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Crime and the Production of Safe Schools

David S. Kirk

University of Texas at Austin

dkirk@prc.utexas.edu

Robert J. Sampson

Harvard University

rsampson@wjh.harvard.edu

SUMMARY

Violence in and around U.S. schools is a major barrier to the physical and emotional well being of students and ultimately to their prospects of educational attainment. A fundamental challenge to schools is therefore to produce a safe environment that fosters learning instead of fear and anxiety about crime. A common policy response is “zero tolerance” of delinquent students, including suspension, expulsion, and even incarceration. The assumption behind such measures is that allowing problem students to remain in school produces an environment in which little academic learning takes place. But the practice of excluding or arresting students who have engaged in criminal conduct may have the unintended consequence of reducing the educational attainment and life chances of these same students. A criminal label and dropping out of school may thus be linked; taken together these life-course snares portend an especially bleak future. It follows that schools must balance the conflicting goals of providing support for troubled youth and fostering a school climate in which academic learning can prosper.

To shed light on these issues, we investigate how criminal behavior among the student body of public schools hinders the ability of the school to provide a productive, safe learning environment, and whether a criminal record limits the future educational prospects of troubled youth. The study design combines individual-level data from the Project on Human Development in Chicago Neighborhoods (a three wave longitudinal cohort study of over 6,000 randomly sampled children, adolescents, and young adults), the Chicago Police Department, the Illinois State Police, and the Chicago Public Schools with neighborhood and school-level data from the U.S. Census, the Teacher and Student Surveys of the Chicago Public Schools, and a Community Survey of almost 9,000 residents of the city of Chicago. This unique assemblage of data brings together information on the organization and functioning of neighborhoods, families, and schools with data on individual-level characteristics and behaviors over time.

Our analyses reveal that schools with a high rate of arrested students tend to be located in areas of Chicago that produce high arrest rates in general, but the overall relationship is quite modest. This finding means that crime-ridden neighborhoods do not always contain schools overrun with students who have had prior contact with the criminal justice system. Within schools we find that crime can be a major obstruction to the learning process. Schools with large numbers of criminal youths tend to be poorly functioning learning environments, characterized by fear and a lack of commitment among teachers. The criminality among students may be as much a consequence of deficient learning environments as its cause, implying that the expulsion of problem students may do little to remedy the core educational deficiencies of a school or to stem educational inequality in urban America. In fact it may make things worse. Our analyses demonstrate that a criminal arrest record has negative consequences for educational attainment—most students with an arrest record subsequently drop out of high school (72%) compared to less than half of non arrestees, controlling for confounding factors common to both groups. We conclude with a discussion of alternatives to zero-tolerance policies and other tools of exclusion designed to enhance school safety and learning. We find promise in educational reforms designed to foster trust and a sense of community among teachers, principals, parents, and students.

Exposure to crime and violence is unfortunately common in the lives of many American students. More than 5 percent of public and private high school students skip school at least once a month because they feel unsafe at school or on their journeys to or from school. Over one-third of students are involved in at least one physical fight a year (Centers for Disease Control and Prevention 2008). Eighteen percent of students report carrying a weapon of some form (gun, knife, or club) at least one day out of 30; five percent report carrying a gun (Centers for Disease Control and Prevention 2008).

In Chicago, the site of our investigation, the figures are even more staggering. Forty percent of high school students in Chicago are involved in a fight at least once per year, and 12 percent of students skip school one or more times each month because of fear for their safety. Research of Chicago adolescents reveals that exposure to firearm violence in the community doubles the likelihood that an adolescent will subsequently perpetrate violence (Bingenheimer, Brennan, and Earls 2005). The implications of exposure to violence extend well beyond crime, moreover, including influences on outcomes as diverse as posttraumatic stress disorder, anxiety, and depression (Fitzpatrick and Boldizar 1993; Margolin and Gordis 2000). In turn, the mental health consequences of exposure to violence may impair cognitive development and hinder educational attainment (Grogger 1997; Margolin and Gordis 2000; Harding 2009).

There is growing evidence, in other words, that violence in and around primary and secondary schools is a major barrier to physical, emotional, and educational well being. And because crime and violence cluster in select urban neighborhoods, especially those marked by concentrated poverty (see, e.g., Shaw and McKay 1942; Morenoff, Sampson, and Raudenbush 2001), educational inequality is in part a byproduct of the uneven distribution of crime and

violence across geographic space. The challenge to already over-burdened schools is therefore to provide a safe environment that fosters learning instead of fear and anxiety.

One response to the problem of school crime and violence over the past two decades has been the increased use of punitive measures against delinquent students, including suspension, expulsion, and even incarceration. The practice of “zero tolerance” has become widespread across school districts in the United States, yet it remains unclear whether “get tough” policies and practices for problem students have resulted in safer learning environments (American Psychological Association 2008). Moreover, there may be unintended negative repercussions from the use of suspension and expulsion as a tool for promoting school safety, or from segregating problem students into specialized programs. Ultimately these practices may lead to educational failure, thereby ensuring that the problems of a troubled adolescent translate into reduced employment prospects and a higher likelihood of adult criminality. Much like the case for adult punishment (Western 2006), the collateral consequences of policies and practices designed to promote school safety need to be weighed against the potential benefits.

This paper takes seriously the complex social consequences of juvenile crime and arrest for education. On the one hand, allowing problem students to remain in school may create an environment in which little academic learning takes place. On the other hand, the practice of excluding students who have engaged in criminal conduct may reduce their educational attainments and life chances. Schools must balance the conflicting goals of providing support for troubled youth and creating school environments in which academic learning can prosper. To shed light on these issues, we draw upon an extensive array of data from the Project on Human Development in Chicago Neighborhoods and the Chicago Public Schools to study how criminal behavior among the student body of public schools hinders the ability of the school to

provide a productive, safe learning environment, and the extent to which a criminal record limits the educational prospects of troubled youth.

Our data reveal that a criminal arrest record has negative consequences for educational attainment, virtually ensuring that students with an arrest record subsequently drop out of high school. We also find that graduation rates are drastically lower in schools populated with large numbers of criminally-inclined students, and that schooling characteristics conducive to educational attainment, such as safe schools and committed teachers, tend to be absent from schools with high arrest rates. Yet our findings also suggest that criminality among students may be a consequence of deficient learning environments as well as a cause. Thus, the expulsion of problem students as a policy solution may do little to remedy the core educational deficiencies of a school or to stem educational inequality in urban America.

DISCIPLINE IN THE CHICAGO PUBLIC SCHOOLS

School systems have in place a number of policies and practices designed to provide a safe and effective learning environment for students, yet many such policies and practices may ultimately lead to the exclusion of problem students from the normal schooling process. In the Chicago Public School (CPS) system, student behavior is regulated by the Student Code of Conduct (CPS 2009d), which applies to the actions of all students while students are on school property or attending school-sponsored events. Students may also be disciplined for certain inappropriate behaviors occurring off-campus, namely Group 5 or Group 6 acts of misconduct, if the behavior disrupts the orderly educational process. Group 5 and Group 6 acts involve serious criminal behavior, including lethal violence. Students in violation of Group 5 or Group 6 acts of

misconduct under the CPS Student Code of Conduct may be expelled from school and assigned to Alternative Safe Schools (CPS 2009d).¹

The goal of CPS Safe Schools is to provide students the opportunity to earn credits toward a high school diploma while expelled. In addition to support services and small class sizes, CPS Safe Schools provide a special curriculum focused on core academic subjects and social skills. While CPS reports that 77 percent of Safe Schools students ultimately complete the specialized program and return to their regular school (Chicago Public Schools 2009a), to the extent that expulsion or assignment to alternative programs either stigmatizes students or decreases their social bonds to school, school dropout may be the end result of this process (see, e.g., Hirschi 1969). The research evidence buttresses this point. For instance, while some students may benefit from the dedicated attention and specialized support found in alternative programs, the most common transition from participation in alternative programs is not to high school graduation, but rather to school dropout (Kelly 1993). Additionally, Skiba and Peterson (1999) report that zero tolerance policies and corresponding sanctions like school suspension and expulsion are consistent predictors of school dropout. Ethnographic research (Bowditch 1993) shows that school officials actively use practices of exclusion and suspension as a means of pushing troublemakers and those students deemed unlikely to succeed out of school. Thus,

¹ All students in violation of the CPS Code of Student Conduct are afforded due process in disciplinary cases. Inappropriate behaviors are categorized into six groups by increasing severity. Students engaging in Group 5 acts of misconduct are subject to up to 10 days of suspension as well as expulsion. Group 6 acts are subject to 10 days of suspension and expulsion for a minimum of one year. At expulsion hearings, both the CPS Chief Executive Officer and the suspected student are provided the opportunity to present evidence. At the conclusion of the hearing, the hearing officer issues an opinion to the Chief Executive Officer with a disciplinary recommendation. Placement in Alternative Safe Schools may be recommended for the period of expulsion. The Chief Executive Officer then makes the final approval of the course of disciplinary action (Chicago Public School 2009d).

schools have in place institutional mechanisms designed to produce a safe learning environment, yet the collateral consequences often include the exclusion of problem or arrested students.

In the empirical analyses to follow, we contrast the enormous challenge urban schools face in fostering a safe, learning environment versus the challenge of providing an education and pro-social development to those students most at risk of crime and educational failure.

DATA AND STRATEGY

This study utilizes a research design which combines individual-level data from the Project on Human Development in Chicago Neighborhoods Longitudinal Cohort Study (PHDCN-LCS), the Chicago Police Department, the Illinois State Police, and the Chicago Public Schools with neighborhood and school-level data from the U.S. Census, the Teacher and Student Surveys of the Chicago Public Schools, and the PHDCN Community Survey. This unique assemblage of data brings together information on the organization and functioning of neighborhoods, families, and schools with data on individual-level characteristics and behaviors.

