The Effect of School Desegregation on Black and White Youth Homicide Victimization Rates

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By

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ABSTRACT

Recent research suggests that school desegregation lowers the black dropout rate by two to three percentage points. To explore the possibility that school desegregation might also affect other secondary social outcomes such as criminal behavior, this study estimates the effect of the implementation of a school desegregation plan on black and white youth homicide victimization rates. The results suggest that, subsequent to implementation, there is a gradual, statistically significant decline in white youth homicides and a qualitatively similar but statistically insignificant decline in black youth homicides.
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I. Introduction

*Brown v. Board of Education* (1954), influenced in part by social science research that suggested segregation caused blacks psychological impairment, found segregated schools “inherently unequal” and established the precedence for subsequent court ordered desegregation plans. Among the studies cited in *Brown*, Kenneth Clark’s landmark “doll study” found that the majority of a group of sixteen black children attributed positive characteristics to white dolls and negative characteristics to otherwise identical black dolls. Clark (1947) suggested this response was a manifestation of the implied inferiority of racial segregation imprinted on the African-American psyche. However he did not determine whether these adverse psychological effects were a consequence of school segregation or of a broader societal discrimination against blacks. Further, the small sample size, inclusion of only female participants, and failure to control for important factors such as the children’s socioeconomic background and geographic history made the findings of this rudimentary study inconclusive. Although Clark’s analysis does not speak with confidence about the effects of school desegregation, his conclusions gave support to the widely held belief that segregation produced negative psychological consequences.

Despite the great public interest in the effects of school desegregation efforts, the large amount of research conducted over the last fifty years has yielded little conclusive empirical evidence on the effects of school desegregation (Bankston and Caldas, 2002). A meta-analysis of ninety-three studies measuring the impact of
desegregation on minority achievement determined that slightly over half of these studies found an increase in achievement after desegregation, with the rest finding either no change or a decrease in achievement (Mahard and Crain, 1983).

However, two recent studies find convincing evidence on the relationship between school desegregation and academic outcomes and suggest a promising approach to studying the effects of school desegregation on other important non-academic outcomes. To analyze the effects of past school desegregation efforts Jonathan Guryan (2004) of the University of Chicago uses a sample that includes only school districts forced to desegregate by court order and compares student outcome measures across two time periods: pre and post desegregation. Guryan argues that the implementation year timing for each district’s desegregation plan is plausibly random. Thus, any non-random measures that might affect dropout rates are identical across all school districts in his sample. This research design also allows Guryan to bypass any systematic differences between school districts that have been required to desegregate and those that have not.

Byron Lutz (2004) of the Federal Reserve Board examines the year-to-year changes in several outcome variables to capture the gradual effects of the dismissal of a court-ordered desegregation plan. This approach differs from previous research that was only able to compare the time periods prior to and following dismissal of a desegregation plan. Both Guryan and Lutz demonstrate that past school desegregation efforts reduced black drop out rates. Their findings suggest that racial integration can
improve educational outcomes by giving minority students greater access to educational resources and goal oriented peer groups.

If Guryan and Lutz are right, it is plausible these same mechanisms might also affect important secondary outcomes such as crime rates. Both peer effects and educational opportunities are associated with criminal behavior (Jencks and Mayer, 1990; Chu and Sorenson, 1996). The demonstrated capacity of these factors to affect academic outcomes subsequent to school desegregation suggests they might have similar positive effects on crime rates.

The present study explores the possibility that court-ordered school desegregation affects black and white youth homicide victimization rates. This analysis combines Lutz’s year-to-year model with Guryan’s sample of desegregated districts for a precise estimation of the effects of school desegregation on youth homicides. The results suggest that school desegregation leads to a moderate, gradual decline in white youth homicides and a qualitatively similar, although statistically insignificant, decline in black youth homicides. These findings counter the prevailing wisdom that blacks are the primary beneficiary of school desegregation and suggest an intriguing potential for future research in the area.

The paper is structured as follows. The next section reviews past and present research on school desegregation efforts. Section three describes the data for the current study. Section four conveys the methodology used. Results are presented in
section five. Section six concludes and offers suggestions for policy ramifications and future research.

II. Post-Brown Research

Until 1966, there was no large scale empirical effort to test the widely held assumption that increased access to educational resources would produce gains in black achievement. Spurred by a minor provision in the 1964 Civil Rights Act requesting a study of racial and ethnic educational inequality, Johns Hopkins University sociologist James Coleman collected cross-sectional data on 600,000 students in 4,000 schools to examine the relationship between educational resources, teacher training, and student achievement. The Coleman Report (1966) compared the academic performance of minority students in various kinds of segregated and racially mixed schools and identified peer groups, not educational funding, as the key determinant for academic outcomes. More specifically Coleman found that, when controlling for family background, a student’s academic achievement depended less on the educational resources committed to his or her school then the educational achievements, aspirations, and goals of the other students in the school. The study suggested that the primary benefit of school desegregation might result from exposure to high achieving peer groups. The Coleman Report was the first systematic empirical study to suggest the importance of peer groups in closing the black and white student achievement gap.
Coleman’s research was a precursor to the epidemic model, a sociological theory that emphasizes the importance of peer effects to shape individual actions (Jencks and Mayer 1990). This model suggests each school has a dominant set of social norms that most students will attempt to model. In its simplest form, the behavior of the peer group is predictive of the behavior of the individual.

