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# **The Effects of School Characteristics on Incarceration Rates in Minnesota**

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## **Introduction**

This research focuses on how neighborhood and school characteristics on incarceration rates in Minnesota, especially for people of color. Minnesota has one of the largest racial gaps in incarceration rates in the country, making this a particularly important topic in the state. The research traces a group of inmates back to the neighborhoods where they lived when arrested and to the schools they attended to evaluate the relationship between segregation by race and income in neighborhoods and schools and incarceration.

The work combines Minnesota Sentencing Commission data for convicted felons who went through Hennepin County courts between 2004 and 2008. More detailed information from a sample of roughly 1,000 cases was obtained from Pre-sentence Investigation (PSI) summaries, neighborhood census data, and information on race and poverty for individual schools from the National Center for Education Statistics and combined with Sentencing Commission data for the analysis of neighborhood and school effects. The PSI data were obtained after extensive negotiation with Hennepin County and processed by the Minnesota Population Center, University of Minnesota.

The work cross-tabulates inmate information with the characteristics of schools attended by inmates before incarceration and the neighborhoods where they lived when arrested. School characteristics were matched to inmates based on the years the inmates attended the schools. These characteristics are compared to student characteristics at

larger scales—the school’s school district, county and state—to compare the schooling experience of inmates to a typical student in the relevant time and place. Similar geographic comparisons are made for the neighborhoods (census tracts) where inmates lived when arrested.

Preliminary findings show that inmates in the 2004-2008 period typically attended schools with significantly higher poverty rates and non-white student shares than a typical student in the county where they lived. This is reflected in a much greater likelihood that inmates attended a non-white segregated school than a typical student at that time in Hennepin County. Finally, the data show that inmates lived in neighborhoods with higher poverty rates and non-white population shares than a typical resident of their home city, county or state.

## **Literature Review**

There is a large body of research documenting the long run effects of segregation, particularly on African Americans. For instance, research has documented direct and indirect links from segregation in schools to a wide range of variables associated with incarceration rates, including concentrated poverty, low academic achievement, low aspirations regarding future occupations or further education, and lower income later in life.<sup>1</sup>

However, very little work has examined the effects of school and neighborhood characteristics on incarceration rates directly. The only study to do so used highly

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<sup>1</sup> For a review of this literature, see *Brief of Amici Curiae Housing Scholars and Research & Advocacy Organizations in Support of Respondents, Parents Involved in Community Schools v. Seattle School District No. 1, et al., and Chrystal D. Meredith v. Jefferson Board of Education, et al.*, October 10, 2006.

aggregated data for the entire U.S over several decades.<sup>2</sup> It documented an increasingly strong (over time) relationship between school segregation rates for African Americans and incarceration rates – greater segregation was associated to higher incarceration rates.

It is common knowledge that racially segregated economically deprived neighborhoods have higher crime rates than white, middle class neighborhoods. While some research attributes this difference simply to differences between the inhabitants of the respective communities, most social science researchers accept that social and economic environmental factors have independent effects on crime rates. In the 1990s, research and statistical methods were developed that allowed researchers, such as Robert Sampson and Lauren Krivo to test the effects of neighborhood effects on crime rates. One consistent pattern emerged from these studies: neighborhood effects contribute significantly to violent crime rates for both blacks and whites.<sup>3</sup>

The impact of poverty on crime rates, especially violent crime rates is greatest in predominantly white communities with low to modest poverty rates.<sup>4</sup> The research shows that neighborhood effects on crime are curvilinear—meaning that the impact of the difference between 20 and 30 percent poverty is greater than the impact of the difference between 80 and 90 percent poverty.<sup>5</sup> This means that, although the overall magnitude of the neighborhood effects on crime and victimization are large in racially segregated, high

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2 Lafree, Gary and Richard Arum, “The Impact of Racially Inclusive Schooling on Adult Incarceration Rates Among U.S. Cohorts of African Americans and Whites Since 1930,” *Criminology*, Volume 44, Number 1, 2006, pp. 73-103.

3 Lauren Krivo and Ruth D. Peterson, “The Structural Context of Homicide: Accounting for Racial Differences in Process.” *American Sociological Review*, Vol. 65 (2000).

4 Lauren Krivo and Ruth D. Peterson, “The Structural Context of Homicide: Accounting for Racial Differences in Process.” *American Sociological Review*, Vol. 65 (2000).