As part of the LCS, seven cohorts of child or adolescent subjects and their primary caregivers were interviewed up to three times between 1995 and 2002. The focus of our analysis is on the 12-year-old and 15-year-old cohorts; these youths were approximately 18 and 21 years-old by the end of the data collection in 2002. The LCS data contains a wealth of information on youth and family characteristics, including data on IQ, primary and secondary school enrollment, college enrollment, school and residential mobility, grade retention, family structure and supervisory processes, peer characteristics, and criminal offending (see Tables 1 and 2 for a list of youth, family, and peer characteristics drawn from the PHDCN-LCS data). Importantly, these cohort data also contain indicators of youths' neighborhood of residence and school of

attendance, allowing us to combine the cohort data with other data repositories containing information about the characteristics and functioning of Chicago neighborhoods and schools.

Neighborhood data were gathered from the 1990 U.S. Census and the 1995 PHDCN Community Survey of Chicago residents. School demographic data come from the Chicago Public Schools' Office of Research, Evaluation and Accountability. Additionally, we utilize school data from the 1997 Teacher and Student Surveys of the Chicago Public Schools, conducted by the Consortium on Chicago School Research (CCSR). These surveys include information on the social organization of schools, human resources in the school, instructional quality, relations among school actors, and student behavior (CCSR 1997).

With the use of key identifiers, such as social security number, name, and birth date, we have linked CPS student enrollment and attendance records from 1990 to 2005 with the PHDCN-LCS data. Our individual-level measure of school dropout is drawn from these CPS student records. These data indicate precisely when the dropout was registered by the Chicago Public School system, allowing us to determine temporal ordering with criminal arrest events. From the CPS student records, we have determined under what circumstances a student exited the CPS system: if students completed high school, if they transferred to a non-CPS school, if they were "lost" by the CPS system (i.e., former students who could not be located by CPS), or whether they dropped out of CPS (without transferring to a different school district). To develop our dropout measure, we include students designated as dropouts by CPS as well as those students who obtained a GED and students who could not be located by CPS.² Note that, by law,

² Orfield and colleagues (2004) highlight a number of individual-level issues with the computation and reporting of dropout statistics, which lead to widely varying estimates of dropout even from the same data sources. One issue is whether to consider "lost" students as dropouts or as students who relocated to another school district. For the purposes of this study,

students cannot drop out of the Chicago Public School system prior to age 16, and cannot be dropped from school by CPS (e.g., for excessive truancy) before this age.³

Finally, we linked official arrest records from 1995 through 2001 from the Illinois State Police and the Chicago Police Department with the PHDCN-LCS data, and utilize these arrest records to investigate whether a criminal record hinders an individual's educational attainment. The arrest data contain information on all arrests of sample youth occurring throughout the State of Illinois during the specified time period. Arrest is a binary variable indicating whether the student had been arrested at any point after enrolling in grade 9 and prior to graduating or dropping out.⁴ Thirteen percent of the sample was arrested during high school prior to graduating or dropping out. Our analytic sample consists of 659 respondents from the 12-year-old and 15-year-old LCS cohorts who were enrolled in the Chicago Public Schools during ninth grade, and who then either completed their schooling in CPS or dropped out of CPS. We exclude from our analytic sample students who transferred to a non-CPS school.

Analytic Strategy

Our analyses are designed to address four goals. First, we ground our study in a descriptive summary of the extent of arrest in and around Chicago Public Schools. Good

we adhere to practices established by the Chicago Public Schools and the Consortium on Chicago School Research, and treat "lost" students as dropouts.

³ This policy changed effective January 1, 2005. Now students must be 17 years of age to drop out of the Chicago Public Schools. However, all analyses are based on observation years prior to the policy change, when age 16 was the cutoff for dropout eligibility.

⁴ With information on the date of arrest, we are specifically able to determine if the arrest occurred prior to dropout. Several longitudinal self-report studies of the effect of criminal justice sanctions on dropout have been unable to fully establish temporal ordering because arrest and dropout responses were given during the same survey wave with no indication of precedence (Bernburg and Krohn 2003; Sweeten 2006; Hjalmarsson 2008). One advantage of using school and police records in this study is thus the ability to establish the precise timing of life events.

descriptive data are surprisingly rare in this area. We begin by comparing the prevalence of arrest in Chicago neighborhoods with the prevalence of arrest among CPS high school students. Second, we examine the challenges of cultivating a learning environment in schools characterized by high levels of criminality. We describe school characteristics and conditions in three types of high schools: those with minimal arrest prevalence, with moderate arrest, and with substantial proportions of students arrested. This school-level analysis, which is based on data from the Teacher and Student Surveys of the Chicago Public Schools, addresses whether criminal behavior among the student body hinders the ability of a school to provide a productive, safe learning environment. Third, we provide an individual-level description of the characteristics of arrested and non-arrested youths. If arrest is implicated in dropping out of high school at a later point, as we hypothesize, it is imperative to examine the individual, familial, peer, neighborhood, and school conditions that put adolescents on the path to crime and educational failure before attempting to ascertain causal relationships.

Having examined the multiple sources of juvenile arrest, our fourth goal turns to analytic questions more causal in nature. We utilize statistical modeling techniques most suitable to the observational data we have in order to estimate the effect of arrest on dropout for individuals *otherwise equivalent* in terms of their *frequency of criminal offending* (disaggregated by violent, property, and drug offenses) as well as individual, family, peer, neighborhood, and school characteristics. With this analytic design, we compare the likelihood of dropping out for each arrested subject with the three most similar non-arrested subjects (i.e., we statistically match each arrested individual with up to three non-arrested, and assess whether those arrested are any more likely to later drop out of school). If there are differences, we may cautiously conclude that arrest significantly impairs an adolescent's prospects of completing high school.

SCHOOL AND NEIGHBORHOOD PATTERNS

To understand the repercussions of crime and arrest for the educational trajectories of Chicago students, we begin our analysis by charting the geographic distribution of arrest in Chicago in Figure 1. The shaded census tracts in the map display the 1999 arrest rate per 1,000 tract residents as reported by the Chicago Police Department. The graduated circles denote high school locations, with the size of the circle reflective of the proportion of students in the school who self-reported being arrested sometime during the school year (from the beginning of the school year in the fall of 1997 through the point of survey administration the following February).⁵ Student arrests include those incidents which occurred at school and anywhere else.

The dark tract shading reveals that arrests tend to concentrate in the central west section of Chicago and on the south side. Schools with high proportions of arrested students also tend to be located in these same geographic areas of Chicago, yet not all schools on the central west and south side of Chicago have high proportions of arrestees enrolled. Community areas on the west side such as Austin, North Lawndale, Humboldt Park, and West and East Garfield Park have several public schools with low proportions of arrestees.⁶ Similarly, communities in the “Bronzeville” area on the south side with high arrest rates, such as Grand Boulevard and Washington Park, have some schools with proportionally few arrestees. Overall, the correlation between the proportion of students arrested in a school and the arrest rate in the tract surrounding the school is only 0.15. The modest association between these two measures suggests that

⁵ Geographic addresses of arrests from the Chicago Police Department are only available from 1999 onward; however self-report survey measures of arrest are not available for the 1999 Student Surveys of the Chicago Public Schools. We therefore must use different years of data in these analyses (1997 for student arrest prevalence and 1999 for the neighborhood arrest rate).

⁶ Community areas are aggregations of census tracts, averaging about 38,000 residents.

crime-ridden neighborhoods do not always contain schools overrun with students who have had prior contact with the criminal justice system.⁷ This is not surprising in that school catchment boundaries do not necessarily overlap with residential boundaries. With respect to our interest in the effect of arrest on school dropout, Figure 1 suggests that the repercussion of arrest for educational attainment is an issue that spans numerous neighborhoods across the city.

[Figure 1 about here]

School Characteristics by Arrest Prevalence

To explore the repercussions of student arrest for educational attainment we display in Figure 2 the association between arrest prevalence in a school (i.e., the proportion of students arrested during the school year) and high school graduation rates. The points on the scatterplot represent high schools.⁸ The linear fit in the figure reveals that there is a strong negative correlation (-0.51 , $p < 0.001$) between graduation rates and arrest. In schools with the highest arrest rates, only half of entering freshmen will graduate four years later. Prior research yields similar conclusions. For instance, Grogger (1997) finds a significant, negative association between school violence and high school graduation; serious levels of school violence lower the likelihood of graduation by nearly 6 percentage points.

[Figure 2 about here]

What are the reasons underlying the negative relationship between arrest and graduation? In Figures 3 and 4 we describe the variation in school and schooling characteristics between schools with low, moderate, and high proportions of criminalized students (i.e., the three sized

⁷ Similarly, we find modest correlations between school arrest prevalence and the neighborhood violent crime rate.

⁸ CPS computes a 4-year graduation rate as the total number of students graduating in a school in June of the academic year divided by the number of students who entered the school in the fall four years earlier.

graduated circles from Figure 1). In general, the findings reveal substantial differences across school types in demographic, structural, and social organizational characteristics. Figure 3 shows that schools with high percentages of arrested students have greater percentages of students who qualify for free or reduced price lunch (i.e., low income) and more African-American students relative to low and moderate arrest schools. Low arrests schools tend to have more Latino and white students, and more students with limited English proficiency.

[Figure 3 about here]

Figure 4 compares school structural and social organizational characteristics across low, moderate, and high arrest schools. In this figure, values on all school characteristics have been converted to z-scores to facilitate the presentation of results.⁹ Results reveal considerable differences across schools in student enrollment and the number of teachers, but not average teacher tenure. High arrest schools tend to be characterized by substantially more disciplinary problems than low and moderate arrest schools, and students perceive high arrest schools to be less safe. There are few differences across schools in student engagement, yet significant differences in teacher commitment. Parental involvement and school collective efficacy, defined like neighborhood collective efficacy (Sampson, Raudenbush, and Earls 1997) as the activation of social ties among teachers in order to control student behavior (Kirk 2009), are lower in high arrest schools than low arrest schools, although the differences across schools are not statistically significant.