More realistic is when the epidemic model acknowledges individual differences in response to peer group influence. These differences may be a result of upbringing, genes, or random chance (Jencks and Mayer, 1990). However, exposure to a peer group that adheres to particular mannerisms makes individuals of any predisposition more likely to express similar behaviors. For instance, if children in affluent neighborhoods have a lower susceptibility to commit crime, enrollment in a school with a greater number of affluent students is likely to decrease a student’s criminal behavior.

Instead of looking at the importance of peers, collective socialization models focus on the role of non-parental adults to affect the behavior of children. Affluent adults serve as both a successful and well behaved role model for children to respect and emulate and as an “enforcer” to minimize disorderly behavior and alert the police if necessary (Jencks and Mayer, 1990). Finally, institutional models also emphasize the importance of adults, but stress the role adults from outside the community have within neighborhood institutions such as the local school or police force. This model
suggests that schools in wealthy neighborhoods tend to employ better teachers relative to schools in poor neighborhoods and this distinction affects how much students learn.

However, Coleman’s research approach has important methodological limitations. First, Coleman’s analysis did not distinguish between schools that were integrated through a court-ordered desegregation plan and those integrated by other means. Thus it ignored potentially important differences between students who live in segregated neighborhoods and experienced a formal desegregation plan and those who live in racially integrated neighborhoods. These differences may be highly relevant to academic outcomes through diverse mechanisms such as peer effects or the proximity of visible adult role models (Jencks and Mayer, 1990).

Nonetheless, the Coleman Report began an important shift away from the focus on perceptions of inferiority to the analysis of social structure and peer effects on academic outcomes (Rosenberg, 1986). It also gave precedence in desegregation research to data-driven empirical analysis over anecdotal evidence and intuition.

The widespread implementation of school desegregation plans also created new opportunities for empirical analysis. Some longitudinal studies, such as Mickelson (2003), focused on a specific desegregation plan, thus avoiding the questionable practice of pooling data from schools with natural integration and schools with court-ordered desegregation. Mickelson’s analysis of the Charlotte-Mecklenburg school system found that, over a student’s thirteen-year academic career, both blacks and
whites experience significant academic benefits in desegregated schools and classrooms.

Yet the case study approach is unable to distinguish the effects of integration from confounding factors that are associated with school desegregation (Wells and Crain, 1994). The academic improvements attributed to school desegregation may instead be a result of unobserved changes within the school district or other educational policy changes implemented over the duration of the study. Therefore, it is impossible to determine how much of the academic benefits were caused by school desegregation alone. Moreover, even assuming school desegregation is the sole catalyst for academic improvements in Charlotte-Mecklenburg, the single case study approach is also limited by a small sample size and the inability to generalize results to other geographic regions, age groups, or school districts.

To control for these effects, Mayer (1991) used panel data from the High School and Beyond Survey, a nationally representative study of 26,425 tenth grade students from 968 public and private high schools in 1980 and 1982, to estimate the effects of a high school’s socioeconomic or racial composition on the likelihood of a student dropping out. Mayer found that students in predominantly black or Hispanic high schools are more likely to drop out than students of the same race and socioeconomic background who attend predominantly white high schools.

More recently, using innovative research designs, two papers by Guryan and Lutz have given convincing empirical evidence of the positive effects of school
desegregation on academic outcomes. Guryan examines the effect of school desegregation on black and white high school dropout rates using a sample of 125 school districts that desegregated from 1961 to 1982. To control for the problem that districts implementing a desegregation plan may be different in unobservable ways from non-desegregated districts, Guryan limits his sample to districts forced to desegregate by court order, using the year of desegregation for each district to identify changes across the sample over time. By comparing student achievement within the same school district both before and after desegregation, any important time-invariant elements that may determine if a district will undergo court-ordered desegregation are eliminated. The implementation year of each district’s desegregation plan is plausibly random, meaning that any unobservable determinants of dropout rates affect all school districts in the sample (Guryan, 2004). By estimating the effect of school desegregation with a sample including only school districts that underwent a court ordered desegregation plan, Guryan is able to observe the effect of school desegregation on the outcome variable independent of other influences. This is an important departure from past studies which have compared desegregated districts with districts that did not desegregate (Jencks and Mayer, 1990).

Guryan compares high-school-aged blacks in school districts that desegregated between 1970 and 1980 to high-school-aged blacks in school districts that desegregated from 1961 to 1969 and 1980 to 1982. While acknowledging that a research design measuring change in the outcome variable at the exact year of
desegregation is ideal, Guryan notes that annual data for high school dropout rates by race are not available. Instead he uses census data from 1970 and 1980.