5 Ibid.

poverty neighborhoods, the incremental effects of neighborhood characteristics—which is what researchers usually evaluate—may be modest.

Understanding why this is the case represents a significant challenge for research. One problem may lie with the way segregation and disadvantage are measured. To date, analyses have been limited largely to the neighborhood model, which does not necessarily account for other disadvantages that may affect violent crime. In particular, it does not account for the impact of racially segregated schooling.

There is evidence that attending a racially segregated school may have an independent effect on an individual's likelihood to commit crimes. Research shows that attending a racially segregated school reduces the likelihood that an individual will graduate from high school or acquire a middle class job. In other words, attending a racially segregated school affects the lifetime opportunities available to students. These opportunity costs may increase the likelihood that an individual will choose to engage in criminal activity after he or she reaches adulthood.<sup>6</sup> Studies of the effects of school desegregation on crime rates have found that court-ordered school desegregation reduced homicide rates for blacks by about 25% and reduced long-term offending rates by about 15%.<sup>7</sup> Similarly, another study found that blacks educated in states where a higher

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6 Pilivain et. al found that effect of age on criminal participation was mediated by young men's expectations about whether illegal earnings would exceed earnings from a straight job. Moreover, commitment costs are among the important factors weighed by young men when they decide to discontinue offending. "Crime, Deterrence, and Rational Choice." *American Sociological Review* 15:1 (1986).

7 David A. Weiner, Byron F. Lutz, and Jens Ludwig, "The Effects of School Desegregation on Crime" (Draft Sept. 9, 2008).

proportion of their classmates were whites experienced significantly lower incarceration rates as adults.<sup>8</sup>

## Data

This research uses a unique data set which makes it possible to trace current inmates back to circumstances earlier in their lives. In particular, acquisition of PSI's for current inmates makes it possible to link difficult-to-obtain information from this source to public data on school characteristics available from the National Center for Education Statistics. This enables an examination of the racial and poverty characteristics of the last school attended by current inmates to see if current offenders were more or less likely than average to attend high-poverty, segregated schools.

After extensive negotiations needed to protect the privacy of inmates, a court order was obtained to acquire all PSI's prepared for offenders processed in Hennepin County courts—the county containing Minneapolis—from 2004 through 2008.<sup>9</sup> The PSI's were provided by the Minnesota Department of Corrections data management professionals from the University of Minnesota's Minnesota Population Research Center (MPC) coded all felony pre-sentence investigation reports made available for Hennepin County.

A total of 1,736 PSI's were processed by MPC. The data were coded manually from scanned paper documents into machine-readable form. The variables collected include date of birth, address when the PSI was executed, family background, marital

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8 Gary Lafree and Richard Arum, "The Impact of Racially Inclusive Schooling on Adult Incarceration Rates Among U.S. Cohorts of African Americans and Whites Since 1930," *Criminology* 44:1 (2006).

9 Efforts are still underway to obtain PSI's for Ramsay County—the county containing St. Paul—for the same time period.

status, disciplinary history in school, substance abuse history, highest degree, employment history, and school history.

The PSI data were then matched with a data set maintained by the Minnesota Sentencing Commission which includes, among other things, the personal characteristics of offenders (such as race, gender and age) and the nature of the conviction (such as the nature of the crime and the sentence). This involved matching observations using the identity code (“OID”) assigned to inmates by the Department of Corrections after incarceration.

Finally, data from NCES (schools) and Census (neighborhoods) were joined to the full data set. Collecting the school data involved case by case matching of the date and name of the last school attended with NCES data for that school and year, the school district and year, the county and year, and the state and year.<sup>10</sup> This involved matching data for 675 individual school and year combinations, 410 separate school district and year combinations, 273 county and year combinations and 132 state and year combinations. School data were available for 970 inmates.

Adding the neighborhood data involved first geocoding inmate addresses and then overlaying this data on the census map of census tracts, cities, counties and states to code each address with the appropriate census designation. This permitted joining the inmate and school data to the appropriated census tract, city, county and state characteristics from the recently released American Community Survey (ACS) which reports data averaged over the five year period from 2005 to 2009. There are 438 census tracts, 152 cities, 55 counties and 12 states. Address data were available for 1,380 inmates.

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<sup>10</sup> In some cases, the year was estimated using the reported grade level and the date of birth.