[Figure 4 about here]

⁹ To compute a z-score for a given value, the mean value across the sample for a given variable is subtracted from the value for a specific observation, and this difference is then divided by the sample standard deviation. Converting to z-scores allows us to present results using a standard metric.

Findings presented in Figures 3 and 4 reveal that not only do the demographic characteristics of schools vary by arrest levels, but so do the social organization of schools and the schooling process more generally. Schooling characteristics conducive to educational attainment, such as safe schools and committed teachers, are notably absent from schools with high arrest rates. Yet, we need to take care not to conclude causation from correlation. Just because schools with high proportions of arrested students have characteristics of poor academic environments, it is not necessarily the case that an abundance of criminal youth—or a high incidence of neighborhood crime—produced such school conditions. The relationship between school or neighborhood crime and school climate may be explained by some other factor.

To explore the association between crime and school characteristics in greater detail, in Figure 5 we present correlations between the prevalence of arrest among students and school safety as well as correlations between the neighborhood violent crime rate and school safety. School safety is a measure from the Student Surveys of the Chicago Public Schools describing students' sense of safety within and immediately surrounding their school (see CCSR 1997). The solid black columns in the figure represent the zero-order correlations between safety and either school arrest or neighborhood violence respectively. The gray columns represent the partial associations between safety and school arrest or neighborhood violence, after controlling for relevant characteristics of schools which are predictive of safety. These characteristics include school racial and ethnic composition, the socioeconomic status of students, school enrollment, teacher commitment, student-teacher trust, school collective efficacy, and neighborhood collective efficacy. The far left column in Figure 5 reveals a strong, significant zero-order correlation between school arrest prevalence and school safety ($r = -0.44$). After partialling out the influence of several other correlates of school safety we still find a significant

correlation between school arrest and safety, although the magnitude has declined slightly to -0.35. While we cannot rule out the possibility that school arrest and safety are spuriously related, these results do suggest that the prevalence of arrest has an influence on student perceptions of school safety. With neighborhood violence, however, we find that the correlation with school safety diminishes substantially and even reverses direction (from -0.36 to 0.13) once controlling for relevant correlates of safety. This result indicates that neighborhood violence is either indirectly related to school safety or that these two measures are each explained by a common third factor, such as neighborhood collective efficacy.

[Figure 5 about here]

To further disentangle whether crime and arrest impair school functioning, we consider whether the direction of the relationship may be reversed (or reciprocal). Criminal behavior among the student body may be a *consequence* of a dearth of committed teachers (instead of a factor which *causes* teachers to become uncommitted to their school). The direction of the relationship between the prevalence of arrest and characteristics of school organization and climate has substantial bearing on the policy levers that should be employed to promote educational attainment. If criminally disposed students disrupt learning environments, then expelling or banishing them to specialized programs should allow schools to be more effective, at least with educating the non-criminal students. If, however, ineffective schools prompt criminal behavior in the first place, then “get tough” schools policies may have limited utility. Instead of only punishing individuals, education reform would need to be focused more on improving school quality.

As an attempt to sort out this crucial question of directionality we present in Figure 6 a series of correlations between teacher commitment and the prevalence of school arrest. Teacher

commitment is a measure describing the extent to which teachers look forward to work each day, and their loyalty to the school. The left column in Figure 6 reveals a strong, significant correlation between school arrest prevalence and teacher commitment ($r = -0.33$), an association that becomes slightly stronger ($r = -0.35$) when controlling for correlates of teacher commitment (i.e., school racial and ethnic composition, the socioeconomic status of students, school enrollment, and teacher influence). With the lighter gray column on right, we account for prior levels of teacher commitment (as measured in 1994). Our findings indicate that controlling for the lagged measure of commitment renders the association between teacher commitment and school arrest non-significant, with a partial correlation of -0.08 . Thus, a lack of teacher commitment is not necessarily the product of large numbers of criminally-inclined students in the school; instead, criminality among the student body may be rooted in the fact that students attend schools with uncommitted teachers. Perhaps more reasonably, our findings may be interpreted as evidence of a reciprocal relationship between teacher commitment and arrest. Low levels of teacher commitment lead to higher rates of arrest, which then feeds back to further undermine teacher commitment.

[Figure 6 about here]

The results to this point have underscored the unfortunate dilemma that urban schools face on a daily basis. Schools with large numbers of criminal youths tend to be poorly functioning learning environments and yet it is imperative that schools do what is necessary to provide a safe learning environment for students. Our results suggest that policies designed to expel or segregate problem youth (e.g., zero tolerance) may enhance perceptions of school safety, but they will not necessarily remedy the core deficiencies of a poor learning environment such as a lack of committed teachers. Arrest is a natural extension of zero tolerance and may

produce further unintended negative consequences. We therefore turn to a direct investigation of the question: Does a criminal record limit the educational attainment of arrested students?

INDIVIDUAL-LEVEL ARREST RESULTS

Schools have in place institutional mechanisms that are used to foster a safe learning environment, yet the collateral consequences of such practices may ultimately be educational failure among those students in trouble with the law. Of course, criminal arrest is the result of a cumulative process characterized by family disruption, exposure to deleterious neighborhood conditions, associations with delinquent peers, and school disengagement (Kirk 2008). It follows that before examining the link between arrest and educational attainment, it is necessary to compare the characteristics of youths with an arrest record relative to those youths who had not been arrested.

Table 1 presents a comparison of individual and demographic characteristics between arrested and non-arrested PHDCN sample members. This table reveals that arrestees are more likely to be male and African-American than non-arrestees, and less likely to be Mexican or white. It is important to note that youths of different racial and ethnic groups often reside in substantially different neighborhood and family contexts, such that the difference in contexts explain differences in criminal outcomes across groups (Kirk 2008). Black youth, in particular, face multiple layers of disadvantage, such that even the worst neighborhood contexts in which whites reside in terms of disadvantage and family disruption are still better than the average black neighborhood (Sampson 1987:353-54).

In terms of cognitive and schooling characteristics, little difference exists between arrestees and non-arrestees in IQ and in student mobility. However, arrested youths have

significantly lower ITBS math scores and are more likely to have failed a grade and to have been enrolled in remedial or special education. Arrested youths also tend to have less self-control and persistence, and are more commonly sensation seeking. With respect to problem behavior, those arrested tend to be less anxious and depressed. Arrestees are also more likely to use marijuana, although the difference is only marginally significant. Not surprisingly, arrested adolescents are significantly more likely to engage in violent offending, property crime, and drug distribution than those non-arrested. That said, while criminal offending is a crucial determinant of arrest, prior research reveals that family, peer, neighborhood, and school factors predict both arrest and criminal offending (see, e.g., Kirk 2008; 2009).

[Table 1 about here]

Table 2 displays summary statistics for family and peer covariates by group. It can be seen that there are significant differences across groups in immigrant generational status as well as differences in the proportion of students with married parents. Surprisingly, there is little difference between groups in family socioeconomic status, supervision, and support. Parents of arrestees tend to be more controlling and arrested adolescents are more likely to have mothers with substance abuse problems and are more likely to have experienced parent-child conflict. In terms of peer influence and characteristics, we find that peers of arrestees actually show significantly greater attachment to school than the peers of non-arrestees. We also see that arrestees are significantly and substantially more likely to associate with deviant peers, a finding consistent with a long line of criminological research and one that validates the data.

[Table 2 about here]

Table 3 illustrates differences across groups in terms of neighborhood of residence and school attended. There are significant differences across groups in the race-ethnic composition

of respective neighborhoods and schools, and arrested subjects tend to reside in neighborhoods characterized by substantially more poverty, disorder, and violent crime than do the non-arrested and substantially less immigration. As expected, collective efficacy is weaker in neighborhoods where arrested youths tend to reside. Arguably, then, there is a crucial ecological dimension to criminal behavior and arrest. Additionally, to the extent that arrest hinders educational attainment, our results suggest that being arrested is one key pathway through which family processes and neighborhood and school conditions impact adolescents' life chances.

[Table 3 about here]

Estimating the Effect of Juvenile Arrest on School Dropout

There are considerable differences in graduation rates by arrest status—26 percent for arrestees versus 64 percent for non-arrestees—yet these are not the only points of divergence. Arrested and non-arrested students, on average, differ on numerous individual, family, peer, neighborhood, and school characteristics.¹⁰ Prior research using the PHDCN respondents reveals that in addition to criminal offending, the likelihood of arrest is strongly related to parental marital status, family structure, socioeconomic status, neighborhood racial-ethnic composition, and concentrated poverty (Kirk 2008). Research reveals that these family and neighborhood factors are also strong predictors of numerous other types of problem behavior, including school dropout (see, e.g., Cairns, Cairns, and Neckerman 1989; Ekstrom et al. 1986; Rumberger 1983). Therefore, it is important to determine if any apparent relationship between school dropout and arrest is due to the fact that each outcome has a similar set of antecedents.

¹⁰ The difference between groups is known as imbalance. Imbalance is a problem if there are differences across groups in confounding factors—characteristics of youths that are related both to the likelihood of arrest and school dropout. If groups are imbalanced, then a comparison of the prevalence of school dropout between arrestees and non-arrestees will not produce a valid estimate of the effect of arrest on educational attainment. To resolve any issues of imbalance, we adjust for differences between groups through propensity matching, described below.