Guryan finds that dropout rates for blacks were two to three percentage points lower in districts that desegregated during the 1970-80 period than in districts which desegregated both before and after that period. He argues that the change in dropout rates in the districts that desegregated both before 1970 and after 1980 offers a plausible estimation of what would have happened in the absence of desegregation in districts that desegregated in the 1970s.

Guryan further estimates the effect of changes in demographic characteristics (e.g. age, gender, family income, and median income in the district) on dropout rates and finds that these effects cannot explain the decrease in dropout rates for black students between 1970 and 1980. This suggests that the decrease in dropout rates results from the implementation of court ordered desegregation plans. Guryan identifies three main channels through which desegregation may have affected black dropout rates: peer effects, family effects, and increased educational opportunities available for black students.

Performing the same analysis for whites, Guryan finds no statistically significant changes in the white high school dropout rate during the same time frame. This disparity between black and white dropout rates is striking. If general education trends are driving the black declines, we would expect both black and white dropout
rates to decrease. Instead, these results confirm that school desegregation, not general trends in dropout rates, led to the decline in black dropout rates.

Lutz (2004) uses panel data from a nationally representative sample of schools from 1987 to 2002 to investigate the effects of the *dismissal* of a court-ordered desegregation plan on racial segregation as well as the relative performance of black students in schools. Lutz assumes that dismissal of a court-ordered plan results in a gradual transition, with the effects of segregation expected to become more pronounced over time. To account for this progression he compares year-to-year changes in black and white high school dropout rates in the years leading up to and following the dismissal of a desegregation plan. This innovative design measures marginal changes in dropout rates and gives a more refined calculation of the gradual yearly effects of desegregation than Guryan’s analysis, which presents a single number to describe the time periods both prior to and following the implementation of a desegregation plan.

Lutz divides the school districts in his sample into three groups: school districts that were under a court ordered desegregation plan in 1991 and then dismissed from the plan, school districts that were never dismissed from their desegregation plans, and school districts that were not under court-order desegregation plans in 1991. The dismissed and not dismissed districts are similar for observable variables such as median household income. This similarity across observable characteristics suggests a similarity in unobservable characteristics as well. Any difference in academic
performance between dismissed and not dismissed districts is therefore likely to be caused by the dismissal of the desegregation plan, not an unobservable variable. Because districts that were not under court-order are systematically different from other districts, Lutz (similar to Guryan) drops them from the sample.

Using a variety of measures for racial integration Lutz finds that dismissal of a court-ordered desegregation plan results in a gradual, moderate increase in racial segregation and an increase in both black dropout rates and black private school attendance. He also finds no evidence of any effect on white attendance patterns, school expenditures, and property values. The Lutz results do not support the possibility of “reverse white flight,” which hypothesize that after the dismissal of desegregation plans most whites move back to their initial districts.

III. The Present Study

If school desegregation affects minority students’ academic outcomes through increased access to educational resources and goal oriented peer groups, these same mechanisms might also have effects on important non-academic outcomes. The present study combines Guryan’s unique dataset with Lutz’s year-to-year methodology to estimate the effect of school desegregation on black and white youth homicide victimization rates.

Both Guryan and Lutz estimate the effect of school desegregation on a behavior such as academic achievement or migration patterns. The present study departs from this approach by studying youth homicide victimization rates. Because the majority of
crime is intra-racial, we indirectly learn about black and white youth criminal offending behavior by observing victimization patterns (Cook and Laub, 1998).

The present study draws on data from two sources, the Vital Statistics Compressed Mortality Files and the Welch and Light dataset. Both are discussed in the next section.

A. Data and Sample

1968-1986 Compressed Mortality Files

This study will use data from the 1968-1986 Vital Statistics Compressed Mortality Files (CMF) to estimate key dependent variables of black and white homicide victimization rates for 15-19 year olds. Compiled by the National Center for Health Statistics division at the Center for Disease Control and Prevention, the CMF contains a mortality data file and a population data file. The mortality data file is a county-level national mortality dataset that contains records for every death of a U.S. citizen occurring in the fifty states and the District of Columbia for all years from 1968 to 1986 except 1972. The 1972 data are based on a 50 percent sample and are weighted by a factor of two. The mortality file records the cause and year of a person’s death, their state and county of residence, as well as their age, race, and gender. The cause of death is determined from death certificates that are filled out by a qualified person, typically a physician, medical examiner, or coroner. The population file contains U.S. Census Bureau national, state and county population estimates with data on age, race, and sex.
The present study combines the CMF data with the Welch and Light dataset. The Welch and Light dataset, which was commissioned by the U.S. Commission on Civil Rights to evaluate the effect of school desegregation on integration, consists of a sample of 125 school districts that desegregated between 1961 and 1986. The dataset contains variables on public school racial composition, racial integration level, and year and type of desegregation plan implemented. It also contains a county variable that allows the data to be merged at the county level with the CMF dataset for each year between 1968 and 1986. While the sample represents less than one percent of US school districts, it includes almost 20 percent of total US high school enrollment and half of minority enrollment. The study uses data from all counties in the Welch and Light sample for all years 1968-1986.

