The Disproportionate Minority Contact Mandate: An Examination of Its Impacts on Juvenile Justice Processing Outcomes (1997-2011)

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Abstract
The Disproportionate Minority Confinement, and later Contact (DMC), mandate was developed by Congress to reduce minority overrepresentation in the U.S. juvenile justice system. Presently, this federal provision compels states to decrease the disproportionate number of minorities handled at all of their juvenile processing stages. The DMC mandate has recently captured political attention due to its compulsory status and system-wide focus, but its impacts on the treatment of minority youth are less clear. This study uses original juvenile processing data from Pennsylvania to evaluate whether the DMC mandate has diminished the size of processed minority youth populations. Empirical assessments demonstrate the DMC mandate has successfully generated substantial declines in minority processing throughout the state's juvenile justice system. The results highlight the potential of a national reform to remedy racial inequalities in juvenile justice.

Keywords
juvenile justice reform, race, policy implications, disproportionate minority contact, racial disparity

Since the establishment of integrated correctional structures in the 1960s, racial and ethnic minority youths have been disproportionately processed in the U.S. juvenile justice system (e.g., Arnold, 1971; Bishop, 2005; Pope & Feyerherm, 1990; Ward, 2012). In 2011, more than 36% of all delinquency cases handled by U.S. juvenile
courts involved Black, Asian, Native Pacific Islander, and American Indian youths who make up approximately 21% of the nation’s general youth population (Sickmund, Sladky, & Kang, 2014). African Americans have been especially overrepresented throughout juvenile justice continuum, on average constituting 16% of all American youths, but 31% of all referrals to juvenile court, 35% of petitions, 33% of determinations of delinquency, and 52% of commitments to secure facilities from 1997 onward (Poe-Yamagata & Jones, 2000; Sickmund et al., 2014). These troubling racial disparities have prompted policy makers to take corrective action, yet it remains unclear whether existing policies can effectively remedy these problems.

The first national measure to address racial inequalities in juvenile justice is the Disproportionate Minority Confinement, and later Contact, (DMC) mandate. Enacted by the U.S. Congress in the 1988 amendments to the Juvenile Justice and Delinquency Prevention Act of 1974 (JJDPA), the DMC mandate originally required a state to reduce minority overrepresentation in its secure facilities if minorities represented a greater proportion of its securely confined population than their proportion in the general youth population (Feyerherm, 1995). In 2002, Congress expanded the DMC mandate to encompass minority youth contact with the juvenile justice system. States must presently reduce the disproportionate number of minorities handled at all processing stages without the use of quotas or numeric standards. Failure to make a “good faith” effort in rectifying racial inequities results in a 20% cut in federal funds and reallocation of remaining funds toward meeting compliance standards (Hanes, 2012). No other national measure penalizes states for failing to confront racial disparities in their juvenile or adult justice systems.

Although the DMC mandate in its current compulsory and system-wide form has been hailed as a model for promoting more racially just processing practices (Johnson, 2007), the policy’s impacts are poorly understood. Many states rely on crude descriptive statistics, such as proportions or “Relative Rate Indices” comparing the processing rates of minority and White youths, to assess changes in minority overrepresentation (Hamparian & Leiber, 1997; Leiber, 2002). These metrics do not control for legal and social factors that influence processing outcomes (Bell & Ridolfi, 2008; Piquero, 2008). A recent multivariate study of the DMC mandate as it initially pertained to minority youth confinement indicates the policy curtailed racial disproportion in national secure confinement rates (Davis & Sorenson, 2013). The original measure had more mixed effects on diminishing the importance of race as a decision making factor at the local level (Leiber, Bishop, & Chamlin, 2011). No study evaluates whether the DMC mandate has achieved its present goal of decreasing the number of minorities processed in a state’s juvenile justice system.

This study evaluates whether the DMC mandate has actualized its purpose of diminishing state processed minority youth populations. It examines juvenile processing data from Pennsylvania, a state known for its minority overrepresentation issues as well as its commitments to upholding the DMC mandate (Griffith, Jirard, & Ricketts, 2012; Hsia & Hamparian, 1998; Kempf-Leonard, 1992). A difference-in-differences design is used to compare Pennsylvanian counties that did and did not undergo intervention on behalf of the DMC mandate. This study provides evidence regarding the ability of national policy to reduce racial imbalances in juvenile justice.
Policy Background

The Disproportionate Minority Contact (DMC) mandate represents a landmark national policy in requiring state juvenile justice officials to address racial inequality. In 1988, Congress created the Disproportionate Minority Confinement mandate to curb the growing presence of minority youth in public secure facilities (Leiber, 2002). The provision compelled a federally funded state to reduce the proportion of a given minority group among detained, jailed, and securely confined youths if this amount exceeded the proportion of the group in the general population (Feyerherm, 1995). Proponents believed the policy would put an end to a newly emerging “two-tiered” juvenile justice system that gave Whites restorative sanctions and committed minorities to secure facilities (Oversight Hearing of the JJDPA, 1986).