We attempt to isolate the effect of arrest on high-school dropout by comparing arrested and non-arrested sample members who are otherwise similar to each other on *all* of the characteristics displayed in Tables 1, 2, and 3. We accomplish this through propensity score matching (Rosenbaum 2002: Chapter 10), where the intent is to approximate an experimental design where “treated” youth (i.e., those arrested) are equivalent to a control group (i.e., the non-arrested). The propensity score is defined as the probability that a given youth receives the treatment (i.e., was arrested) given all that we observe about him and his family, peers, neighborhood, and school.¹¹ We specifically use all of the covariates displayed in Tables 1, 2, and 3 to predict the propensity of arrest, including the frequency of self-reported criminal offending as measured in the first wave of the PHDCN-LCS survey. Therefore, treated and control group youths are statistically equivalent not only in personal, school, and neighborhood factors but the frequency with which they engage in the following crimes: Violent Offending (carried a hidden weapon, assault, assault with a weapon, use of force, gang fighting); Property Offending (purposely damaged or destroyed property, entered or broke into a building to steal something, theft from a store, theft from a household member, theft from a car, knowingly bought or sold stolen goods); Drug Distribution (sold marijuana, cocaine, crack, and heroin); and Drug Use (marijuana use in last 30 days).

It is important to note that numerous factors outside the control or background of an individual influence whether a given criminal act will culminate in an arrest. Two key determinants include whether the crime is made known to the police and police discretion. Yet

¹¹ We estimate the propensity of arrest for each student using a logit model with arrest at any point during high school as the binary outcome variable. Following estimation of the propensity score, we match each treated subject (i.e., arrested) with up to three control subjects (i.e., non-arrested) with very similar propensity scores (within a threshold of 0.03), with the objective of producing treatment and control groups that are indistinguishable except for the receipt of treatment once conditioning on propensity scores.

most crimes are not reported to the police, and the police arrest proportionally few known suspects of a crime. For instance, Black and Reiss (1970) find that only 15 percent of police contacts with juveniles resulted in an official arrest, thus providing evidence of considerable discretion on the part of police. While arrest in theory requires that a crime was committed, most criminal incidents do not end in arrest. Thus, unlike many other behaviors under the control of an individual (selection), the arrest decision, which we conceptualize analytically as the “treatment,” is made by the police based on a host of external and often idiosyncratic reasons in addition to the criminal behavior and other characteristics of the individual that we measure.

It is in this sense that juvenile arrest has a random component, making it likely that two otherwise equivalent individuals in the PHDCN sample, in terms of criminal offending and other pre-treatment covariates, end up with different officially defined fates because one of them was unfortunate enough to get arrested following the commission of a crime while the other avoided arrest. Indeed, much attention in the criminological and juvenile justice literature has focused on the seemingly random and thus “inequitable” nature of juvenile arrest outcomes. Efforts to standardize arrest encounters and limit police discretion have, with few exceptions (e.g., domestic violence), met with little success. As a result there are strong substantive and empirical reasons to expect that there is overlap in the likelihood of arrest between the treatment (arrested) and control (not arrested) groups, which we exploit empirically through matching in order to estimate the effect of juvenile arrest on school dropout.

After matching arrestees and non-arrestees on propensity score, we find that not a single statistically significant difference remains between these groups on any of the 80 covariates from Tables 1 – 3 that were used to estimate the propensity score. Having achieved balance between groups through the use of propensity score matching, we are able to proceed with our

comparison of dropout across groups. As depicted in Figure 7, our propensity-based results reveal that the probability of dropping out of school is 0.26 greater for arrested adolescents relative to very similar adolescents who were not arrested. This difference is large and statistically significant. On average, arrested youth have a 0.72 probability of subsequently dropping out of public school. In contrast, youth who avoid the snare of arrest have a probability of dropping out equal to 0.46.¹² The data thus reveal that the likelihood of completing high school is tragically low overall for students in the Chicago Public School system. Yet for those youths who commit crimes and get caught, the repercussions of criminal justice sanctioning drastically limit the already dismal chances for high school graduation.

[Figure 7 about here]

As described in the theoretical framework section, there are several potential mechanisms which explain why exactly arrest leads to school dropout. For instance, the stigma of arrest may weaken a student's bond to school, and schools may react to arrest by initiating a variety of exclusionary practices designed to expel students or to separate problem students from the general population. Here we explore one particular mechanism: arrest may lead to dropout because time spent moving through the juvenile justice system increases school absences, and thereby makes successful completion of high school more difficult and challenging.¹³

¹² Of the 85 youths in the sample who had been arrested, we were able to match 80 to at least one and up to three otherwise similar non-arrested youths. Our matching procedure allowed for matches to be made with replacement—i.e., each control observation could be used as a match for more than one treated observation. In total, 109 control observations were used in the matching procedure. There were 5 arrestees in the sample whose propensity to be arrested for a crime was not similar to any of the non-arrested youths, and therefore could not be statistically matched to any of the non-arrested youths. These 5 youths all had a predicted probability of being arrested of at least 0.70, and some were considerably greater. The 0.26 difference in school dropout reported in the text refers to the comparison between matched youth, and excludes the 5 unmatched arrestees from the analysis.

Figure 8 compares the average frequency of absences at the start of ninth grade and during the last semester of enrollment, across arrestees and non-arrestees. We find that absences increased substantially from the first semester of ninth grade through the last semester of enrollment for both groups. Non-arrested youths averaged 9 absences during the first semester of ninth grade, which nearly doubled (17 absences) by their final semester. Those arrested averaged 14 absences at the start of ninth grade, which increased to 25 by their last semester. Roughly 80 percent of students in both groups had more absences in their last semester of school than in their first. Given that the percentage increase in absences over time is similar for arrested and non-arrested students, we tentatively conclude that juvenile arrest does not adversely impact the frequency with which high school students attend class.¹⁴ Attendance at school plummets over time regardless of whether a student is arrested. Sorting out the other potential mechanisms underlying the observed effect of arrest—besides changes in attendance—is an important area of future research that we are exploring, but it is beyond the scope of this paper.

[Figure 8 about here]

CONCLUSION

Our findings reveal that crime is a major snare for both schools and their students. The key dilemma is that the quality and organization of schooling is strongly related to the criminality of students, while one of the major policies to deal with criminality—arrest—appears to have a substantively large and unintended negative impact on educational attainment. Consider, for example, that graduation rates are low in schools populated with large numbers of criminally-

¹³ We thank Larry Katz for making this suggestion.

¹⁴ The changes in the average number of absences from 9th grade to the last semester of enrollment between arrestees and non-arrested students are not statistically different.

inclined students (Figure 2), and that schooling characteristics conducive to educational attainment, such as safe schools, tend to be absent from schools with high arrest rates (Figure 4). What is unresolved is the most advantageous solution to the issue of school safety. The findings of our analysis suggest that misbehavior among students may be as much or more a consequence of school organizational characteristics (e.g., lack of teacher commitment) as a cause (Figure 6). It follows then that the expulsion of problem students may do little to reverse the core educational deficiencies of a school. Moreover, among otherwise similar adolescents, 72% of those arrested later dropped out of high school compared to 46% of those not arrested, a substantial difference of 26% (Figure 7).

Although there is no easy solution, we end here with some observations and recommendations for fostering school safety and ultimately educational attainment. As our findings demonstrate, a variety of social contexts influence educational attainment and youth development. Schools are just one important context, with families and neighborhood also of vital importance. Certainly the interdependency of school, family, and neighborhood influences bears upon the shape of human lives. For instance, Kirk (2009) finds that certain school characteristics accentuate the effect of neighborhood conditions on student misbehavior. In particular, he finds that a lack of neighborhood collective efficacy and a lack of school-based social controls combine to exert a substantial increase in the likelihood of student arrest.

Our concluding point then is that it is not sufficient to merely target schools to resolve the issue of school safety. A multi-context approach to fostering learning and pro-social behavior is required. In contrast to strategies targeting the symptoms of educational failure and student misbehavior, we find promise in strategies designed to address the root causes. Fostering trust and a sense of community among teachers, principals, parents, and students should enhance

the capacity of a school to provide a safe, productive learning environment (Coleman 1987; Bryk, Lee, and Holland 1993; Bryk and Schneider 2002; Kirk 2009). The solution to educational inequality, and the crime problem, is thus not to be found primarily in the criminal justice system but is embedded in social contexts.

REFERENCES

- American Psychological Association (Zero Tolerance Task Force). 2008. "Are Zero Tolerance Policies Effective in the Schools? An Evidentiary Review and Recommendations." *American Psychologist* 63:852-62.
- Bernburg, Jon Gunnar, and Marvin D. Krohn. 2003. "Labeling, Life Chances, and Adult Crime: The Direct and Indirect Effects of Official Intervention in Adolescence on Crime in Early Adulthood." *Criminology* 41:1287-1318.
- Bingenheimer, Jeffrey B., Robert T. Brennan, and Felton J. Earls. 2005. "Firearm Violence and Serious Violent Behavior." *Science* 308:1323-26.
- Black, Donald J., and Albert J. Reiss, Jr. 1970. "Police Control of Juveniles." *American Sociological Review* 35:63-77.
- Bowditch, Christine. 1993. "Getting Rid of Troublemakers: High School Disciplinary Procedures and the Production of Dropouts." *Social Problems* 40:493-509.
- Bryk, Anthony S., Valerie E. Lee, and Peter B. Holland. 1993. *Catholic Schools and the Common Good*. Cambridge, MA: Harvard University Press.
- Bryk, Anthony S., and Barbara Schneider. 2002. *Trust in Schools: A Core Resource for Improvement*. New York: Russell Sage Foundation.
- Cairns, Robert B., Beverley D. Cairns, and Holly J. Neckerman. 1989. "Early School Dropout: Configurations and Determinants." *Child Development* 60:1437-52.
- Centers for Disease Control and Prevention. 2008. "Youth Risk Behavior Surveillance – United States, 2007." Surveillance Summaries, June 6. *Morbidity and Mortality Weekly Report* 57(No. SS-4). Retrieved November 18, 2009
http://www.cdc.gov/HealthyYouth/yrbs/pdf/yrbss07_mmwr.pdf.
- Chicago Public Schools. 2009a. *Alternative Safe Schools*. Chicago, IL: Chicago Public Schools. November 18, 2009
(http://www.cps.edu/Programs/Pathways_to_success/Alternative_education_and_transiti on/Pages/AlternativeSafeSchools.aspx).
- 2009b. Comparison of College Enrollment Outcomes. Chicago, IL: Chicago Public Schools. Retrieved August 31, 2009
(https://postsecondary.cps.k12.il.us/ohsp/cps_reports/Enrollment%20overtime%202004-2006%20District.pdf).
- 2009c. *School and Citywide Reports: Cohort Dropout and Graduation Rates*. Chicago, IL: Chicago Public Schools. Retrieved August 3, 2009