The present study takes the county as its unit of analysis. It is typical for the county and school district to be identical. However, four counties in the data sample contain multiple school districts. This becomes problematic when only one school district desegregates or the districts desegregate in different years. As a consequence, I create two versions of results, one containing data from the multi-district counties’ earliest desegregating district and one containing data from the latest desegregating district.

For instance, Jefferson County in Alabama contains two school districts: Birmingham district, with a desegregation year of 1970, and Jefferson County district
with a desegregation year of 1971. I first run the early results for Jefferson County and treat the county as if it desegregates in 1970. I then rerun the regressions and treat Jefferson County as a 1971 desegregator.

This approach, however, does not work for all four exceptional cases in the sample. Los Angeles County contains five school districts, meaning the middle three districts are excluded from both set of results. One of the districts excluded under either timing scenario, the Los Angeles school district, has an enrollment of approximately 611,228 students out of a total enrollment of 760,690 for the county sample\(^1\). To avoid exclusion of such a large school district from the sample, I consider Los Angeles school district the school district for Los Angeles County.

There is minimal difference between the “early” and “late” results. I focus on the early results in this paper though I also discuss the later results.

**IV. Methods**

My regression model uses a weighted panel estimation to study the effect of the implementation of a school desegregation plan on black and white youth homicide victimization rates. The model is:

\[
y_{it} = \alpha + \sum_{p \in \Psi} \beta_p D_{p,i,t} + \gamma_i + \delta_t + \epsilon_{it}
\]

---

\(^1\) Enrollment numbers are from 1973, the mean year of desegregation plan implementation.
$y_{it}$ is the outcome variable (e.g. yearly change in black or white homicide rates) for county $i$ at year $t$, $\gamma_i$ is a vector of county fixed effects and $\delta_t$ is a vector of year fixed effects. The vector of year fixed effects accounts for any changes that occur in all school districts in the year $t$. The variable of interest $\beta_p$ will have different meanings depending on the choice of dummy variables $D_{p,it}$ and our set of dummy variables $\Psi$. $D_{p,it}$ is a dummy variable which is equal to one if the desegregation plan for district $i$ has been implemented $p$ years prior to year $t$. For example, $D_{3,it}$ is equal to 1 in district $i$ if desegregation was implemented in the year $t-3$. This set of dummy variables captures how the change in homicide rate transitions from the time period prior to school desegregation to the time period following desegregation.

Log of black homicide rates for 15-19 year olds and log of white homicide rates for 15-19 year olds are the dependent variables. Homicide rates are defined as the number of homicides per year per 100,000 people in a given county.

A variety of factors suggest that the dismissal of a court-ordered desegregation plan will result in a gradual, not immediate, shift on the outcome variable (Lutz 2004). Many dismissal plans mandate a gradual removal of the desegregation plan to smooth the transition, and students enrolled in a desegregated school prior to the law change may have preferred to continue at their current school. Because the transition is gradual (with the effects of desegregation expected to become more pronounced over time), I use a series of dummy variables that measure the progressive year-to-year
changes in the outcome variable instead of dummy variables that cover a simple
discrete shift in the outcome variable. Dummy variables for county and year are
included to control for fixed effects. To control for heteroscedasticity, I weight by the
denominator of the mortality rate used as the dependent variable in each regression.
For example, if the outcome variable of interest is the white homicide rates among 15-
19 year olds, the weight variable is the county population for whites ages 15-19. This
also ensures that the unit of measurement for the model is the average person in the
“treatment” versus “control” counties, not the county itself.

The approach to $\Psi$ in this paper is similar to the idea presented by Lutz (2004).
I choose $\Psi = \{(-\infty, -6), -5, -4, -3, -2, -1, 1, 2, 3, 4, 5, (6, \infty)\}$. This model has twelve
different dummy variables, with $D_{p, it}$ being equal to one when the observation is taken
from the year $p$ years after (or before, if $p$ is negative) desegregation, with the
exception of $D_{[(-\infty, -6), it]}$ and $D_{[(6, \infty), it]}$ with the former meaning that desegregation has
occurred six years or more after the year $t$ and latter meaning desegregation occurred
six years or more before the year $t$. 