The fact that PSI's are not available for many inmates and the lack of some data (school and address data in particular) in some of the PSI's raise concerns about the representativeness of the sample. However, comparison of the racial mixes of the samples which include school data and address data show that this is not a substantial concern, at least as it concerns the racial mix of the included and excluded inmates. Table 1 shows the racial mixes of four inmate groups—inmates with school data, inmates without school data, inmates with address data and inmates without address data. The columns showing the differences clearly show that the differences are small, especially for white and black inmates—the two largest groups. In the school data, the difference in racial shares between the groups with and without school data are statistically insignificant in all cases except for Hispanics, and the difference for this group is only two percentage points. The differences in the address data are more likely to be statistically significant, but the largest difference is only three percentage points.

**Table 1: Comparability of Inmates With and Without School and Address Data**

<u>Race/ethnicity</u>	<u>School Data</u>			<u>Address Data</u>		
	<u>Available</u>	<u>Missing</u>	<u>Difference</u>	<u>Available</u>	<u>Missing</u>	<u>Difference</u>
White	23%	24%	1	22%	25%	3 *
Black	66	65	-1	65	66	1
Hispanic	2	4	2 *	4	3	-1
Native American	7	5	-2	7	5	-2 *
Asian	2	1	-1	2	1	-1 *

\*: Difference significant at 95 percent confidence level.

Table 1 also shows very clearly a very important characteristic of the inmate sample. This is that whites are dramatically under-represented while other races, and especially blacks, are over-represented. For instance, the black share of the inmate sample is two-thirds, while the percentage of Hennepin County residents who were black during the period represented by these data was only 10 percent.<sup>11</sup>

### **Preliminary Analysis**

The preliminary data analysis focuses on differences in racial and poverty makeup of the schools last attended by inmates and the neighborhoods where they lived when sentenced by Hennepin County courts between 2004 and 2008. The analysis first compares the makeup of the schools last attended by inmates to their home districts, counties and states in the relevant year and of inmates' neighborhoods to their home cities, counties and state at the time they were sentenced. This is followed by analysis of the characteristics of the schools last attended using a typology which divides schools into 12 categories based on their racial mixes using four racial groups (white, black, Hispanic and other). This analysis compares the distribution of inmates across the school types to a comparison group of high schools from the location (Hennepin County) and time (late 1990's) most commonly represented in the sample of inmates.

Chart 1 shows the average racial mix in the schools last attended by inmates in the reported last year of attendance compared to the mix in the same year for each school's home school district, county and state. The comparison shows that the schools last attended by inmates are very similar in racial mix and poverty to the average mixes of

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<sup>11</sup> American Community Survey, Bureau of the Census.

their home districts but are much more dramatically different from their home counties and states. The schools and districts show significantly greater non-white shares and poverty rates (measured by free lunch eligibility) than the corresponding county- and state-wide averages. This is consistent with the pattern most common to metropolitan areas in recent decades. The greatest racial divides in American schools is now *between* school districts rather than *within* districts. Recent data for the four largest school districts in the Twin Cities illustrates this pattern. In 2009-2010, the St. Paul and Minneapolis school districts, the second and third largest districts in the region had non-white student shares of 69 and 75 percent respectively, while the largest and fourth largest districts, Anoka-Hennepin and Rosemount-Apple Valley-Eagan, had non-white shares of 21 and 23 percent. Similarly, free and reduced price lunch eligibility rates for the four districts were 73 and 65 percent for St. Paul and Minneapolis compared to 29 and 18 percent for Anoka-Hennepin and Rosemount-Apple Valley-Eagan.

Overall, the pattern in Chart 1 shows very clearly that inmates in the sample suffered from clear disadvantages resulting from the characteristics of the schools they attended. In particular, the typical last school attended in the inmate sample showed substantially greater than average poverty rates compared to typical schools in their home county or state.