- (http://research.cps.k12.il.us/export/sites/default/accountweb/Reports/Citywide/website_choort_citywide_1999through2008.xls).
- , 2009d. *Student Code of Conduct for the Chicago Public School Students for the 2009-2010 School Year*. Chicago, IL: Chicago Public Schools Policy Manual. Retrieved November 18, 2009 (<http://policy.cps.k12.il.us/>).
- Coleman, James S. 1987. "Families and Schools." *Educational Researcher* 16:32-8.
- Consortium on Chicago School Research (CCSR). 1997. *User's Manual, Version 1: Improving Chicago's Schools, A Survey of Students and Teachers in the Chicago Public Schools*. Chicago, IL: Consortium on Chicago School Research.
- Ekstrom, Ruth E., Margaret E. Goertz, Judith M. Pollack, and Donald A. Rock. 1986. "Who Drops Out of School and Why: Findings from a National Study." *Teachers College Record* 87:356-73.
- Fitzpatrick, Kevin M., and Janet P. Boldizar. 1993. "The Prevalence and Consequences of Exposure to Violence Among African-American Youth." *Journal of the American Academy of Adolescent Psychiatry* 32:424-30.
- Grogger, Jeffrey. 1997. "Local Violence and Educational Attainment." *Journal of Human Resources* 32:659-82.
- Harding, David J. 2009. "Collateral Consequences of Violence in Disadvantaged Neighborhoods." *Social Forces* 88:757-82.
- Hirschi, Travis. 1969. *Causes of Delinquency*. Berkeley, CA: University of California Press.
- Hjalmarsson, Randi. 2008. "Criminal Justice Involvement and High School Completion." *Journal of Urban Economics* 63:613-30.
- Kelly, Deirdre R. 1993. *Last Chance High: How Girls and Boys Drop In and Out of Alternative Schools*. New Haven, CT: Yale University Press.
- Kirk, David S. 2008. "The Neighborhood Context of Racial and Ethnic Disparities in Arrest." *Demography* 45:55-77.
- , 2009. "Unraveling the Contextual Effects on Student Suspension and Juvenile Arrest: An Examination of School, Neighborhood, and Family Controls." *Criminology* 47:479-520.
- Margolin, Gayla, and Elana B. Gordis. 2000. "The Effects of Family and Community Violence on Children." *Annual Review of Psychology* 51:445-79.

- Morenoff, Jeffrey D., Robert J. Sampson, and Stephen W. Raudenbush. 2001. "Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Homicide." *Criminology* 39: 517-60.
- Orfield, Gary, Daniel Losen, Johanna Wald, and Christopher B. Swanson. 2004. *Losing Our Future: How Minority Youth are Being Left Behind by the Graduation Rate Crisis*. Cambridge, MA: The Civil Rights Project at Harvard University.
- Rosenbaum, Paul R. 2002. *Observational Studies*. New York: Springer.
- Rumberger, Russell W. 1983. "Dropping Out of High School: The Influence of Race, Sex, and Family Background." *American Educational Research Journal* 32:583-625.
- Sampson, Robert J. 1987. "Urban Black Violence: The Effect of Male Joblessness and Family Disruption." *American Journal of Sociology* 93:348-82.
- Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy." *Science* 277:918-24.
- Shaw, Clifford R., and Henry D. McKay. 1942. *Juvenile Delinquency and Urban Areas*. Chicago, IL: University of Chicago Press.
- Skiba, Russ, and Reece Peterson. 1999. "The Dark Side of Zero Tolerance: Can Punishment Lead to Safe Schools?" *Phi Delta Kappan* 80:372-82.
- Sweeten, Gary. 2006. "Who Will Graduate? Disruption of High School Education by Arrest and Court Involvement." *Justice Quarterly* 23:462-80.
- Western, Bruce. 2006. *Punishment and Inequality in America*. New York: Russell Sage Foundation.

Figure 1.

The Distribution of Arrests across Chicago Neighborhoods and CPS Schools.

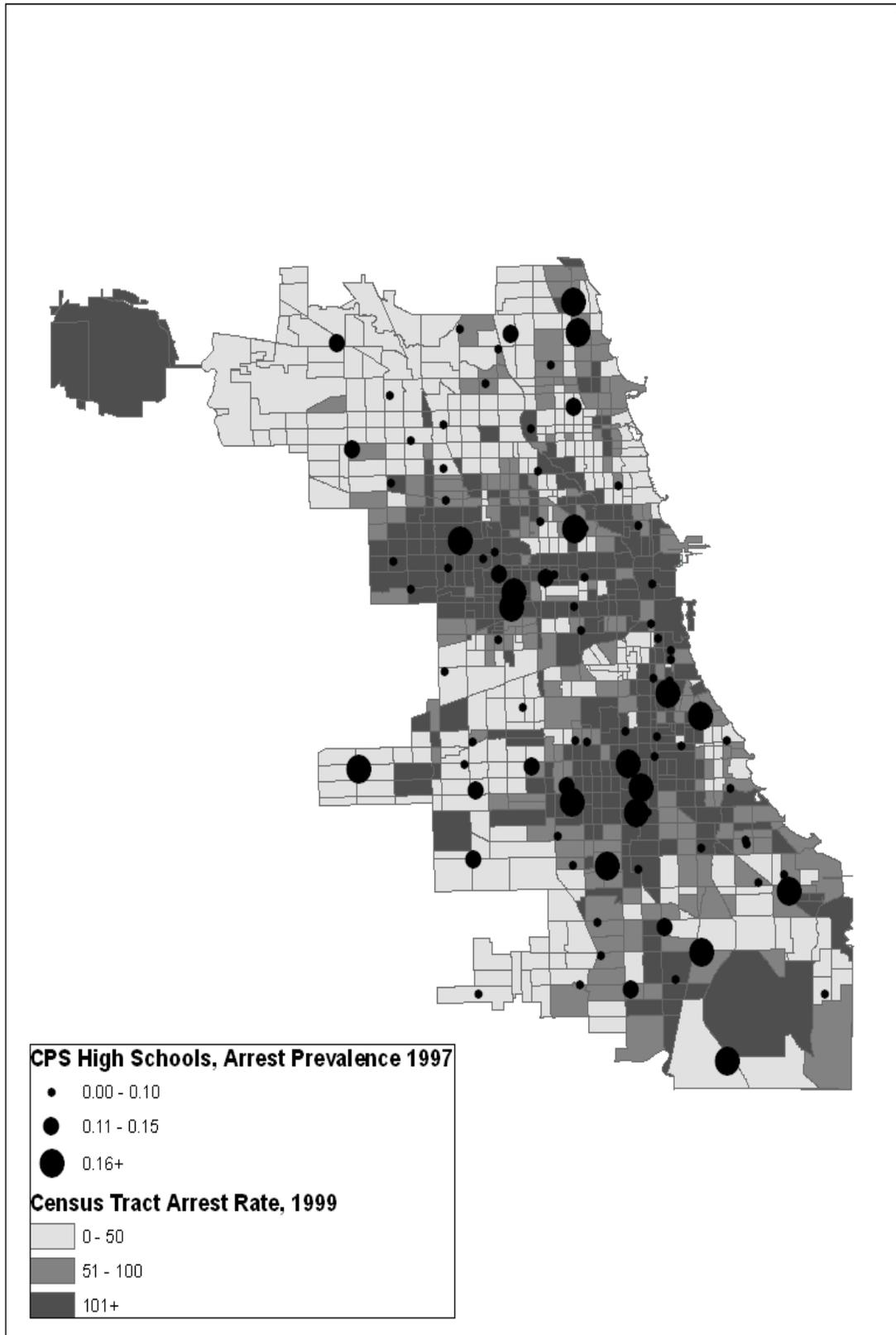
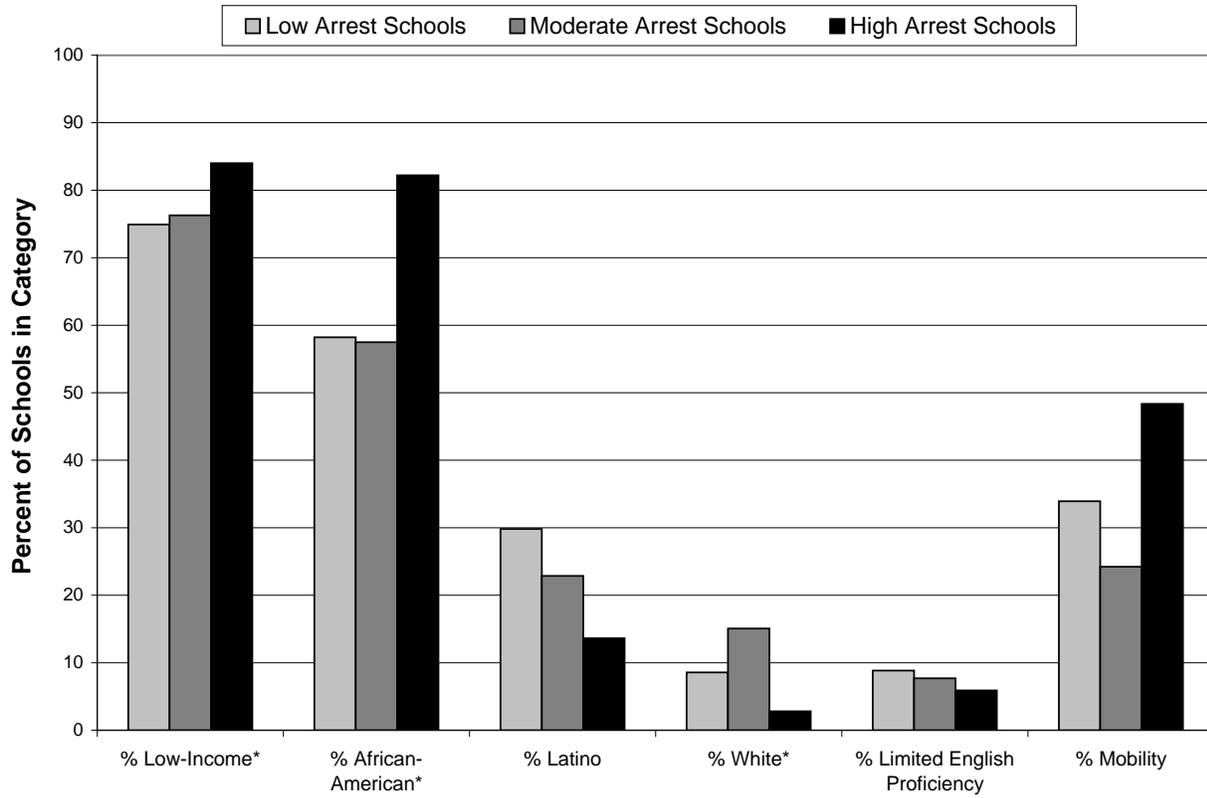