By the late 1990s, Congress sought to redesign the DMC mandate to provide a more comprehensive response to racial disparities. Calls for more “front end” changes to juvenile processing came from bipartisan interests in strengthening delinquency prevention (H.R. Rep. No. 105-155, 1997) and growing recognition that racial disproportionalities in secure confinements usually began at earlier stages (Proposed Legislation for the Juvenile Crime Control Act, 1997, pp. 46-48). Policy makers believed a revised mandate could inspire states to invest in after-school, treatment, or diversion programs that target at-risk youths well before these juveniles could face the sanction of secure confinement (Bilchik, 1998). Members of Congress likewise sought to move away from using proportions to assess minority overrepresentation. Not only was this metric unpopular among practitioners, but it may have also violated new standards on government use of racial categories established in Adarand Constructors, Inc. v. Pena (1995; Cong. Rec. S5564, 1999). Reformulated in 2002, the DMC mandate obliges a federally funded state to reduce the disproportionate number of minorities coming into contact with its juvenile justice system without using quotas or numeric standards. With the exception of Wyoming, all states have taken federally approved corrective actions (Hanes, 2012).

Given its compulsory status and system-wide focus, the DMC mandate has garnered political interest among policy experts, civil rights advocates, and elected officials (Johnson, 2007). In a 2009 congressional hearing, a version of the policy was offered as a remedy for relieving racial inequalities in adult imprisonments (Racial Disparities in the Criminal Justice System, 2009). The proposed Justice Integrity Act of 2014 hopes to replicate the DMC mandate’s core characteristics in the federal criminal justice system (Lerman & Weaver, 2014). Such discussion, however, has neglected the DMC mandate’s impacts on minority youth processing.

Prior Literature

The significance of the DMC mandate and its ability to decrease minority youth processing are contested in the literature. Research has long substantiated the existence of unwarranted racial disparities in juvenile processing (e.g., McCord, Spatz, & Crowe, 2001; Ward, 2012). When the first DMC provision passed in 1988, empirical work showed race had a direct influence on arrests (Kurtz, Giddings, & Sutphen, 1993),
referrals to court for processing (Dannefer & Schutt, 1982), adjudications (Bishop & Frazier, 1988), dispositions (DeJong & Jackson, 1998), and out-of-home placements (Kempf-Leonard & Sontheimer, 1995). These effects became stronger at later processing points after controlling for relevant legal and social factors (Pope & Feyerherm, 1990). Such undue influence of race was assumed to be responsible for large detained and confined minority populations across the nation (Krisberg et al., 1987). The DMC mandate appeared to be a much-needed response to these findings. Feyerherm (1995) even pondered if this “juncture of research and policy interests [would] continue to build on the mutual needs of each arena in ways that . . . improve both” (p. 15).

The relationship between the problem of racial inequality identified by research and the policy solution of the DMC mandate would prove more complicated. Research has not agreed on the magnitude or primary source of the U.S. juvenile justice system’s racial imbalances. Recent reviews of empirical research have affirmed the persistence of racial disparities at most processing points (Bishop, 2005; Engen, Steen, & Bridges, 2002; Pope, Lovell, & Hsia, 2002). Differential treatment is partially explained by differences in offending by minorities relative to Whites (Blumstein, 1982; Elliott & Ageton, 1980; Huizinga et al., 2007). Unexplained racial differences in juvenile justice decision making vary across jurisdictions, offenses, time, and populations (Sickmund, 2004). Such “mixed” results suggest that juvenile justice systems are not overtly or consistently racist in their decision patterns (Pope & Feyerherm, 1990, p. 328). By result, it has been unclear to policy makers and practitioners what problems the DMC mandate should exactly solve (Proposed Legislation for the Juvenile Crime Control Act, 1997).

Scholars have also questioned the legitimacy of the DMC mandate as a remedy to racial inequality. First, Congress initially developed the policy in response to the advocacy efforts of former Office of Juvenile Justice and Delinquency Prevention (OJJDP) administrator Ira Schwartz and the National Coalition of State Juvenile Justice Advisory Groups (Feyerherm, 1995; Howell, 1997). A handful of interest groups worked with OJJDP revise the DMC mandate in the late 1990s (H.R. Rep. No. 105-155, 1997). Tracy (2002) argues such lobbying of a few persons and organizations prompted Congress to rashly enact correctives to racial disproportionalities without regard to their sources. The DMC mandate could then be seen as a misguided answer to a politicized view of minority overrepresentation (Tracy, 2005).

