is that even if all the blacks in one state live in the same city, they might still be exposed to whites on a regular basis because there are few



Segregation by State: Isolation of Blacks
Note: more than 0.4 is dark grey, 0.25-0.4 is light grey, and less than 0.25 is white.

blacks in that state and hence blacks are unable to avoid whites. This explains why some of the less populated and states with lower black populations show up as being somewhat segregated when measured by dissimilarity but not by isolation. In figures 7 and 8 below, you can see that isolation is working more like a proxy for the population of the state that is black.

For example, northern cities are notoriously more segregated than southern cities due to historical events such as "The Great Migration" and "white flight," but the southern states are segregated when measured by isolation and not when measured by dissimilarity. Isolation is still a good measure, in that it in some way controls for the population of blacks in the state, but it will not be as representative of segregation as dissimilarity will be, especially on the state level.

Table 3	Blacks only/ *without IV*	Blacks only/ *with IV*
age	-.0022*** (0.0001)	-.0022*** (0.0001)
married	-.1310*** (0.0013)	-.1310*** (0.0013)
yearsed	-.0039*** (0.0002)	-.0042*** (0.0003)
elf	.0123** (0.006)	0.0471** (0.0122)
isob	-.1841*** (0.0063)	-.2251*** (0.0140)
disb	.0776*** (0.0075)	.1822*** (0.0329)
dropout	.0315*** (0.0019)	.0322*** (0.0019)
popdensity	-.00001*** (0.0000)	-.00002*** (0.0000)
y1990	.0215*** (0.0016)	0.0218*** (0.0016)
y2000	.0411*** (.0017)	.0409*** (0.0017)
Observations:	220,403	220,403
R-squared:	0.0831	0.0823
Adjusted R-squared:	0.0831	0.0823

Instrumental Variable

Any endogenetiy in my results could be caused by reverse causality. The dependent variable (incarceration) could be causally related to one of my covariates (segregation) which would create a case of reverse-causality. For example, it is possibly that high crime rates cause increased incarceration but also cause a fear of living in high crime areas. This could in turn reduce the portion of white and educated people living in a particular area leading to higher segregation indices. However, I find the opposite story more convincing; that segregation leads to limited opportunities that lead to crime and incarceration. As I mentioned above, there is evidence that segregation originally occurred due to racist zoning and selling of property (Cutler, Glaeser & Vigdor, 1999) thus we can reasonably assume that even though other factors perpetuated segregation levels, the initial cause was probably not incarceration levels or crime rates. However, I will attempt to control for this possibility regardless.

To control for endogeneity I have to implement an instrumental variable which is correlated to the explanatory variable (segregation) but not to the

dependent variable (incarceration.) The IV that I use is a shift-share IV similar to those used by Card (2001), Ottovani & Peri (2006) and Sparber (2008).

First, we assume that 1970 U.S. demography is exogenous and that each racial group in each zip code grows at its own exogenous rate. Then we can make predictions, based on the 1970 data, about 1980, 1990, and 2000 zip code demographies. Theoretically, those predicted values, which are not actual values, should be correlated with segregation, but not correlated with incarceration rates.

To estimate the new model, I have included the dissimilarity-specific instrumental variable (disIV).

(1) $Jail_{isy} = f(age_i, married_i, yearsed_i, black_i, elf_{sy}, disb_{sy}, dropout_i, popdensity_s, y1990, y2000) + disbIV + random\ error_{ijt}$

With the instrumental variable, none of the results have changed significantly, making me confident in the coefficient on my primary measure of segregation (dissimilarity.) In fact, the coefficient on dissimilarity has increased such that now segregation increases the probability that a black man will be in jail by 18.22 percentage points. This means that dissimilarity indeed has a causal relationship to incarceration because the reverse causality bias has been controlled for.

However, the new results increase the coefficient on isob and show that living in a state where blacks are more isolated makes them 22.5 percentage points *less* likely to go to jail. It is interesting to consider why isolation has a negative relationship to incarceration rates. Cutler and Glaeser (1997) suggest that there are some positive effects for blacks from segregation, such as gains from homogeneity, community support, reduced competition with whites and the increased presence of skilled blacks in poor urban areas. They argue that if segregation by race doesn't also create segregation by skill, blacks will benefit from segregation more than they lose. However, these gains would only come about through isolation from whites. A simple lack of evenness would not produce these effects. Although it is unlikely, it is a *possible* explanation for why fewer blacks go to jail in states with high isolation.