Figure 3.

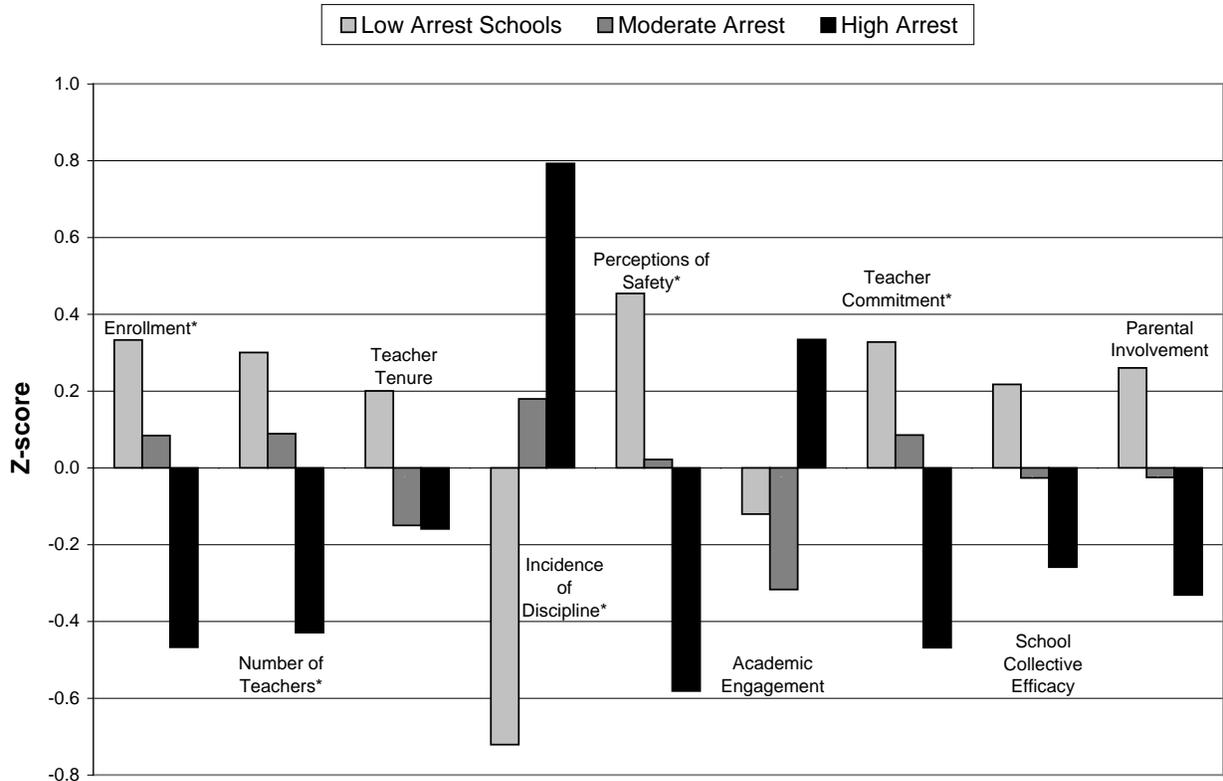
Demographic Characteristics of CPS High Schools, by Arrest Prevalence.



Note: asterisks denote that differences across schools are statistically significant.

Figure 4.

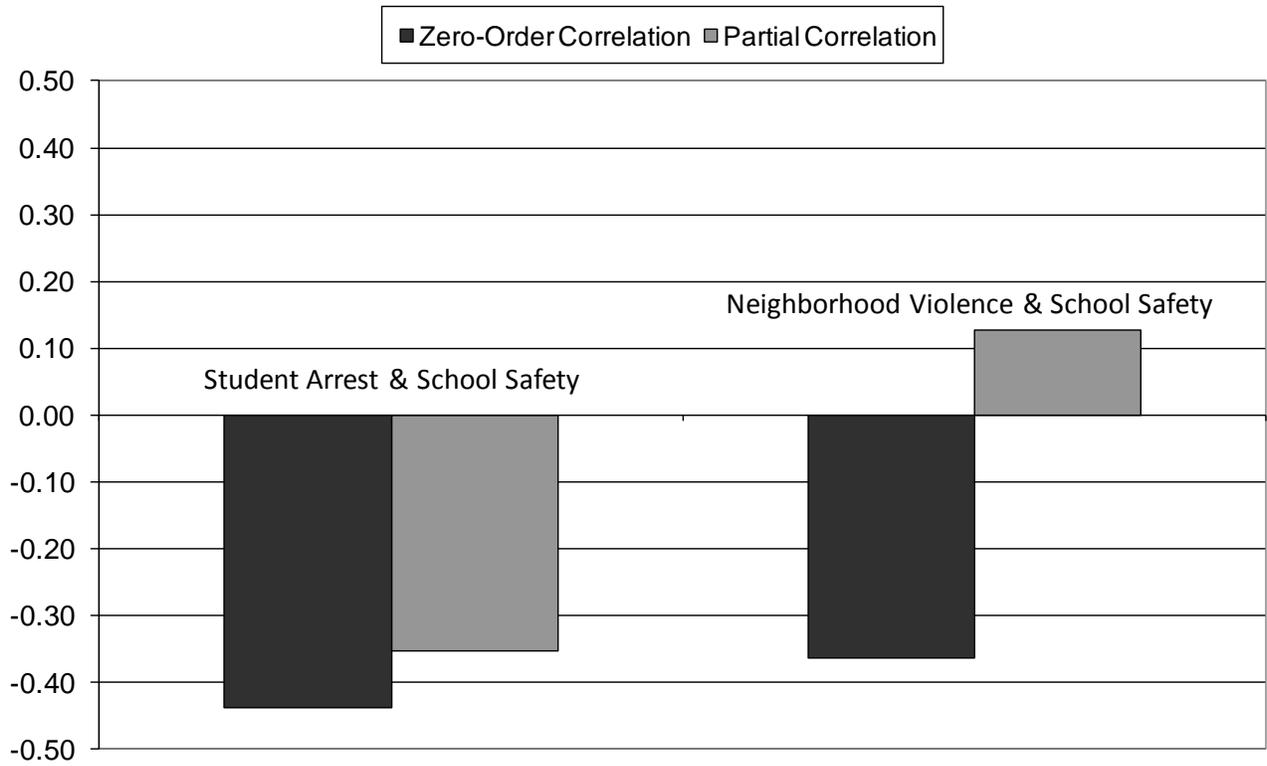
Structural and Social Organizational Characteristics of CPS High Schools, by Arrest Prevalence.



Note: asterisks denote that differences across schools are statistically significant.

Figure 5.