Second, the DMC mandate has been slowly and unevenly implemented by states. Ten years after the policy first began, many states still lacked accessible juvenile processing records of a youth’s race, knowledge of minority overrepresentation or its sources, and strategies for intervention (Hamparian & Leiber, 1997). Other states identified racial imbalances using descriptive statistics like proportions or rates of minority group movements through the system (Leiber, 2002). While provocative, these measures provide insufficient guidance on crafting reforms that address the legal, social, and discriminatory origins of racial disproportionalities (Leiber & Rodriguez, 2011; Nellis & Richardson, 2010; Piquero, 2008). As of 2012, just 34 of the 49 federally funded states have implemented a DMC systems improvement or delinquency prevention program (Hanes, 2012). Some contend the current DMC mandate has amounted to “little more than a symbolic gesture” (Bell & Ridolfi, 2008, p. 14).
Despite an emphasis on the complexity of racial inequalities and political limitations of the DMC mandate, prior academic studies have suggested the DMC mandate as it initially concerned minority confinement has been effective. Analyzing processing decisions in a single county in Iowa, Leiber et al. (2011) assert the DMC mandate of 1988 had mixed effects on Black and White youth processing between 1980 and 2000. The policy did not change the disadvantaging effect of minority status on petitioning outcomes, but it had stronger effects at the placement stage. Although being Black had no influence on placement decisions before the DMC mandate’s enactment, African Americans became significantly less likely than Whites to receive out-of-home placements after the policy passed. These findings lead Leiber et al. to conclude the original DMC mandate did alter decision making processes, but “. . . irrespective of the intentions the U.S. Congress, racial distinctions are highly resistant to change” (p. 487).

Davis and Sorenson (2013) convey more promising results. Comparing arrest and secure confinement proportions, their 10-year analysis of OJJDP’s census of incarcerated children figures purports that national Black-White disparities in confinement have declined over time. Between 1997 and 2006, national Black to White confinement ratios decreased by nearly 20% after controlling for the groups’ arrest rates. Although unable to pinpoint specific DMC interventions within states driving these findings, Davis and Sorenson are optimistic that compliance with the original DMC mandate produced important declines in the disproportionate confinement of African Americans.

While these two studies point to the success of the original DMC mandate concerning minority youth confinement, research has yet to explore the effects of the present DMC initiative regarding minority youth contact. The literature has also yet to consider how DMC intervention alters statewide rather than national or local processing practices. This study responds to these gaps in DMC scholarship by evaluating whether the policy has successfully prompted a state to reduce minority youth processing throughout its juvenile justice system.

Present Research

This study tests the hypothesis that intervention on behalf of the DMC mandate has decreased the number of minorities handled at various decision points along the juvenile justice continuum in Pennsylvania. Pennsylvania has historically ranked among the top five states with the highest minority youth confinement rates in the country (Hockenberry, 2013; Kempf-Leonard, 1992; Sickmund, 2004). Since the late 1990s, nearly 80% of Pennsylvanians ages 10 to 17 identify as White, yet African Americans and Hispanics constitute 36% of all juvenile court referrals, 38% of determinations of delinquency, and 42% of dispositions to out-of-home placement. On average, the relative rates at which minorities advance through the juvenile justice system have exceeded those of Whites during this period (Griffith et al., 2012). For instance, the average Relative Rate Index for commitments to secure confinement between 1997 and 2011 is 1.81 for African Americans and 2.43 for Hispanics, far above a ratio of 1.00 reflecting equal rates of processing between minority and White youths.
Since the passage of the original DMC mandate, Pennsylvania officials have introduced institutional and community-based interventions that target minority youth delinquency. Programs have been incrementally introduced in counties with significant minority overrepresentation issues (Hsia & Hamparian, 1998). Early DMC programs in Dauphin County were shown to substantially decrease minority youth recidivism over a 3-year period. Such promising practices were shared with DMC reduction sites in Philadelphia and Allegheny Counties (Welsh, Jenkins, & Harris, 1999). Pennsylvania’s dedication to evidence-driven, local reform later helped to forge a partnership with the MacArthur Foundation, a nonprofit organization committed to working with states in developing innovative juvenile justice practices. In 2004, Pennsylvania juvenile justice officials announced the state’s participation in the MacArthur Foundation’s Models for Change initiative as well as their collaborations with the National Coalition for Juvenile Justice and the Juvenile Law Center. Pennsylvania’s interventions on behalf of the DMC mandate have since been inextricably linked to activities and resources of these organizations (Schwartz, 2013).

Current DMC Intervention Efforts in Pennsylvania

Following the enactment of the 2002 DMC mandate and the unfurling of Models for Change programs over the next few years, Pennsylvania officials have designated 5 of its 67 counties as disproportionate minority contact reduction sites based on their problems of racial disproportion and interest in resolving these issues (Griffith et al., 2012; Kempf-Leonard, 1992). These counties are Allegheny, Berks, Dauphin, Lancaster, and Philadelphia. DMC intervention has come in a series of locally oriented reforms targeting all aspects of juvenile justice.

At the arrest stage, all five counties have regularly held community forums in which minority youth discuss their experiences and relations with school administrators, juvenile court and probation officials, and police officers. The intention of forums has been to quell discontents, hostilities, and misperceptions among youth and authorities to reach a better understanding of the role of law enforcement in the lives of juveniles (Griffin, 2008; Griffith et al., 2012; Schwartz, 2013). In Philadelphia County, minority youth-law enforcement forums became the foundation of a DMC training curriculum for the Philadelphia Police Department. In 5 years, the curriculum trained more than 700 new and experienced police officers (Shoenberg, 2012).