20
I use the following choices of \( \Psi \) and corresponding models to test if the primary model, variation 1, is robust to the choice of \( \Psi \):

\[
\text{Model 1: } \Psi = \{(-14,-6),-5,-4,-3,-2,-1,1,2,3,4,5,(6,24)\}
\]
\[
\text{Model 2: } \Psi = \{(-14,-6),(-5,-1),(1,5),(6,24)\}
\]
\[
\text{Model 3: } \Psi = \{(-14,-1),(1,24)\}
\]
\[
\text{Model 4: } \Psi = \{(1,5),(6,10),(11,15),(16,24)\}
\]

Because homicide at the county level is a relatively rare event, year-to-year measurements result in large standard errors and offer a less statistically precise estimate than aggregate data collected over a number of years. To ensure the accuracy of the results is not limited by the large standard errors, the second variation aggregates data for the years \((-1,-5)\) and \((1,5)\). Moreover, many counties that desegregated in the 1970’s and 1980’s do not have data extending for the entire twenty-four year post-desegregation period. Thus, because our data provides us with an unbalanced panel, years \((6,24)\) are aggregated to ensure the results are not driven by compositional changes in the set of counties contributing data for periods far from the year of desegregation order.

Two things are worth noting here. First, I use a maximum range of \((-14,24)\) instead of infinity, because given the span of the data, this range is sufficient to cover all desegregation plan implementation dates. Second, I also include a model variation
that considers only post desegregation years; this model is used to give a more precise estimation of the marginal changes in outcome variables following implementation.

The study also includes a model that replicates the two-time-period setup that Guryan uses. In this case I only have two dummy variables, one of which is equal to 1 if the observation is taken from pre-desegregation period and the other is equal to 1 if the observation comes from a post-desegregation period. One widely used approach is to choose $\Psi = \left\langle (-\infty,-1), (1, \infty) \right\rangle$. However, this choice of $\Psi$ is most useful if the change in the outcome variable is assumed to be immediate (i.e. in my model, that desegregation had an instant effect on black and white homicide victimization rates). This model also presents a single number to describe the time periods both prior to and following implementation of a desegregation plan. This makes it impossible to measure the marginal, year-to-year affect of desegregation on the outcome variable and presents this effect as a constant. I will use this choice and several others later for a robustness test, but because school desegregation is expected to have a gradual effect that increases over time, my principal equation takes a different approach that captures the year-to-year effects of desegregation.

V. Results

Sample Characteristics

Table I presents means on key variables and demographic characteristics of the sample counties. Black residents constitute 17 percent of the sample county population totals but 37 percent of the students enrolled in sample schools. There is significant
variation across racial lines for sample mean youth homicide rates. Sample white mean youth homicide rates are seven and sample black mean youth homicide rates are nearly thirty two. A broad range for population totals and student enrollment numbers also indicate a diverse county and school district sample. Table II compares sample homicide rate means for counties desegregating between 1960-1969 (1960’s desegregators), 1970-1979 (1970’s desegregators) and 1980-1986 (1980’s desegregators).

Table III presents results from the regression analysis. This table represents the effect of school desegregation on black and white youth homicide victimization rates. The years prior to and following implementation of a desegregation plan are identified with pre and post vectors. For example, Pre (-2) references the year variable for two years prior to desegregation plan implementation; Post (5) represents the year variable for five years following implementation. Since dependent variables are the log of the homicide rate, coefficient estimates represent a percent change in youth homicide rates. The columns present characteristics of the outcome variables.

To estimate the effect of the implementation of a school desegregation plan, I use youth homicide victimization rates as the outcome variable. Estimation results for the primary model are given in Table III and coefficient results together with 95 percent confidence intervals are given in Figure 1. The results suggest that the implementation of a school desegregation plan has a statistically significant effect on youth homicide victimization rates. This effect illustrates a near perfect year-to-year
downward trend of homicide rates. Although not statistically significant for the early post years, results are qualitatively strong in the post (3), post (4), and post (5) years. Consistent with desegregation resulting in a gradual shift in the outcome variable, this movement becomes statistically significant with time. By post (6), the decline in homicides becomes strong and statistically significant, indicating a 23 percent decrease in youth homicide rates relative to the implementation year². This suggests that implementation of a school desegregation plan has a gradual and important effect on youth homicide rates.

A. Extensions and Sensitivity Analysis

Results for Whites

The empirical model suggests that implementation of a school desegregation plan results in a statistically significant decline in white youth homicide victimization rates. The first column of Table II shows estimates for pre and post vectors of the court-ordered desegregation plan.

Figure 2 presents an obvious downward trend in our variable of interest. Consistent with the Lutz hypothesis, this decline in white homicide rates becomes statistically significant with the passage of time. Following implementation, results for

² Coefficient estimates are the natural logarithms of the ratio of the youth homicide rate in the year being studied relative to the youth homicide rate in the baseline year. When these rates are close to each other the ratio is near one and the logarithm is approximately equal to the relative change between the baseline year and the year being studied. When there is a large change from the baseline year to the year being studied, a more precise measurement is used. For the present study, the only rates significantly affected by this calculation are the post (6) for overall homicide rates (changes from 26 percent to a more accurate 23 percent), the post (5) and post (6) for white homicide rates (from 23 percent to 20 percent and from 35 percent to 29 percent) and the post (6) for black homicide rates (from 26 percent to 23 percent).
the post (1) and post (2) coefficients are negative but statistically insignificant. The post (3) coefficient suggests a 16 percent decline in white homicide rates. This trend increases and becomes statistically significant in the post (4) and post (5) years. The declining progression of homicide rates continues with a 29 percent decline in the post (6) coefficient, suggesting that implementation of a school desegregation plan has a strong, increasingly negative effect on white youth homicide victimization rates over time.