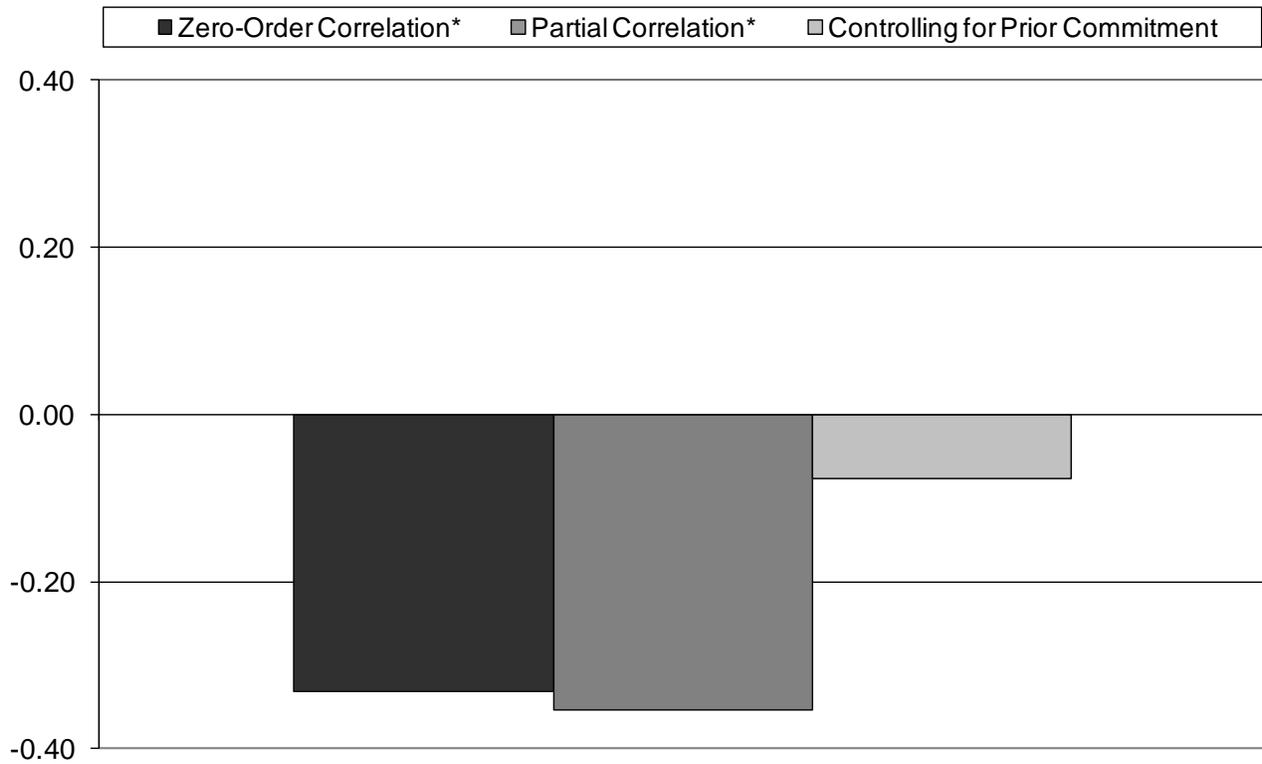
The Correlation Between School Safety and
Prevalence of Student Arrest and Neighborhood Violence.



Note: all associations are significantly different from zero ($p < .01$) except for the partial correlation between neighborhood violence and school safety.

Figure 6.

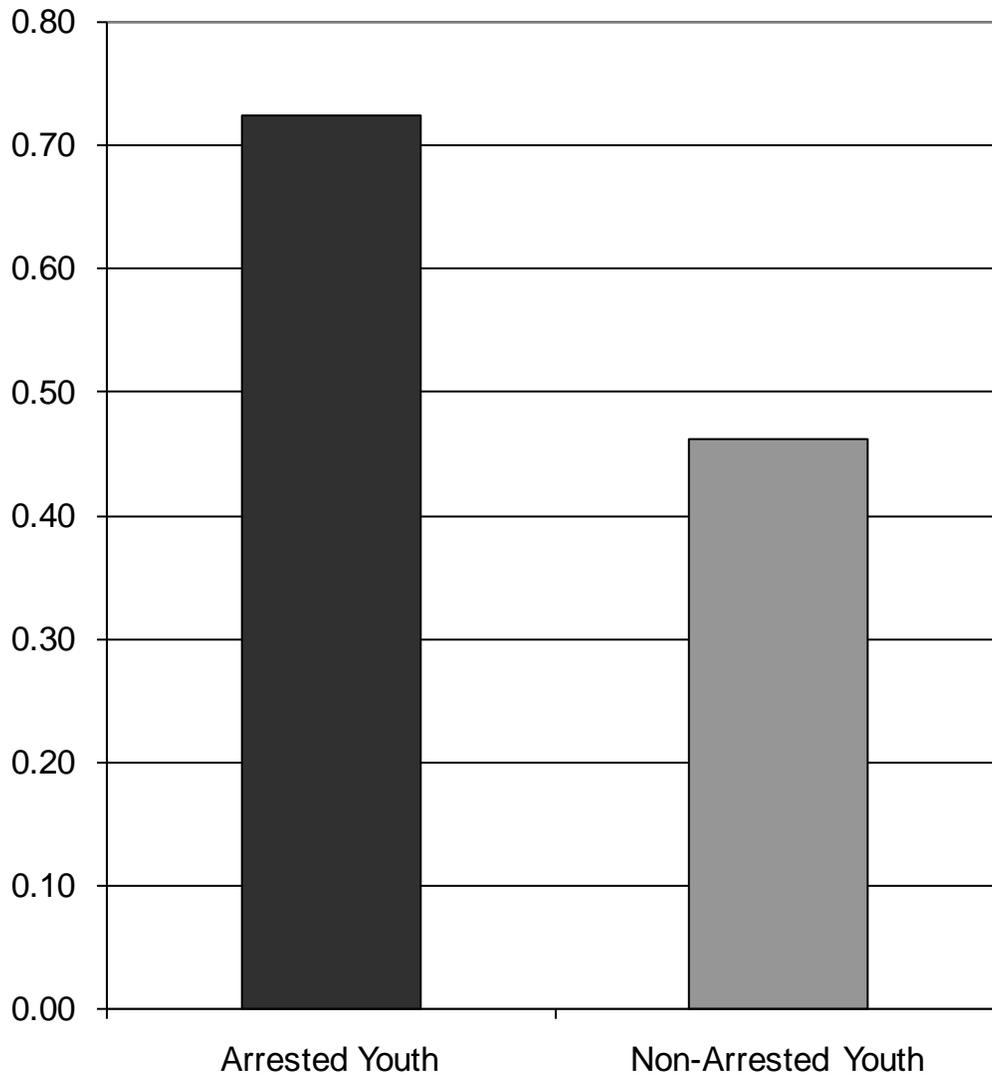
The Correlation Between Prevalence of Student Arrest and Teacher Commitment.



Note: an asterisk denotes that the correlation between teacher commitment and arrest is significantly different from zero.

Figure 7.

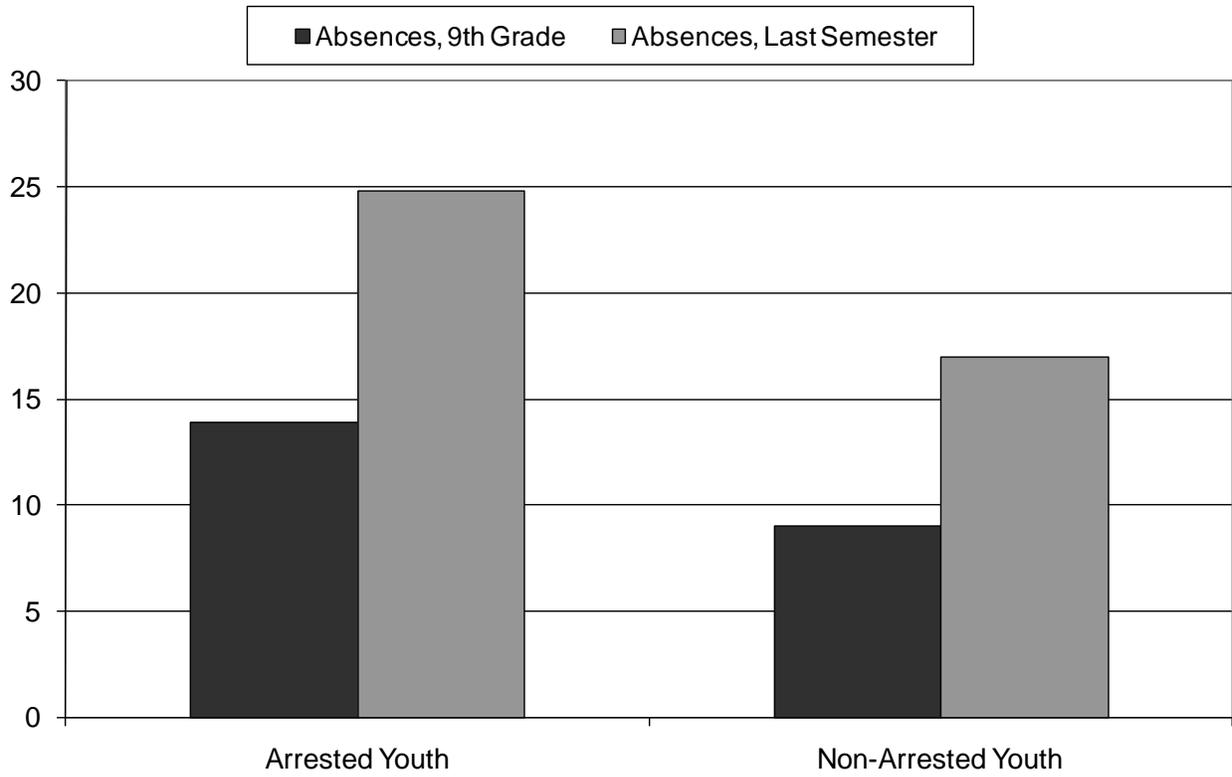
The Probability of Dropping out of the Chicago Public Schools Following Arrest, Individually Matched Arrested and Non-Arrested Youth.



Note: differences in dropout between groups are statistically significant.

Figure 8.

Changes in School Absences across Groups, 9th Grade to the Last Semester of Enrollment.



Note: the increases in the average number of absences from 9th grade to the last semester of enrollment between arrested and non-arrested youths are not statistically different.

Table 1.

Descriptive Characteristics of Arrested and Non-Arrested Youths, PHDCN-LCS Wave 1 (1995).

