

Appendix 1 – Assessment Study

The existence and level of Disproportionate Minority Contact (“DMC”) occurring at each phase of the juvenile court process can be captured by the relative rate index (RRI). DMC is the term used to describe the overrepresentation of minority youth in the juvenile justice system. The RRI provides a snapshot or a description of the youth in the juvenile justice system during a specified time-frame and at stages in the system. The RRI was and will be used to measure the level of DMC at stages for Black youth as compared to White youth. While valuable, the RRI can only provide insight on the level of DMC at stages and cannot tell us *why* DMC is occurring. Instead, an assessment study using multivariate statistics in the form of logistic regression permits such an inquiry. Logistic regression is a statistical technique that takes into consideration a variety of factors to predict the likelihood of a case outcome. In essence, there is an attempt to model what legal (e.g., crime severity, prior record) and extra-legal (e.g., race, gender) considerations used by decision-makers to arrive at an outcome. Legal factors and to some extent extra-legal factors can be relied upon to make a juvenile justice outcome due to its *parens patriae* foundation. Race and gender, however, should not be predictive of a stage outcome once all legal and other extralegal factors are considered. If race and/or gender do not indicate a statistically significant presence, then DMC is explained by differences, for example, in legal characteristics (i.e. crime severity). If race and/or gender are statistically significant indicators, then something else in addition to legal and other extra-legal factors accounts for DMC. One example could be possible race and/or gender biases.

As reported in the Investigation of the Shelby County Juvenile Court (2012), the Department of Justice (DOJ) examined the relative rate indexes and conducted an assessment study using multivariate analyses. These findings, in part, showed DMC at almost every stage and revealed race to be a determinant of decision-making once relevant factors were considered. For the RRI’s, data was used from 2007 through 2009. For the assessment study, court data was used from 2005 through 2009, though further analysis was conducted with 2010 data and did not alter the findings reported using data submitted by the Juvenile Court of Memphis and Shelby County (JCMSC, referred from now on as Juvenile Court) to Tennessee from 2005 through 2009. In summary, Blacks were found to be most overrepresented at referral, secure detention, placement in secure confinement, and transfer to adult court. Black youth were found to have a lesser chance of receiving both the non-judicial outcome of a dismissal or warning, and of a fine, restitution or public service sanction than alike White youth. In addition, Blacks were more likely to be held in detention and reach adult transfer consideration than similarly situated Whites. The overall conclusion was that these findings do not comport with the Equal Protection Clause and Title VI. More specific, the findings showed evidence of discriminatory treatment of Black youth compared to White youth.

As stated in the Agreement between Shelby County and the Department of Justice, within nine months, the Juvenile court “shall augment the appropriate data collection method to assist in its evaluation of its DMC levels, causes, and reduction.... This includes information on points of contact, the relative rate indexes, and available diversion options for youth appearing before JCMSC...” (p. 22). As part of the Agreement, the Equal Protection Monitor, Michael Leiber, conducted his first assessment study of the level and causes of DMC. The results were examined

to determine if change has occurred since the DOJ findings report. In short, Leiber reported the following:

- Race was found to be influential at the non-judicial stage. Blacks were more likely than similar situated Whites to be referred on to court.
- While race by itself was not found to be predictors at adjudication or judicial disposition, race interaction relationships were evident. Being Black in combination with the number of charges influenced adjudication outcomes and with age and being held in detention impacted outcomes at judicial disposition. All three interaction relationships increased the chances of Blacks to receive severe adjudication and judicial disposition outcomes.

In this second assessment report, trends in the form of numbers and the relative rate indexes are first presented to examine the extent or level of DMC. Next, results from the second assessment study (since the agreement) using logistic regression are provided to tap into the possible causes of DMC. Discussion is provided comparing and contrasting results from each of the three assessment studies.

Stages of Juvenile Justice Measured as Part of the Relative Rate Index

The RRI includes the rate of occurrence for different racial groups in each major stage of the juvenile justice process. The stages include the following:

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| (1) Juvenile Arrests | This stage consists of all juvenile arrests. Arrest is not a focus of this study. |
| (2) Referrals to Juvenile Court | This category includes children who are brought before the juvenile court on delinquency matters either by a law enforcement officer, a complainant (including a parent), or by a school. |
| (3) Cases Diverted | This category includes children who are referred to juvenile court, but whose matters are resolved without the filing of formal charges. The charges against these children may be dismissed, resolved informally, or resolved formally through probation, an agreement, community service or various other options that do not include continuing through the formalized court process. |

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| (4) Cases Involving Secure Detention Prior to Adjudication | This category includes children who are held in a secure detention facility before the final disposition of their cases. Some jurisdictions include children who are awaiting placement following the disposition of their cases in this category. |
| (5) Cases Petitioned | This category includes children who are formally charged with a delinquency matter and are required to appear on the court calendar. When a child is formally petitioned, the court is requested to adjudicate the matter or transfer the matter to the criminal court. |
| (6) Cases Resulting in Delinquent Findings | This stage encompasses a court finding that the child has been found delinquent, a formal finding of responsibility. The child would then proceed to a dispositional hearing where he or she may receive various sanctions including probation or commitment to a secure residential facility. |
| (7) Cases Transferred to Adult Criminal Justice System | This category consists of cases that have been transferred to the adult criminal court following a judicial finding that the matter should be handled outside of the juvenile system. |
| (8) Cases Resulting in Probation | This category includes cases where the child is placed on probation following a formal adjudication. This does not include the children whose cases were diverted earlier in the process. |
| (9) Cases Resulting in Confinement in Secure Juvenile Correctional Facility | This category includes cases where the child has been formally adjudicated and placed in a secure residential facility or a juvenile correctional facility. |

Interpreting the Values in the Relative Rate Index (RRI) for JCMSC

The below is taken from the Investigation of the Shelby County Juvenile Court report (2012) to explain how to interpret the RRI (see pgs. 27-28).