One omitted variable that could be a problem is income. Income and poverty are highly correlated to the incidence of crime and incarceration as well as segregation levels. However, because incomes for those who are currently in jail are "0" in the census records, it is impossible to know if in fact they were poor when the crime was committed. However, I believe it is reasonable to assume that education levels are correlated to income because children who are poor have a higher opportunity cost of attending school rather than working and brining home income. Because of this, I think it is reasonable to assume that the education variable can be used as a proxy for income to some extent.

Another issue with my model is that there is no way of knowing when the prisoners began their sentences. This is a

problem because their presence in prison does not necessarily reflect the segregation levels of their state in the year they committed the crime. This is especially the case for those with longer sentences. For example, if someone committed murder in 1960 and is found in jail in the 2000 census, his crime should be paired with the segregation level of 1960, not 2000. However, there are no clear solutions for this problem.

Discussion

Through the use of an instrumental variable, I am able to show that the relationship between segregation and incarceration is not just correlated, but causally related. However, it is useful to consider how this causal link operates.

The theory that I will describe and examine is as follows. Segregation is somehow created and perpetuated in the U.S, which in turn lowers expenditure on public goods such as education, which in turn worsens outcomes for blacks living in segregated neighborhoods, which reduces the expected wage and opportunity cost of committing crime, which in turn increases crime and incarceration rates, which eventually has significant impacts on life trajectories for blacks.

There is evidence that segregation began due to post-civil war migration northward and collective racism leading up to restricted housing options. Cutler, Glaeser and Vigdor (1999) attempt to explain segregation's origins by testing their theories and they determine that " in midcentury, greater levels of segregation resulted from collective actions on the part of whites to exclude blacks: legitimized forms of discriminations such as restrictive housing covenants and explicit or implicit threats of violence. These factors made blacks pay relatively more for housing in more segregated cities…" By the 1970s, they explain, the average black American lived in a census tract that was 68% percent black. They argue that segregation declined from the 1970s onward but note that while educated blacks moved into more white neighborhoods, "The share of tracts that were at least 90% black doubles in both cities and suburbs." (Cutler, Glaeser, Vigdor, 1999.) This means that during my time period of study, 1980 to 2000, the existing ghettos became even more concentrated with poorer, less educated minorities as other neighborhoods became more diverse.

Once segregation exists, spending on public goods decreases. Alesina, Baqir and Easterly (1999) show that because heterogeneous and polarized societies value public goods less, spending on public goods will be relatively less in segregated cities than in non-segregated cities. They find examples of poor public goods leaving disadvantaged groups even farther behind, like public transportation and schooling.

The lack of a good quantity and quality of schooling results in poor outcomes. As previously mentioned, Massey, Condran and Denton (1987) find that in segregated environments, high income blacks have lower average SAT scores than low income whites.

Education is clearly correlated with life income; I find with my own data that one more year of education is associated with a highly significant 17.89 percentage point increase in the census variable "poverty" (which is basically a measure of income up to a certain level.) When wages and incomes are low, people will turn to crime (Grogger, 1998.)

This therefore explains the high propensity of crime in segregated areas and the likelihood of being incarcerated. Pettit & Western (2004) argue that being incarcerated has become a life-stage for many young black males in the last 30 years and interrupts the life course. "Persistent offending is more likely for those who fail to secure the markers of an adult life," like marriage and steady jobs. This significantly affects life trajectories because men who lack those "markers" have difficulty attaining them at a later age. Pettit and Western state that ex-prisoners earn lower wages, are less likely to be married or live with the mothers of their children, and are less likely to get and hold a job due to stigmas against criminals.

Conclusion

In this paper I have established a causal link between segregation and incarceration. I have laid out the mechanism through which this occurs. I have determined that the primary problem resulting from segregation is the lack of a quality education. I have shown the importance of understanding this problem because due to the recent "war on drugs," the incarceration risks for young black men have increased dramatically.

Because poor beginnings lead to poor life outcomes which again lead to poor beginnings for the next generation, this cycle is important to fix. In addition, high levels of imprisonment remove men from the outside work force, resulting in reduced productivity. There have been some suggestions that are worth noting. Freeman (1996) proposes that the U.S. cannot simply increase the consequences of crimes, or the likelihood of imprisonment if caught, which have clearly risen in the past few decades but been largely disregarded by criminals. He argues for a "carrot as well as a stick" approach, such that economic opportunities must be increased for those with limited educations.