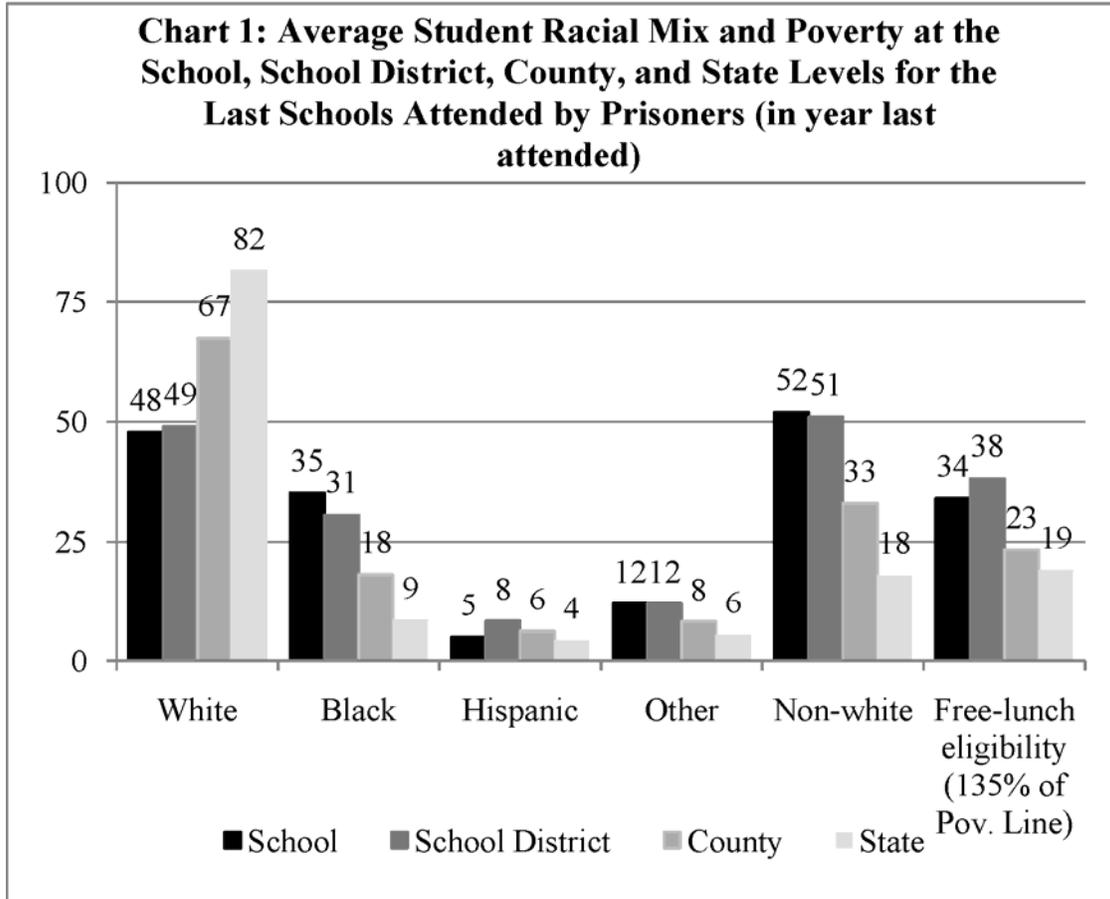
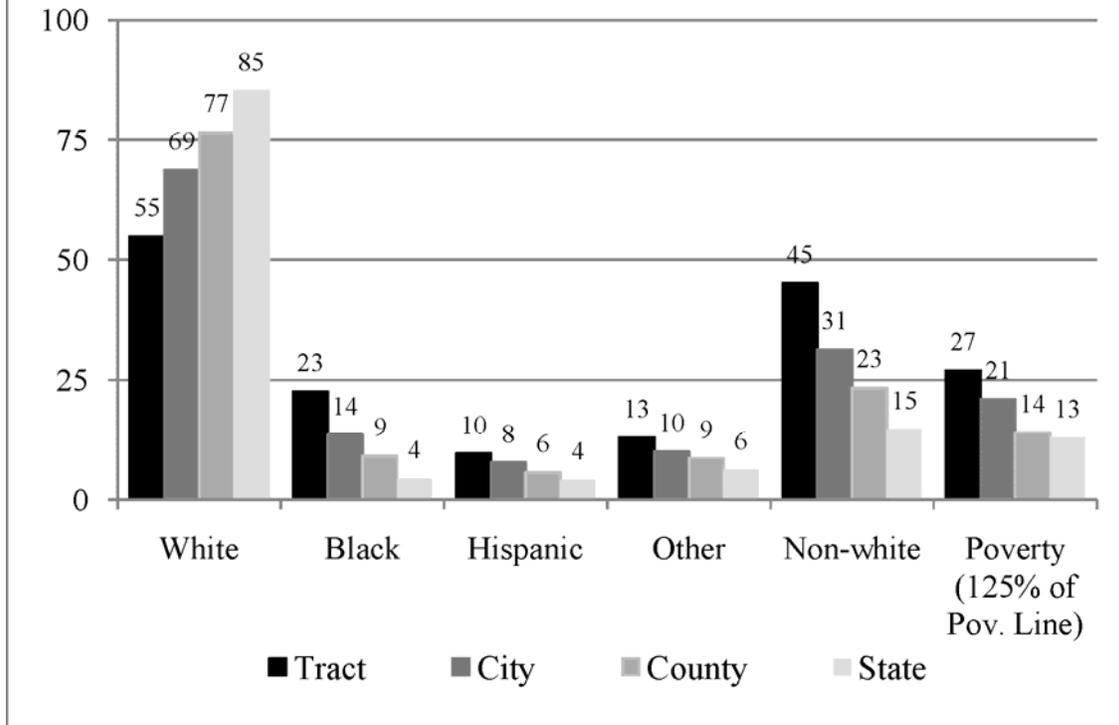