Within the courts, the state has attempted to revise practices that disadvantage minorities in judicial proceedings. Given a growing Hispanic population in its largest city of Reading, Berks County, for instance, has introduced several correctives to serve Hispanic youth entering the juvenile court system. County juvenile court officials have begun to remove language and cultural barriers by converting important documents into Spanish and hiring in-court translators. Moreover, all staff receive cultural sensitivity training and expanded opportunities for Spanish language education (Griffin, 2008). Philadelphia County too has sought to redefine its judicial review of juvenile probation offenses by creating a graduated sanctions court. Prior to the court’s development, Philadelphian youth violating probation were subject to out-of-home
placements due to relatively minor infractions like truancy, failed drug tests, or missed appointments. With more and incremental sanctioning options, approximately half of all probation violators have successfully completed probation and avoided long-term placement (Shoenberg, 2012).

Pennsylvania has likewise devoted considerable attention to amending its detention, out-of-home placement, and secure confinement policies. Revised risk assessment instruments were developed to curb disproportionate rates of minority youth commitments (Griffith et al., 2012). To illustrate, a revised detention assessment tool decreased Berks County’s 80% detention rate by limiting the use of “zero-tolerance” policies for offenses like auto-thefts and adjusting point values to encourage the release or referral of youth to detention alternatives (Steinhart, 2008). One such alternative is evening reporting centers, which have opened in Allegheny, Berks, and Lancaster Counties. Preliminary evidence suggests these two forms of intervention have been influential. In Berks County alone, detention has decreased by 60% whereas out-of-home placements have declined by 67% since 2005. The overwhelming beneficiaries of these processing changes have been Hispanics and African Americans (Shoenberg, 2012).

More importantly, the state’s approach has actively engaged local communities in tackling minority youth delinquency. Lancaster County officials have worked closely with local faith-based groups to provide youth and family services (DMC/Juvenile Justice Action Network, 2010). The county’s Juvenile Probation Office has held strategic planning forums concerning juvenile delinquency prevention with the Intra-City Progressive Pastors’ Association and County Council of Churches. Similarly, faith-based organizations have run the city of Lancaster’s Youth Aid Panel, a board that informally handles low-level offending youth (DMC/Juvenile Justice Action Network, 2011). In Dauphin County, youth receive DMC-specific educational programming in public middle schools. A DMC curriculum informs youth about minority overrepresentation in criminal processing and proactively instills lessons about their rights, protections, and responsibilities as citizens (Griffith et al., 2012; Harrisburg School District, 2010).

In all, review of Pennsylvania’s historic reception of the DMC mandate and its recent DMC reduction activities illuminate three qualities of the state’s DMC intervention strategy. Pennsylvania juvenile justice officials have agreed that minority overrepresentation must be checked at all decision points. Reforms must be measurable and responsive to racial disproportionalities. All reforms should also be tailored to the needs of local communities. Pennsylvania has therefore embraced and implemented DMC mandate as a system-wide reform. Whether Pennsylvania’s faithful execution of the DMC mandate has altered its minority youth processing remains a pressing question.

**Data**

To evaluate the impacts of the DMC mandate on juvenile processing, this study uses de-identified cases involving new allegations of delinquency occurring between 1997 and 2011. Reported by the Center for Juvenile Justice and Training Center (CJJT&R), these data begin with the referral of a youth into the Pennsylvania juvenile justice system and
contain all subsequent processing stages until the imposition of a disposition (sentence). All of Pennsylvania’s 67 counties report their case outcomes for every year during this period (N = 631,639). Cases are then separated by whether they were referred into the juvenile justice system before (1997-2003, N = 252,901) or after (2004-2011, N = 336,177) the implementation of large-scale DMC reduction programs.

**Dependent Variables**

The dependent variables are the number of African American and Hispanic youths processed at four stages: petitioning, adjudication, disposition to placement in a residential program outside of a youth’s home (hereafter placement), and commitment to secure facility (hereafter secure confinement). African American and Hispanic status is derived from four, mutually exclusive racial identities consistently used in processing records across time (i.e., Black, Hispanic, White, and Other). The major focus is on African Americans and Hispanics due to the size of these populations in Pennsylvania’s general youth and juvenile justice populations.

Petitioning determines whether a youth is recommended for formal processing. Following a referral into the juvenile justice system, an attorney from the Commonwealth or a juvenile court intake official decides whether an allegation of delinquency warrants additional review. Cases can be handled formally by a juvenile court with the filing of a petition or diverted out of the juvenile justice system.

Adjudication separates substantiated cases of delinquency from unsubstantiated cases. All petitioned cases are subject to an adjudicatory hearing. If the juvenile court finds that a juvenile has committed a delinquent act, the youth is adjudicated as delinquent. Youth who are not deemed delinquent typically have their cases dismissed, informally adjusted, or handled by consent decree.

Following a determination of delinquency, the court must dispose a youth to sanctions within the community or an out-of-home placement. Placement is driven by the question of whether an adjudicated youth is in need of supervision, treatment, or rehabilitation. Placements are reserved for youth who have committed serious offenses, disruptive home lives, or substantial needs for treatment in institutional care (Pennsylvania Juvenile Court Judges’ Commission, 2008). Delinquency adjustments within a community include probation, fines and costs, consent decrees, warning and counseling, continuance of previous disposition, and other sanctions.