Case & Katz (1991) show that although bad behaviors and examples are contagious and can increase youth crime, good behaviors and examples can also be contagious. They write, "…shocks or policy interventions that positively affect individuals will have positive multiplier effects within neighborhoods through peer influences and across generations through family influences." This leaves some room for optimism that perhaps social programs, positive role-models and educational funding can do a lot to reverse this trend.

Works Cited

Alberto Alesina, Reza Baqir, and William Easterly (1999) "Public Goods and Ethnic Divisions" *The Quarterly Journal of Economics*, Vol. 114(4): 1243-1284

Andrew Paley, "Census engaged in 'prison-based gerrymandering,' report says" *Medill Reports*, Northwestern University, (02/04/2010) Retrieved from: http://news.medill.northwestern.edu/chicago/news.aspx?id=155730

Anne C. Case and Lawrence F. Katz, (1991) "The Company You Keep: The Effect of Family and Neighborhood on Disadvantaged Youth," NBER Working Paper No. 3705

Becky Pettit and Bruce Western, (2004) "Mass Imprisonment and the Life Course: Race and Class Inequity in U.S. Incarceration." *American Sociological Review*, Vol. 69(2): 151-169

Chad Sparber, (2008) "Racial Diversity and Aggregate Productivity in U.S. Industries: 1980-2000" *Southern Economic Journal*

Christopher Hartney, "Fact Sheet: US Rates of Incarceration: A Global Perspective." National Council on Crime and Delinquency (NCCD), November 2006

Daniel T. Lichter (1988) "Racial Differences in Underemployment in American Cities" *The American Journal of Sociology*, Vol. 93(4): 771-792

David M. Cutler and Edward L. Glaeser (1997) "Are Ghettos good or bad" *The Quarterly Journal of Economics*, Vol. 112(3): 827-872.

David M. Cutler, Edward L. Glaeser, and Jacob L. Vigdor (1999) "The Rise and Decline of the American Ghetto" *The Journal of Political Economy*, Vol. 107 (3): 455-506

Debra Biasca, (2006) "Interstate Transfer of Prison Inmates in the United States" National Institute of Corrections, USDOJ

Douglas S. Massey and Nancy A. Denton (1989) "Hypersegregation in U.S. Metropolitan Areas: Black and Hispanic Segregation along Five Dimensions" *Demography*, Vol. 26(3): 373-391

Douglas S. Massey, Gretchen A. Condran, Nancy A. Denton (1987) "The Effect of Residential Segregation on Black Social and Economic Well-Being" *Social Forces*, Vol. 66(1): 29-56

Edward L. Glaeser, Bruce Sacerdote, and Jose A. Scheinkman (1996) "Crime and Social Interactions" *The Quarterly Journal of Economics*, Vol. 111(2): 507-548

George J. Borjas, Jeffrey Grogger, and Gordon H. Hanson (2006) "Immigration and African-American Employment Opportunities: The Response of Wages, Employment, and Incarceration to Labor Supply Shocks" NBER Working Paper No. 12518

Jeff Grogger (1998) "Market Wages and Youth Crime" *Journey of Labor Economics*, Vol. 16(4): 756-791

Patrick A. Langan and David J. Levin (2002) "Recidivism of Prisoners Released in 2004" *Bureau of Justice Statistics Special Report*, USDOJ, NCJ 193427

Paige M. Harrison and Allen J. Beck (2006) "Prisoners in 2005" Bureau of Justice Statistics Bulletin, USDOJ, NCJ 215092

Reed Karaim, "Special Report: Housing First, People with Mental Illness" NPR,

2002 Retrieved from: http://www.npr.org/news/specials/housingfirst/whoneeds/mentallyill.html

Richard B. Freeman (1996) "Why Do So Many Young American Men Commit Crime and What Might We Do About It?" *The Journal of Economic Perspectives,* Vol. 10(1): 25-42

Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 5.0* [Machine-readable database]. Minneapolis: University of Minnesota, 2010

Tom Barnes, "Pa. will transfer 2,000 inmates to Va., Mich." *Pittsburgh Post-Gazette*, (12/22/2009) Retrieved from: http://www.post-gazette.com/pg/09356/1022675-454.stm