Youth Characteristics	Means		T-Statistic of Difference
	Arrested	Non-Arrested	
Male	0.71	0.41	5.26 ***
Race-Ethnicity			
African-American	0.72	0.40	5.58 ***
Mexican	0.18	0.32	-2.74 **
Puerto Rican/Other Latino	0.08	0.13	-1.34
White	0.01	0.11	-2.80 **
Other Race/Ethnicity	0.01	0.03	-1.13
Cohort 12 (vs. 15)	0.54	0.51	0.62
Age (Wave 1)	13.52	13.64	-0.64
IQ	96.59	99.39	-1.68
8th Grade ITBS Math	30.41	38.10	-2.64 **
Student Mobility	2.79	2.60	1.30
Ever Retained in Grade	0.27	0.13	3.35 ***
Ever Special Education	0.48	0.25	4.41 ***
Temperament			
Lack of Control	2.74	2.42	2.86 **
Lack of Persistence	2.66	2.39	2.70 **
Decision Time	3.13	2.97	1.65
Sensation Seeking	2.94	2.73	2.15 *
Activity	3.70	3.59	1.04
Emotionality	2.88	2.69	1.54
Sociability	3.71	3.68	0.37
Shyness	2.41	2.48	-0.68
Problem Behavior			
Withdrawal	3.57	3.67	-0.37
Somatic Problems	3.88	4.08	-0.54
Anxiety/Depression	4.76	5.97	-2.12 *
Aggression	9.76	8.90	1.18
Internalization	11.99	13.32	-1.37
Externalization	14.02	12.39	1.66
Violent Offending	0.69	0.11	5.21 ***
Property Offending	0.22	0.07	2.10 *
Drug Distribution	0.21	-0.07	3.85 ***
Marijuana Use	1.29	1.13	1.73

* p < 0.05 ** p < 0.01 *** p < 0.001

Table 2.

Family and Peer Characteristics of Arrested and Non-Arrested Youths,
PHDCN-LCS Wave 1 (1995).

	Means		T-Statistic
	Arrested	Non-Arrested	of Difference
<u>Family Characteristics</u>			
Immigrant Generation			
First	0.07	0.13	-1.65
Second	0.15	0.30	-2.82 **
Third or higher	0.78	0.57	3.70 ***
Family Socioeconomic Status	-0.02	-0.10	0.53
Married Parents	0.31	0.48	-2.95 **
Length of Residence	5.45	5.59	-0.25
Extended Family in Household	0.28	0.20	1.77
Num. of Children in Household	3.73	3.41	1.53
Family Supervision	-0.07	-0.08	0.10
Family Control	60.38	58.41	2.04 *
Family Conflict	49.60	47.86	1.49
Family Religiosity	61.90	60.70	1.47
Family Support	-0.09	-0.05	-0.47
Paternal Criminal Record	0.11	0.11	-0.15
Paternal Substance Use	0.19	0.14	1.14
Maternal Substance Use	0.13	0.03	4.02 ***
Maternal Depression	0.15	0.17	-0.33
Parent-Child Conflict	0.26	-0.08	3.85 ***
Home Environment			
Access to Reading	-0.26	-0.07	-0.89
Developmental Stimulation	-0.02	-0.06	0.33
Parental Warmth	-0.21	-0.10	-0.61
Hostility	0.58	0.25	-0.60
Parental Verbal Ability	0.10	-0.01	0.53
Family Outings	0.02	-0.13	1.65
Home Interior	-0.10	-0.20	0.46
Home Exterior	-0.15	-0.11	-0.31
<u>Peer Characteristics</u>			
Friend Support	0.03	0.04	-0.21
Peer Attachment	-0.09	0.03	-1.54
Peer School Attachment	0.13	0.04	2.00 *
Peer Pressure	0.20	0.08	0.94
Deviance of Peers	0.47	0.03	4.79 ***

* p <0.05 ** p<0.01 *** p<0.001

Table 3.

Neighborhood and School Characteristics of Arrested and Non-Arrested Youths.

	Means		T-Statistic
	Arrested	Non-Arrested	of Difference
Neighborhood			
% African-American	54.89	36.80	3.99 ***
% Latino	25.66	32.08	-1.89
Concentrated Poverty	0.35	-0.06	4.87 ***
Concentrated Affluence	-0.33	-0.28	-0.72
Immigrant Concentration	0.12	0.38	-2.08 *
Residential Stability	-0.08	0.02	-0.88
Neighborhood Youth Services	-1.65	-1.81	1.87
Legal Cynicism	2.54	2.52	1.63
Neighborhood Disorder	1.95	1.87	2.48 *
Tolerance of Deviance	4.21	4.24	-1.76
Collective Efficacy	3.81	3.88	-2.63 **
Resident Victimization	0.44	0.42	0.58
LN(1995 Violent Crime Rate)	9.29	8.94	5.26 ***
School			
% African-American	64.09	48.24	3.77 ***
% Latino	26.29	35.94	-2.69 **
Enrollment	1477.49	1878.29	-4.31 ***
Poverty	79.80	76.63	1.78
School Mobility	56.57	30.71	2.47 *
% English Proficiency	9.95	12.31	-1.57

* p < 0.05 ** p < 0.01 *** p < 0.001

Appendix Table 1. Predicted Probability of Arrest, PHDCN Cohorts 12 – 15.

	Coef	(SE)	Z
Intercept	7.768	(14.981)	0.52
Youth Characteristics			
Male	1.885	(0.404)	4.67
Race-Ethnicity (Versus Black)			
Mexican	0.137	(0.751)	0.18
Puerto Rican/Other Latino	0.364	(0.727)	0.50
White	-2.450	(1.650)	-1.48
Other Race/Ethnicity	-2.098	(1.465)	-1.43
Cohort 12 (vs. 15)	1.418	(1.211)	1.17
Age (Wave 1)	0.178	(0.385)	0.46
IQ	0.007	(0.013)	0.54
8th Grade ITBS Math	0.000	(0.008)	0.01
Student Mobility	0.150	(0.125)	1.20
Ever Retained in Grade	1.074	(0.514)	2.09
Ever Special Education	0.494	(0.364)	1.36
Temperament			
Lack of Control	-0.014	(0.264)	-0.05
Lack of Persistence	0.158	(0.212)	0.75
Decision Time	0.002	(0.282)	0.01
Sensation Seeking	0.070	(0.295)	0.24
Activity	0.360	(0.241)	1.49
Emotionality	0.251	(0.201)	1.25
Sociability	-0.279	(0.296)	-0.94
Shyness	0.114	(0.246)	0.46
Problem Behavior			
Withdrawal	-0.654	(0.369)	-1.77
Somatic Problems	-0.861	(0.387)	-2.23
Anxiety/Depression	-0.889	(0.396)	-2.24
Aggression	-0.006	(0.116)	-0.05
Internalization	0.830	(0.404)	2.06
Externalization	0.023	(0.090)	0.25
Violent Offending	0.337	(0.243)	1.39
Property Offending	-0.155	(0.379)	-0.41
Drug Distribution	0.301	(0.296)	1.02
Marijuana Use	-0.231	(0.296)	-0.78
Family Characteristics			
Immigrant Generation (versus Third)			
First	-1.088	(0.659)	-1.65
Second	-1.470	(0.618)	-2.38
Family Socioeconomic Status			
Married Parents	0.065	(0.423)	0.15
Length of Residence	0.010	(0.046)	0.21
Extended Family in Household	-0.018	(0.373)	-0.05
Num. of Children in Household	0.049	(0.088)	0.56
Family Supervision	0.319	(0.370)	0.86
Family Control	-0.014	(0.024)	-0.56
Family Conflict	0.012	(0.017)	0.69
Family Religiosity	0.069	(0.025)	2.72
Family Support	0.173	(0.231)	0.75
Paternal Criminal Record	-0.176	(0.670)	-0.26
Paternal Substance Use	0.799	(0.632)	1.26
Maternal Substance Use	1.311	(0.785)	1.67
Maternal Depression	-0.343	(0.431)	-0.79
Parent-Child Conflict	0.186	(0.206)	0.90
Home Environment			
Access to Reading	-0.104	(0.104)	-1.00
Developmental Stimulation	-0.255	(0.221)	-1.15
Parental Warmth	-0.013	(0.146)	-0.09
Hostility	-0.066	(0.043)	-1.54
Parental Verbal Ability	0.053	(0.125)	0.42
Family Outings	0.424	(0.239)	1.78
Home Interior	0.138	(0.091)	1.53
Home Exterior	0.471	(0.145)	3.26

	Coef	(SE)	Z
Peer Characteristics			
Friend Support	0.901	(0.666)	1.35
Peer Attachment	-0.063	(0.418)	-0.15
Peer School Attachment	0.431	(0.401)	1.08
Peer Pressure	-0.188	(0.223)	-0.84
Deviance of Peers	0.723	(0.232)	3.11
Neighborhood			
% African-American	0.024	(0.013)	1.89
% Latino	-0.008	(0.021)	-0.39
Concentrated Poverty	1.570	(0.425)	3.70
Concentrated Affluence	0.852	(0.660)	1.29
Immigrant Concentration	1.946	(0.658)	2.96
Residential Stability	0.528	(0.375)	1.41
Neighborhood Organizations	0.016	(0.485)	0.03
Neighborhood Youth Services	0.525	(0.258)	2.03
Legal Cynicism	-3.963	(2.443)	-1.62
Neighborhood Disorder	-0.910	(1.281)	-0.71
Tolerance of Deviance	-3.247	(1.870)	-1.74
Collective Efficacy	-1.284	(1.374)	-0.93
Resident Victimization	0.810	(1.318)	0.61
LN(1995 Violent Crime Rate)	0.680	(0.441)	1.54
School			
% African-American	-0.007	(0.015)	-0.45
% Latino	-0.003	(0.020)	-0.17
Enrollment	0.000	(0.000)	-0.23
Poverty	0.035	(0.018)	1.91
School Mobility	0.002	(0.002)	1.16
% English Proficiency	-0.013	(0.035)	-0.38