For all delinquent youths removed from their homes, the court either commits the youth to a secure facility or sends him or her to a non-secure residential program. Non-secure residential placements range from boot camps to drug and alcohol treatment facilities and youth development centers. Secure confinement is reserved for the most intensive cases, in which the less restrictive options do not seem viable.

**Explanatory and Control Variables**

Two dummy variables corresponding to intervention on behalf of the DMC mandate serve as the key explanatory variables of this study. The first variable, period, denotes...
whether a case was processed after DMC reduction programs began (0 = pre-intervention, 1 = post-intervention). The second variable, DMC intervention, represents whether the county processing a case implemented DMC intervention strategies (0 = no, 1 = yes). The interaction of these variables defines the effect of DMC intervention in difference-in-differences estimation.

Several variables corresponding to the demographic, sociopolitical, and juvenile justice characteristics of counties are used as controls. A first set of controls accounts for six county conditions related to rates of juvenile delinquency. The youth poverty rate measures the percent of youths living below the poverty line per 100,000 residents in a county (U.S. Bureau of the Census, 2010a). Percent urban gauges the percent of a total county population living in urban areas. For these county-level variables, cases handled between 1997 and 1999 are matched with 1990 Census data, whereas 2000-2009 and 2010-2011 cases are matched to 2000 and 2010 Census data, respectively (U.S. Bureau of the Census, 2010b). Next, high school dropout rate measures the proportion of secondary-school students who drop out during a school year (Pennsylvania State Data Center, 2012), while unemployment rate approximates each county’s annual, non-seasonally adjusted unemployment rate (U.S. Bureau of Labor Statistics, 2012). Two youth population measures are likewise included: general youth population estimating county youth populations ages 10 to 17 (Puzzanchera, Sladky, & Kang, 2014) and juvenile arrest rate measuring county juvenile arrests per 1,000 youth population (Federal Bureau of Investigation, 2011).

A second set of variables captures county orientations toward juvenile crime. Percent Republican measures the percent of voters registered as Republican and proxies for political conservatism. Politically conservative communities encourage local criminal justice institutions to mete out tougher carceral and non-carceral punishments (Helms, 2009; Huang, Finn, Ruback, & Friedmann, 1996). Imprisonment rate gauges a county’s propensity to issue harsh sanctions to offenders. It is measured by the number of county court commitments to state prison per 100,000 residential population (Pennsylvania State Data Center, 2012).

A third set of variables approximates racial group representation in arrests and referrals. Specifically, the number of African American or White youths arrested and the number of African American or Hispanic youths referred into the juvenile justice system are used to directly control for changes in the frequency of cases handled in the juvenile justice system. Due to the unreliability of Hispanic youth arrest figures in the Federal Bureau of Investigation’s arrest data, the number of White youths arrested is used because most Hispanics identify as White (Mauer & King, 2007).

A final set of controls takes into consideration the average characteristics of cases handled by a county each year. The mean traits of all cases and youths processed by a county are calculated for each year. Mean demographic characteristics of processed youth include age and sex. Mean social conditions a youth faces include enrollment in school (school status), the marital status of a child’s parents (family status), and the living arrangements of a child (living arrangements). Perceptions of unstable home environments related to these social condition variables elevate a youth’s odds of
receiving formal court review and harsher dispositions (Kempf-Leonard & Sontheimer, 1995; Leiber et al., 2011). Mean legal characteristics of cases are straightforward. These include number of charges, severity of charge based on the National Juvenile Court Data Archive’s adaptation of Wolfgang’s Crime Severity Index (MacDonald & Chesney-Lind, 2001), and grade of charge distinguishing whether the most serious charge is a felony or a misdemeanor.

Table 1 shows the mean and standard error of all variables by DMC intervention for county-years in Pennsylvania. The totals of 75 and 938 county-years are associated with annual observations of the 5 DMC intervention counties and 62 non-intervention counties between 1997 and 2011. The coding for the average characteristics of cases is also presented. It is evident counties with DMC reduction programs process a high number of African American and Hispanic youths in their juvenile justice systems. DMC intervention counties handle approximately 2/3 of all cases involving African Americans and 1/2 of all cases involving Hispanics. Such processing is likely attributed to larger youth populations, higher juvenile arrest rates, and greater propensities to punish offenders given more imprisonment sentences in these jurisdictions. Counties lacking DMC intervention are more rural and contain less impoverished youth populations. These counties are also more conservative and face greater rates of unemployment. At the case-level, the characteristics of youths and cases entering into the juvenile justice system are comparable across intervention sites with DMC intervention counties handling youth with slightly more severe charges and more felonies.

Figures 1 and 2 take a closer look at the dependent variables: the numbers of African American and Hispanic youths processed by DMC intervention and non-intervention counties at these four processing stages. These scatterplots show Black and Hispanic processing has declined in DMC intervention counties since programs began in 2004. At the same time, processed minority youth populations of non-intervention counties have grown. In recent years, non-intervention counties have surpassed DMC intervention counties in disposing minorities to out-of-home placements and secure confinement.