Chart 2 shows equivalent data for the neighborhoods where inmates lived when sentenced. The pattern is very similar—inmates’ home neighborhoods on average show higher non-white shares and poverty rates (measured by percentage of population in households with incomes below 125 percent of the poverty line) than their home cities, counties and states.<sup>12</sup> As in the school data, inmates endured clear disadvantages in the neighborhoods they lived in, with average poverty rates roughly twice the average for their home county and state.

<sup>12</sup> 125 percent of the poverty line was chosen for the poverty cut-off because this is the income reported by the census which most closely matches the cut-off income for free lunch eligibility—135 percent of the poverty line.

**Chart 2: Average Popoulation Racial Mix and Poverty (2005-2009) at the Census Tract, City, County, and State Levels for the Last Reported Address of Prisoners**



The analysis summarized in Tables 2 and 3 uses a typology which divides schools into racial categories based on the shares of four racial-ethnic groups in the school population—white, black, Hispanic, and other. The procedure results in twelve school types. Eight are considered *segregated* and four are considered *integrated*. Two characteristics differentiate segregated schools from integrated schools—the presence or not of significant numbers of students of more than one racial/ethnic group and the presence or not of a significant share of white students. Thus, the segregated group includes neighborhoods where the share of blacks, Hispanics or other races exceeds 50 percent as well as neighborhoods with varying combinations of black, Hispanic, and other residents, where the relative share of white residents in the neighborhoods does not

exceed 30 percent. Although these racially-mixed neighborhoods could be regarded as integrated because they include a mix of races, they are treated as segregated in this work because they are dominated by racial/ethnic groups which have traditionally faced discrimination of various kinds.

The “segregated” categories include:

- Predominantly White: Schools which are more than (or exactly) 10 percent black *and* less than (or exactly) 10 percent Hispanic *and* less than (or exactly) 10 percent other.
- Predominantly Black: Schools which are more than 50 percent black *and* less than (or exactly) 10 percent Hispanic *and* less than (or exactly) 0 percent other.
- Predominantly Hispanic: Schools which are more than 50 percent Hispanic *and* less than (or exactly) 10 percent black *and* less than (or exactly) 10 percent other.
- Predominantly Other: Schools which are more than 50 percent other *and* less than (or exactly) 10 percent black *and* less than (or exactly) 10 percent Hispanic.
- Black and Hispanic: Schools which are less than 30 percent white *and* greater than 10 percent black *and* greater than 10 percent Hispanic *and* less than or equal to 10 percent other.
- Black and Other: Schools which are less than 30 percent white *and* greater than 10 percent black *and* greater than 10 percent other *and* less than or equal to 10 percent Hispanic.
- Hispanic and Other: Schools which are less than 30 percent white *and* greater than 10 percent Hispanic *and* greater than 10 percent other *and* less than or equal to 10 percent black.
- Multiethnic Segregated: Schools which are less than 30 percent white and greater than 10 percent black *and* greater than 10 percent Hispanic *and* greater than 10 percent other.

The “integrated” categories include:

- White and Black: Schools which are more than 10 percent and less than (or exactly) 50 percent black *and* less than (or exactly) 10 percent Hispanic *and* less than (or exactly) 10 percent other.
- White and Hispanic: Schools which are more than 10 percent and less than (or exactly) 50 percent Hispanic *and* less than (or exactly) 10 percent black *and* less than (or exactly) 10 percent other.
- White and Other: Schools which are more than 10 percent and less than (or exactly) 50 percent other *and* less than (or exactly) 10 percent black *and* less than (or exactly) 10 percent Hispanic.
- Multiethnic Integrated: Schools which are more than (or exactly) 30 percent white *and* where at least two of the three non-white groups show shares greater than 10 percent.