To ensure the empirical results are not driven by the migration of whites from racially diverse school districts (the “white flight” phenomenon), I adjust the model to estimate the effects of school desegregation on population patterns (Clotfelter, 2001). Results from these models find little evidence of changing population patterns subsequent to the implementation of a desegregation plan.

Results for Blacks

Estimation results for black youth homicide victimization rates are also given in Table II. Figure 2 shows evidence of a decline in black homicides. There is a substantial qualitative decline in black homicides from the pre (6) year coefficient estimate (0.0608) to the post (6) year coefficient estimate (-0.2554). Although the outcome variable itself never reaches conventional levels of statistical significance, the results suggest a downward slope. This decline in black homicides is qualitatively greater than the decline in both overall homicides and white homicides over the same time period. However, standard errors for black coefficient estimates are larger than
standard errors for overall and white homicide coefficient estimates, leaving the effect of school desegregation on black youth homicide rates difficult to determine with statistical accuracy.

Results for Model Variations 2-4

Secondary model results, used as a robustness check, are highly consistent with the primary model’s findings for black homicides. Across all models, overall homicide rates show a substantial decline following implementation of a desegregation plan. Coefficient estimates in the post desegregation period indicate a consistent and progressive downward trend. Black homicides tend to fall moderately and slowly after the implementation of a desegregation plan, suggesting a qualitatively robust, but not statistically significant, decline.

Surprisingly, the model that analyzed only post desegregation years indicates a statistically insignificant increase of black homicides in the post (16,24) years. This increase may indicate that although school desegregation decreased homicide rates in the short run, for blacks this effect disappeared over time. It is also possible this result was caused by the subsequent dismissal of many school desegregation plans in the mid to late 1990’s. The large standard errors for this coefficient estimate suggest this result is driven by the limited amount of data for this time period.

The other models in the analysis also suggest that the implementation of a school desegregation plan has a strong, gradual negative effect on white youth
homicide victimization rates. All models indicate a progressively large decline in white youth homicide rates with the passage of time.

Results for Unweighted and Non-Logged Models

Additional unweighted and non-logged models are used as a further robustness check for the original analysis. The results for both models also suggest that, subsequent to school desegregation, a consistent, downward trend in homicides is apparent for overall, white and black homicide rates.

Results for Late Desegregators

Finally, the results using data from the late desegregating districts in counties that contain multiple school districts are remarkably similar to the early desegregator outcomes described above. The progressive decline in homicide rates is replicated for white and overall homicide rates. The general pattern of black homicides is similar although the decline in homicides is more striking, with statistically significant declines in both the post (3) and post (6) years.

VI. Summary and Discussion

This study estimates the effect of the implementation of a school desegregation plan on black and white youth homicide victimization rates. It finds evidence that implementation leads to a gradual, significant decline in homicide rates. In near uniform fashion, for black, white and overall outcome variables, the decline in homicide rates subsequent to implementation becomes larger with time.
This study initially hypothesized that the same mechanisms of desegregation that spurred the decline in black dropout rates, such as greater interaction with positive peer groups and increased access to educational resources, might also have positive effects on criminal behavior. However, the most evident effects of school desegregation are seen with white homicides. This result is surprising given that previous research suggests that blacks tend to be the primary beneficiary of the positive effects associated with school desegregation. Initial expectations were that, following implementation, black homicides would decline and white homicides would remain unchanged. Instead, the results suggest a gradual, notable decrease in both black and white homicides. Black and white homicides yield qualitatively similar declines over time although only white results suggest a statistically significant decrease in homicides.

As expected, results are consistent with previous studies that find that the effects of school desegregation become more pronounced with time. Other empirical models were considered as a robustness test of the findings in the present study. All other models explored yielded results that were consistent with these findings.

Possible explanations for the decline in white homicides subsequent to school desegregation and future policy implications of this study are explored below.

A. Possible Explanations for the White Results

This paper found surprising evidence for the reduction in white homicide rates, a result that should be studied in greater depth. Past research indicates the mechanisms
of school desegregation most likely to have positive effects on criminal behavior, such as greater exposure to goal orientated peer groups and increased access to educational resources, should have the largest affect on black, not white, homicide rates. One possible avenue for future research is an exploration of police resource allocation following the implementation of school desegregation. Given the emotional resistance to court-ordered integration, it is plausible the concern for social unrest may have prompted police to increase law enforcement in desegregating school districts. A greater allocation of resources in these counties, such as an increase in the number of police on the beat, may have caused the reduction of white homicides.

Moreover, when combined with the present study, an analysis of homicide offender data may also give a greater understanding of the mechanisms that drive the declines in both black and white homicides. It is plausible that the integration resulting from school desegregation may create a greater social dialogue between the races that resulted in a decrease in black-on-white homicides. Further empirical exploration of the offender data may help explain the underlying cause of the reduction in white homicide rates.