Method

This study utilizes naïve and fixed county and year effects difference-in-differences models to determine whether DMC intervention has altered the number of minority youth interacting with the Pennsylvania juvenile justice system. The difference-in-differences method discerns the effect of a treatment (i.e., intervention on behalf of the DMC mandate) in a non-experimental setting. Outcomes from counties receiving the treatment of DMC reduction programs are compared with those lacking treatment for two periods: pre-DMC intervention and post-DMC intervention. By taking the difference in the differences between these two groups from each point in time, the effect of treatment is isolated (Angrist & Pischke, 2008). If DMC intervention is successful, difference-in-differences estimates of changes in minority youth processing should be negative and statistically significant.
Table 1. Summary Statistics of Variables by DMC Intervention for County-Years in Pennsylvania (N = 1,005).

<table>
<thead>
<tr>
<th>Variables</th>
<th>DMC intervention county-years</th>
<th>Non-intervention county-years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>Dependent variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of African Americans petitioned</td>
<td>75</td>
<td>1,550.81</td>
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<tr>
<td>No. of African Americans adjudicated</td>
<td>75</td>
<td>668.75</td>
</tr>
<tr>
<td>No. of African Americans placed</td>
<td>75</td>
<td>188.08</td>
</tr>
<tr>
<td>No. of African Americans securely confined</td>
<td>75</td>
<td>16.12</td>
</tr>
<tr>
<td>No. of Hispanics petitioned</td>
<td>75</td>
<td>262.45</td>
</tr>
<tr>
<td>No. of Hispanics adjudicated</td>
<td>75</td>
<td>136.27</td>
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<tr>
<td>No. of Hispanics placed</td>
<td>75</td>
<td>41.40</td>
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<td>No. of Hispanics securely confined</td>
<td>75</td>
<td>4.36</td>
</tr>
<tr>
<td>Independent variables</td>
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<td></td>
</tr>
<tr>
<td>Period (0 “pre-”; 1 “post-intervention”)</td>
<td>75</td>
<td>930</td>
</tr>
<tr>
<td>DMC intervention (0 “no,” 1 “yes”)</td>
<td>75</td>
<td>930</td>
</tr>
<tr>
<td>Youth poverty rate</td>
<td>75</td>
<td>17.59</td>
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<tr>
<td>Percent urban</td>
<td>75</td>
<td>83.72</td>
</tr>
<tr>
<td>High school dropout rate</td>
<td>75</td>
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<tr>
<td>Unemployment rate</td>
<td>75</td>
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<tr>
<td>General youth population</td>
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<td>Juvenile arrest rate</td>
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<tr>
<td>Percent Republican</td>
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<tr>
<td>Imprisonment rate</td>
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<tr>
<td>No. of African Americans arrested</td>
<td>75</td>
<td>5,978.04</td>
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<tr>
<td>No. of Whites arrested</td>
<td>75</td>
<td>4,523.37</td>
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<tr>
<td>No. of African Americans referred</td>
<td>75</td>
<td>1,935.72</td>
</tr>
<tr>
<td>No. of Hispanics referred</td>
<td>75</td>
<td>387.49</td>
</tr>
<tr>
<td>M sex (0 “female,” 1 “male”)</td>
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<td>0.77</td>
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<tr>
<td>M age (0 “≤15,” 1 “&gt;15”)</td>
<td>75</td>
<td>0.51</td>
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<tr>
<td>M school status (0 “enrolled,” 1 “not enrolled”)</td>
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<td>M family status (0 “married,” 1 “divorced, separated, never married, or other”)</td>
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<td>M living arrangements (0 “two parents,” 1 “single parent, relative, or other”)</td>
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<tr>
<td>M severity of charge (1-77 adapted Wolfgang Severity Index)</td>
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<td>35.36</td>
</tr>
<tr>
<td>M number of charges (1-7)</td>
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<td>M grade of charge (0 “felony”, 1 “misdemeanor”)</td>
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<td>1.58</td>
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</table>

Note. DMC = Disproportionate Minority Contact.

Results

Naive Difference-in-Differences Estimations

Table 2 presents naïve difference-in-differences estimates of the average numbers of African Americans and Hispanics petitioned, adjudicated, disposed to placement, and remanded to secure confinement in DMC intervention and non-intervention counties.
Prior to implementing DMC reduction programs, DMC intervention counties on average handle a large number of cases involving African Americans and Hispanics relative to non-intervention counties. Disparities in average caseloads are most apparent at the placement and secure confinement stages. Once DMC intervention begins, however, these two county sets take distinct processing paths. Far more African Americans and Hispanics are processed in non-intervention counties at all decision points. Minority youth processing concurrently drops within DMC intervention counties. As a net result of these dynamics, contractions occur in minority youth processing differences among DMC intervention and non-intervention counties. With the exception of petitioned African Americans, such reductions in the average numbers of Hispanic and Black youths coming into contact with each decision point are highly significant ($p < .01$). DMC intervention therefore seems to curtail disproportionate minority youth processing.