Table 2 compares the characteristics of the last school attended by inmates to a comparison group of students in high schools in Hennepin County in 1997. Hennepin County was chosen for the comparison because, not surprisingly, it represented the most common location for schools last attended by the inmates in the sample. 1997 was chosen because it was the average reported year for inmates' last year in school.

The table shows the number (and share) of inmates whose last school attended fell into each of the school classifications. Also shown are the average racial mixes and poverty rate (measured by free-lunch eligibility) for the schools inmates attended. The last three columns show the numbers, shares and poverty rates of high schools in each category in 1997 Hennepin County.

The average school characteristics for inmates show a distinct pattern across school types. Non-white segregated schools—schools with the highest shares of non-white students—show much higher poverty rates than either predominantly white or integrated schools, and integrated schools have much higher poverty rates than predominantly white schools on average. An extensive literature on the negative effects of concentrated poverty and racial segregation on school outcomes shows very clearly that attending these schools, especially those in the non-white segregated category, puts students at distinct disadvantage.<sup>13</sup>

The inmates in this sample plainly suffer these disadvantages. They are nearly five times as likely to be from non-white segregated schools as students in general were in the late 1990's in Hennepin County—39 percent compared to 8 percent. They were

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<sup>13</sup> See Orfield, Myron and Thomas Luce, *Region: Planning the Future of the Twin Cities*, University of Minnesota Press, 2010, Chapter 3 for a review of this literature.

**Table 2: School Types and Characteristics of Last School Attended by Inmates Compared to Hennepin County Totals**

<u>School Type Last Attended</u>	<u>Inmates</u>	<u>Share</u>	<u>Average School Characteristics</u>					<u>Hennepin County High Schools</u>		
			<u>% White</u>	<u>% Black</u>	<u>% Hispanic</u>	<u>% Other</u>	<u>% Free-lunch Elig.</u>	<u>1997</u>		
							<u>Students</u>	<u>Student Shares</u>	<u>% Free-lunch Elig.</u>	
Predominantly White	214	22	92	2	2	4	8	23,814	60	7
Predominantly Black	168	17	10	87	1	2	47	0	0	n.a.
Predominantly Hispanic	8	1	16	3	79	3	59	0	0	n.a.
Predominantly Other	16	2	11	1	1	88	71	0	0	n.a.
Multi-Ethnic Segregated	27	3	21	43	17	19	65	0	0	n.a.
Black-Hispanic Segregated	28	3	8	54	36	2	64	105	0	83
Black-Other Segregated	130	13	18	54	3	24	63	3,005	8	66
White-Black Integrated	112	12	61	30	3	6	25	1,811	5	21
White-Hispanic Integrated	6	1	68	6	20	6	11	0	0	n.a.
White-Other Integrated	24	2	77	5	2	16	26	1,703	4	17
Multi-Ethnic Integrated	237	24	52	25	6	18	33	9,086	23	42
Predominantly White Segregated	214	22	92	2	2	4	8	23,814	60	7
Integrated	377	39	14	40	23	23	61	3,110	8	75
Integrated	379	39	65	16	8	11	24	12,600	32	27
Total	970	100	48	35	5	12	34	39,524	100	21

Note: No schools were classified Hispanic - Other Segregated.

also more likely—39 percent compared to 32 percent—to have attended integrated schools, which, as a group, showed the second-highest average poverty rate. However, in both cases (inmates and general student population), most students in integrated schools were in multi-ethnic integrated schools which prior work shows are schools which are very likely to be in transition toward a segregated outcome.<sup>14</sup> They also show the highest poverty rates among integrated schools.

Table 3 shows the results just for the three summary categories (predominantly white, non-white segregated and integrated schools) while controlling for two factors that could be distorting the comparisons in Table 2—location and race. Location could be biasing the comparison if Hennepin County schools (the comparison group in Table 2) are different in important ways from schools elsewhere. If that is the case, then including inmates who attended schools in other counties distorts the comparison (since too many other counties are included in the inmate sample to all be included in the comparison group). Differences across racial groups could also be biasing the comparison if students from different races are more or less likely to attend non-white segregated schools.