**B. Policy Implications**

The findings of this paper have important policy implications. The cost of crime, in particular homicide, to society is high. The typical U.S. household is willing to pay $146 to achieve a 10% reduction in homicides. With the number of households estimated at 103 million in the 2000 census, this implies a collective willingness to pay
$9.7 million per homicide reduction (Cohen et al, 2004). The present study estimates that long-run youth homicide rates decreased 23% subsequent to implementation. With a youth homicide rate sample mean of 12.33, this averages to a decline of 2.83 youth homicides per 100,000 per year. This estimate suggests that school desegregation resulted in a reduction of approximately 206 youth homicide victims per year in the sample population. In a strictly monetary equivalence, this corresponds to a benefit of nearly two billion dollars per year.

This paper does not offer a complete cost-benefit analysis for school desegregation. Instead, this analysis illustrates just one particular benefit, a substantial reduction in youth homicides. The potential benefit of diminished criminal behavior is only one of many important outcomes necessary for inclusion in a comprehensive cost-benefit analysis of school desegregation. However, taken in isolation, the potential for school desegregation to reduce the high social costs of crime suggests this policy has important societal benefits outside of academic outcomes.

Finally, the same mechanisms of school desegregation that seem to have a positive effect on academic achievement and crime may also affect other social outcomes. The progressive and increasing declines in homicides for all races following implementation and the robustness of the results across multiple models suggests an opportunity to study other important social outcomes historically correlated with peer groups and academic achievement, such as teen birth rates and incarceration rates.
Table I: Trends over time for key variable means

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>1960’s Mean</th>
<th>1970’s Mean</th>
<th>1980’s Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>692,864</td>
<td>656,897</td>
<td>683,452</td>
<td>722,622</td>
</tr>
<tr>
<td></td>
<td>(925,639)</td>
<td>(907,068)</td>
<td>(918,835)</td>
<td>(944,934)</td>
</tr>
<tr>
<td>White Total Population</td>
<td>559,222</td>
<td>546,863</td>
<td>556,362</td>
<td>568,784</td>
</tr>
<tr>
<td></td>
<td>(736,707)</td>
<td>(750,614)</td>
<td>(737,857)</td>
<td>(730,729)</td>
</tr>
<tr>
<td>Black Total Population</td>
<td>117,986</td>
<td>102,018</td>
<td>114,230</td>
<td>130,447</td>
</tr>
<tr>
<td></td>
<td>(186,623)</td>
<td>(167,852)</td>
<td>(182,949)</td>
<td>(198,735)</td>
</tr>
<tr>
<td>Total Student Enrollment</td>
<td>72,290</td>
<td>82,595</td>
<td>75,304</td>
<td>63,200</td>
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<tr>
<td></td>
<td>(82,742)</td>
<td>(92,285)</td>
<td>(85,191)</td>
<td>(73,469)</td>
</tr>
<tr>
<td>White Student Enrollment</td>
<td>36,498</td>
<td>49,419</td>
<td>39,526</td>
<td>26,434</td>
</tr>
<tr>
<td></td>
<td>(32,834)</td>
<td>(44,106)</td>
<td>(34,430)</td>
<td>(19,981)</td>
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<tr>
<td>Black Student Enrollment</td>
<td>27,029</td>
<td>26,904</td>
<td>27,836</td>
<td>25,641</td>
</tr>
<tr>
<td></td>
<td>(41,335)</td>
<td>(42,870)</td>
<td>(42,985)</td>
<td>(37,650)</td>
</tr>
<tr>
<td>Total Youth Homicide Rate</td>
<td>12.33</td>
<td>11.02</td>
<td>12.54</td>
<td>12.42</td>
</tr>
<tr>
<td></td>
<td>(10.29)</td>
<td>(9.02)</td>
<td>(10.35)</td>
<td>(10.61)</td>
</tr>
<tr>
<td>White Youth Homicide Rate</td>
<td>6.88</td>
<td>4.70</td>
<td>6.75</td>
<td>7.90</td>
</tr>
<tr>
<td></td>
<td>(6.77)</td>
<td>(4.99)</td>
<td>(6.30)</td>
<td>(7.84)</td>
</tr>
<tr>
<td>Black Youth Homicide Rate</td>
<td>31.87</td>
<td>38.85</td>
<td>33.45</td>
<td>26.52</td>
</tr>
<tr>
<td></td>
<td>(32.08)</td>
<td>(36.52)</td>
<td>(33.16)</td>
<td>(27.33)</td>
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</table>
Table II: Means of Youth Homicide Rate Variables