Figure 1. Annual number of African American youths processed in Pennsylvania’s DMC intervention and non-intervention counties, 1997-2011.

Note. This figure depicts the numbers of African Americans petitioned, adjudicated, disposed to placement, and remanded to secure confinement annually for counties with and without DMC reduction programs. The year 2004 marks the beginning of DMC intervention. DMC = Disproportionate Minority Contact.
Pre- and post-intervention averages identified by these difference-in-differences models can be further broken down by year to show the trajectory of minority youth processing over time. Figures 3 and 4 present the predicted average numbers of Africans Americans and Hispanics processed in DMC intervention and non-intervention counties at each processing stage for 1997 through 2011. The plotted lines visually represent the relationship between DMC intervention and the size of the Pennsylvania juvenile justice system’s minority youth population. These figures plainly show a narrowing in the processing practices of DMC intervention and non-intervention counties, particularly at later decision points. Such convergence derives from declines in minority youth processing as a result of DMC intervention and increases in minority youth contact in the absence of DMC reduction programs.

These difference-in-differences estimates also help approximate the number of minorities exiting the juvenile justice system at earlier stages as a result of DMC reduction programs. The consequences of DMC intervention can be roughly gauged by isolating changes in the average processed minority youth populations of DMC intervention counties. Average processing differences in these counties are then
multiplied by five (i.e., the number of counties with DMC reduction programs) to get an annual measure of the total difference in the number of minorities handled at various decision points. Over the course of 7 years, declines in minority youth contact have been considerable. Overall, DMC intervention has led to 315 fewer petitions and 10,524 less determinations of delinquency among Black and Hispanic youth. More crucially, DMC reduction programs have allowed 6,063 minorities to remain within their communities and more than 350 to be sent to non-secure residential facilities. These figures translate into reductions in the state’s processed minority youth population of .05% at petitioning, 31.44% at adjudication, 54.21% at placement, and 41.5% at secure confinement.

### Fixed County and Year Effects Difference-in-Differences Estimates

A limitation of the naïve difference-in-differences approach is the inability to fully control for county-specific and year-specific particularities in the treatment of juveniles. Fixed effects regression modeling addresses this problem by treating the values of explanatory variables as non-random quantities and assuming each model’s error...
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terms are fixed constants (Angrist & Pischke, 2008). In a juvenile justice context, a fixed county and year effects model presumes youth processing and relevant factors influencing juvenile court operations in a locality are not entirely random over time.

Results for fixed county and year effects difference-in-differences models are presented in Table 3. Each model incrementally introduces various sets of control variables with Model V being a saturated model. To form baseline estimates, Model I contains no controls. Its fixed effects coefficients parallel the naïve difference-in-differences estimates of Table 2 in size and direction. Table 3 generally shows a diminished frequency of African Americans and Hispanics being processed since the introduction of DMC reduction programs. Across all models, fewer minorities are adjudicated, placed, and securely confined. Recommendations for formal court review appear more resistant to change under DMC intervention. Models IV and V that feature variables measuring the size of arrested and referred minority populations suggest important shifts in petitioning have still transpired. These fuller models demonstrate the number of Black and Hispanic youth processed at four decision

Figure 3. Predicted annual average number of African American youths processed in Pennsylvania’s DMC intervention and non-intervention counties, 1997-2011.

Note. This figure depicts the association between DMC intervention and the predicted average numbers of African Americans petitioned, adjudicated, disposed to placement, and remanded to secure confinement annually for counties with and without DMC reduction programs. DMC = Disproportionate Minority Contact.
Discussion and Conclusion

Obvious and persistent racial inequality in the U.S. juvenile justice system has provoked policy makers to consider what can be done for its elimination. The national DMC mandate of 2002 has been acclaimed by racial justice proponents as a model reform due to its requirement for states to decrease the number of minorities coming into contact with their juvenile justice structures. Analysis of the policy underscores such political attention is warranted. This study determined intervention on behalf of the current DMC mandate has successfully diminished the number of African American and Hispanic youths processed at multiple decision points of the Pennsylvania juvenile justice system. These findings align with Davis and Sorenson’s (2013) and Leiber et al.’s (2011) conclusions that the original Disproportionate Minority Confinement mandate of 1988 could produce more racially equal outcomes at late processing stages.

Figure 4. Predicted annual average number of Hispanic youths processed in Pennsylvania’s DMC intervention and non-intervention counties, 1997-2011.

Note. This figure depicts the association between DMC intervention and the predicted average numbers of Hispanics petitioned, adjudicated, disposed to placement, and remanded to secure confinement annually for counties with and without DMC reduction programs. DMC = Disproportionate Minority Contact.
Various specifications of difference-in-differences models show great reductions in the size of processed minority youth populations of counties implementing DMC reduction programs. These models consistently indicate statistically significant decreases in determinations of delinquency, out-of-home placements, and commitments to secure facilities as a result of DMC intervention. These findings suggest Pennsylvania’s DMC reforms like new risk assessment tools, graduated sanctions, and alternatives to confinement are effective in diminishing disproportionate minority contact. Because these correctives were introduced simultaneously, this study cannot discern which program(s) may have driven these reductions. As new reforms are introduced, future research may attempt to isolate the impacts of specific interventions on juvenile processing.