Table 3 illustrates these differences by showing the results for three sub-groups of inmates—inmates who attended Hennepin County schools, black inmates, and black inmates who attended Hennepin County schools.

The second panel of Table 3 shows that the location effect alone does not change the results substantially. Inmates from Hennepin County schools are still much more likely to have attended non-white segregated schools—36 percent compared to 8 percent—and are also more likely to have attended integrated schools—52 percent versus

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<sup>14</sup> Orfield and Luce, Chapter 3.

**Table 3: Summary School Types and Characteristics of Last School Attended by Inmates Compared to Hennepin County Totals  
All Inmates, Inmates from Hennepin County Schools, Black Inmates and Black Inmates from Hennepin County Schools**

<u>School Type Last Attended</u>	<u>Inmates</u>	<u>Share</u>	<u>Average School Characteristics</u>					<u>Hennepin County High Schools 1997</u>		
			<u>% White</u>	<u>% Black</u>	<u>% Hispanic</u>	<u>% Other</u>	<u>% Free-lunch Elig.</u>	<u>Students</u>	<u>Student Shares</u>	<u>% Free-lunch Elig.</u>
<b><u>All Inmates</u></b>										
								(Total)		(Total)
Predominantly White	214	22	92	2	2	4	8	23,814	60	7
Non-white Segregated	377	39	14	40	23	23	61	3,110	8	75
Integrated	379	39	65	16	8	11	24	12,600	32	27
Total	970	100	48	35	5	12	34	39,524	100	21
<b><u>Inmates from Hennepin County Schools</u></b>										
								(Total)		(Total)
Predominantly White	67	13	90	4	1	5	6	23,814	60	7
Non-white Segregated	188	36	16	38	21	25	67	3,110	8	75
Integrated	272	52	64	21	3	12	23	12,600	32	27
Total	527	100	47	33	4	16	38	39,524	100	21
<b><u>Black Inmates</u></b>										
								(Black)		(Total)
Predominantly White	59	10	90	3	2	4	8	751	14	7
Non-white Segregated	295	48	13	41	23	23	61	1,895	35	75
Integrated	260	42	47	16	7	30	33	2,803	51	27
Total	614	100	47	33	4	16	38	5,449	100	21
<b><u>Black Inmates from Hennepin County Schools</u></b>										
								(Black)		(Total)
Predominantly White	15	5	87	5	2	5	6	751	14	7
Segregated	122	41	15	40	21	24	69	1,895	35	75
Integrated	164	54	29	15	3	28	37	2,803	51	27
Total	301	100	47	33	4	16	38	5,449	100	21

Note: No schools were classified Hispanic - Other Segregated.

32 percent. Multi-ethnic integrated schools also continue to dominate the integrated category.

The third panel shows much greater effects when controlling for race. The table shows the results for black inmates alone, and the distribution of students in the comparison group is also limited to black students. The differences between inmates and the comparison change in important ways. Inmates are still more likely to have attended non-white segregated schools but the difference narrows to just 13 percentage points—48 percent compared to 35 percent. In addition, black inmates are *less* likely to have attended integrated schools than their student counterparts in late-1990's Hennepin County (rather than more likely as in the other comparisons).

Finally, the bottom panel shows the distributions controlling for both location and race by limiting the analysis to black inmates who attended school in Hennepin County. (The distribution for the comparison group is again limited to black students.) The school experience of the inmate population looks even more similar to the comparison group in this case. Inmates are only six points more likely to have attended segregated schools than their counterparts in Hennepin County in 1997—41 percent compared to 35 percent—and only slightly more likely to have attended integrated schools.

In sum, the preliminary findings regarding school types imply that the primary source of disadvantage for inmates is directly related to race. Much of the difference in the schooling experiences of the inmate sample compared to the Hennepin County comparison group is directly related to differences in experiences across racial groups. Black residents of Hennepin County are much more likely to attend segregated, high-poverty schools than white residents, during any time period since the early 1990's. This

means that, to the extent that past schooling experiences affected the likelihood that any individual would end up in this inmate sample—and the data in Chart 1 and Table 2 show clear differences in this experience—the primary explanation comes from differences across races, rather than within races. The differences between the inmate sample and the comparison groups are largely due to the fact that non-whites are over-represented in the inmate sample, rather than being caused by differences between the experiences of inmates and non-inmates of the same race.

### **Next Steps**

Comments welcome.

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