<table>
<thead>
<tr>
<th></th>
<th>60’s Desegregators</th>
<th>70’s Desegregators</th>
<th>80’s Desegregators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68-69</td>
<td>70-79</td>
<td>80-86</td>
</tr>
<tr>
<td>Total Youth</td>
<td>10.55</td>
<td>11.55</td>
<td>12.13</td>
</tr>
<tr>
<td></td>
<td>(8.16)</td>
<td>(10.50)</td>
<td>(11.32)</td>
</tr>
<tr>
<td>Black Youth</td>
<td>33.73</td>
<td>27.89</td>
<td>25.44</td>
</tr>
<tr>
<td></td>
<td>(32.39)</td>
<td>(29.97)</td>
<td>(27.37)</td>
</tr>
<tr>
<td>White Youth</td>
<td>4.12</td>
<td>6.32</td>
<td>7.50</td>
</tr>
<tr>
<td></td>
<td>(5.43)</td>
<td>(6.75)</td>
<td>(8.53)</td>
</tr>
<tr>
<td>Observations</td>
<td>39</td>
<td>195</td>
<td>111</td>
</tr>
</tbody>
</table>

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Table III: Logged Effect of Implementation of a Court-Ordered School Desegregation Plan on Black and White Youth Homicide Rates

<table>
<thead>
<tr>
<th></th>
<th>Total Homicide Rate</th>
<th>White Homicide Rate</th>
<th>Black Homicide Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre (-6)</td>
<td>-0.0531</td>
<td>-0.1719</td>
<td>0.0608</td>
</tr>
<tr>
<td></td>
<td>(0.1169)</td>
<td>(0.1008)</td>
<td>(0.1673)</td>
</tr>
<tr>
<td>Pre (-5)</td>
<td>0.0503</td>
<td>-0.0221</td>
<td>0.0884</td>
</tr>
<tr>
<td></td>
<td>(0.0962)</td>
<td>(0.1251)</td>
<td>(0.1442)</td>
</tr>
<tr>
<td>Pre (-4)</td>
<td>0.1105</td>
<td>-0.0440</td>
<td>0.1614</td>
</tr>
<tr>
<td></td>
<td>(0.0927)</td>
<td>(0.1172)</td>
<td>(0.1081)</td>
</tr>
<tr>
<td>Pre (-3)</td>
<td>0.0011</td>
<td>-0.0675</td>
<td>0.0373</td>
</tr>
<tr>
<td></td>
<td>(0.0920)</td>
<td>(0.1106)</td>
<td>(0.1301)</td>
</tr>
<tr>
<td>Pre (-2)</td>
<td>-0.0831</td>
<td>-0.0793</td>
<td>-0.0544</td>
</tr>
<tr>
<td></td>
<td>(0.0776)</td>
<td>(0.0984)</td>
<td>(0.0910)</td>
</tr>
<tr>
<td>Pre (-1)</td>
<td>0.0038</td>
<td>-0.0038</td>
<td>-0.0500</td>
</tr>
<tr>
<td></td>
<td>0.0663</td>
<td>(0.0858)</td>
<td>(0.0851)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-Implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post (1)</td>
<td>-0.0164</td>
<td>-0.1109</td>
<td>-0.0398</td>
</tr>
<tr>
<td></td>
<td>(0.0663)</td>
<td>(0.0928)</td>
<td>(0.0970)</td>
</tr>
<tr>
<td>Post (2)</td>
<td>0.0114</td>
<td>-0.0374</td>
<td>-0.0708</td>
</tr>
<tr>
<td></td>
<td>(0.0825)</td>
<td>(0.1032)</td>
<td>(0.1138)</td>
</tr>
<tr>
<td>Post (3)</td>
<td>-0.1375</td>
<td>-0.1599*</td>
<td>-0.2283*</td>
</tr>
<tr>
<td></td>
<td>(0.0804)</td>
<td>(0.0970)</td>
<td>(0.1172)</td>
</tr>
<tr>
<td>Post (4)</td>
<td>-0.1332</td>
<td>-0.2192**</td>
<td>-0.1583</td>
</tr>
<tr>
<td></td>
<td>(0.0879)</td>
<td>(0.0966)</td>
<td>(0.1177)</td>
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<tr>
<td>Post (5)</td>
<td>-0.1400</td>
<td>-0.2319**</td>
<td>-0.0991</td>
</tr>
<tr>
<td></td>
<td>(0.0899)</td>
<td>(0.1023)</td>
<td>(0.1316)</td>
</tr>
<tr>
<td>Post (6)</td>
<td>-0.2638**</td>
<td>-0.3510***</td>
<td>-0.2554</td>
</tr>
<tr>
<td></td>
<td>(0.1097)</td>
<td>(0.1061)</td>
<td>(0.1571)</td>
</tr>
</tbody>
</table>

* Statistically significant at .10 percent level (p<.10)
** Statistically significant at .05 percent level (p<.05)
*** Statistically significant at .01 percent level (p<.01)
Figure 1: Year-to-Year Overall Youth Homicide Rates

![Overall Youth Homicide Rates Graph](image1)

Figure 2: Year-to-Year White Youth Homicide Rates

![White Youth Homicide Rates Graph](image2)
Figure 3: Year-to-Year Black Youth Homicide Rates