Declines in petitions for formal court review were much smaller. This finding was not unexpected. Because petitioning decisions are largely based on arrests and charging decisions of police officers who are unaffected by the DMC mandate, it may be more difficult to legally divert youths out of the system at this point. It is beyond the
scope of this study to examine how juvenile arrest, charging, and referral practices have changed under DMC intervention. Pennsylvania’s introduction of police-youth forums and police training curriculums point to state juvenile justice officials’ commitment to changing the way law enforcement officials interact with minority youths. Subsequent research should explore whether police departments respond to DMC reduction programs in their treatment of minorities.

Two policy implications can be drawn from these results. On one hand, a national reform can inspire racially conscious and egalitarian change in state juvenile justice operations. The DMC mandate, like other congressional provisions, may have developed as a result of political pressures from a few professional advocacy organizations, federal agency administrators, and other national experts removed from everyday local and state juvenile justice affairs (Tracy, 2002). The policy may also have uneven influence due to differences among states in their capacities or willingness to meet the DMC mandate (Leiber, 2002). Despite its political origins and implementation challenges, this national policy has prompted almost every state to do something about disproportionate minority representation within its juvenile justice system. In an environment where racial inequalities in juvenile or criminal justice do not readily garner remedial action, a varying “something” is better than “nothing.” In this regard, the DMC mandate as a mandatory and system-wide measure deserves to be deemed a new paradigm for advancing racial equality through public policy (Johnson, 2007).

On the other, the success of juvenile justice reform depends not simply on the convergence of political interests and research (Feyerherm, 1995), but on commitments to the policy’s ends (Feeley & Sarat, 1980). Faithful implementation of a measure like the DMC mandate can reshape minority youth processing. Without multiple and diverse interventions at various decision points, the large size of processed minority youth populations would likely persist or proliferate. The DMC mandate’s present focus on numbers has prodded juvenile justice practitioners to design meaningful aggregate-level processing changes. By successfully diverting more minorities out of the juvenile justice system at every decision point after arrest, practitioners have taken a great stride in accomplishing the more arduous task of eradicating racial disparities.

Although this study highlights the success of the DMC mandate in reducing minority youth processing, several limitations must be kept in mind. First, processing data and analyses originate from a single state. In Pennsylvania, compliance with the DMC mandate derived from its juvenile justice officials’ dedication to addressing minority overrepresentation using evidence and localized delinquency prevention plans. Most states have not implemented DMC interventions with the same speed and rigor (Hanes, 2012; Leiber & Rodriguez, 2011; Nellis & Richardson, 2010). Pennsylvania, or its intervention counties, may not then reflect an “average” experience with the DMC mandate. Results from this study may still be generalizable to DMC reduction sites within states or other states that have heavily invested in racial inequality reforms. States displaying promising DMC reduction approaches include Iowa (Leiber, 2003), Oregon (Cabaniss, Frabutt, Kendrick, & Arbuckle, 2007), and Wisconsin (Coggs & Wray, 2008).
Second, this study cannot definitively show that DMC intervention was the only influence on juvenile processing. Although no major juvenile justice reforms have come from the state legislature since 1995, counties may have altered their juvenile proceedings in ways that affected their treatment of minorities (Griffith et al., 2012). Pennsylvania stakeholders and the MacArthur Foundation’s investments in related juvenile justice reforms like improving mental health treatment of youths may also influence findings (Schwartz, 2013).

Finally, this study does not distinguish more hidden, yet consequential processing changes associated with race (Zatz, 1987). For example, quantitative techniques cannot reveal whether DMC intervention transformed attitudes toward or stereotypes of minority youth that mediate juvenile court decision making (e.g., Kakar, 2006; Rodriguez, Smith, & Zatz, 2009). Minority youth processing may decrease at an aggregate level, but small and additive penalties due to race may be difficult to eliminate in the processing of individuals. In continuing and improving DMC interventions, it is important to remove subtler forms of racial disparity and discrimination. Future research on institutional, decision outcome, and attitudinal changes in minority youth processing can help policy makers improve racial justice in the U.S. juvenile justice system.

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Notes
1. Estimates of processed minority youth populations prior to the 1960s are likely inaccurate due to the exclusion and segregation of minorities from houses of refuge, reformatories, and other early juvenile justice institutions (Ward, 2012).
2. Wyoming does not participate in the Office of Juvenile Justice and Delinquency Prevention (OJJDP)’s federal formula grants program and therefore does not have to meet JJDPA requirements like the DMC mandate (OJJDP, 2014).
3. The majority of referrals to a juvenile court come from police, but referrals may originate from schools, probation departments, social agencies, district magistrates, relatives, and other sources.
4. In this study, cases transferred to criminal court are removed from the petitioning and adjudication stages’ totals.
5. On average, less than 1% of all cases carry a disposition of secure confinement.

6. In these figures, the natural log of the average number of minorities processed at each decision point is used to compare non-intervention and DMC intervention counties’ outcomes on a similar scale.

References


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