The RRI formula lists the numerical indicator of the level of disparity or difference in contact in each stage that a particular racial or ethnic group has in the reporting system. The formula compares the ratio of Black children to the ratio of White children for each stage of the process. A numerical value of 1.0 is neutral. A numerical value exceeding 1.0 means that Black children have a higher rate of representation at the particular stage being considered. A numerical value below 1.0 means that Black children have a lower, statistically significant, rate of contact in that stage as compared to White children in that stage.

The first step in determining RRI is to determine the total number of events, categorized by race, in each phase of the juvenile court system. Then, for each racial or ethnic category, the RRI formula divides the number of events for each phase by the number of events in the preceding phase to determine rates for each phase. This means that the RRI is calculated by comparing the rates for Black children to rates for White children by dividing the rate of Black children by the rate for the White children. For example, if a system incurred 20 juvenile arrests consisting of 10 White children and 10 Black children, and all 10 of the Black children were referred to juvenile court, but only 5 of the White children were referred, then the resulting rate of referral to juvenile court for Black children would be 1.0, and the rate for white children would be 0.5. The resulting RRI would equal 2.0, a value twice that of the neutral 1.0. RRI values that differ from the neutral 1.0 are marked as statistically significant, meaning that the difference in rates of contact is not likely to be the result of a chance or random process. Recall that the RRI does not control for the differences in the children's underlying charges.

Relative Rates Index (RRI) 2009 Through 2013

Presented in Table 1 (located on the next page) are the relative rate indexes for the years 2009 through 2013. Data for 2009 was taken from the Investigation of the Shelby County Juvenile Court (2012) which was based on data submitted by Shelby to the state of Tennessee. Data for 2010 through 2013 was provided by the Juvenile Court of Memphis and Shelby County (JCMSC).

1. As can be seen in Table 1, Black youth are disproportionately represented in most stages and in particular, at referral to the juvenile court and secure detention. Black youth continue to be underrepresented in diversion. Declines in the RRI continue to exist at delinquent findings and confinement in secure facilities. The following narrative summarizes these trends.
2. The relative rate indexes involving referrals to court **have increased every year** since 2009. In 2009, the RRI for referral is 3.4, 2010, 3.65, 2011, 4.25, 2012, 4.42 and in 2013, 5.06. Thus, a little over 5 Black youth per 100 youth are referred relative to 1 White youth per 100 youth in 2013. The increase in RRI levels appears to be a result of substantial declines in referral rates for White youth, without accompanying declines (of similar magnitude) in the referral rates for Black youth. The findings suggest the need for further investigation into the reasons for these continuing trends.

3. RRI values pertaining to secure detention initially showed a decline from 2.1 in 2009 to 1.32 in 2012. But in 2013, an increase in disparities related to secure detention is evident at 1.64. Although the overall number of youth involving secure detention has reduced significantly over the years for both White and Black youth, **Blacks are still being detained more so relative to Whites**. This is an area that the Court will need to continue to address. Black youth continue to be underrepresented for cases diverted. In 2009, the RRI was .90, in 2013, the RRI is .88.
4. The relative rate resulting in delinquent findings for 2013 (1.16) shows a decline compared to 2012 (2.11).
5. Rates for cases resulting in confinement in secure juvenile facilities continue to show a decline from 1.7 in 2009 to 1.30 in 2012 and 1.05 in 2013. The reduction in the RRI's overtime and in particular for 2013 is especially noteworthy.
6. In terms of the relative rate, youth waived to adult court has remained relatively the same from 2009 to 2012 (2.3 in 2009, 2.23 in 2012). RRI analyses for this decision stage were not conducted for the year 2013 as the number of cases was insufficient. It is important to point out that while the disparity between Whites and Blacks appears to have stayed relatively the same over the years, the number of youth waived to adult court has declined from 225 in 2008, to 199 in 2009, 151 in 2010, 121 in 2011, 99 in 2012 and 90 in 2013. Still, almost all youth waived are Black. Recall that a relative rate index of 1 is neutral or 1 White per 100 youth to 1 Black per 100 youth. Anything above indicates overrepresentation; anything below, underrepresentation. Overall, Black youth are and continue to be overrepresented in most stages relative to White youth in the JCMSC's juvenile justice system especially at court referral and secure detention. Still, decreases in the magnitude of racial disparities, as measured by relative rate indexes, exist in delinquent findings and placement in a secure facility.

Table 1. Rates of Juvenile Court Actions by Race, and Relative Rate Index, 2009-2013

Decision Stage (and base rate for calculation)	2009			2010			2011			2012			2013		
	White ^a	Black	RRI	White	Black	RRI	White	Black	RRI	White	Black	RRI	White	Black	RRI
1.Refer to Juvenile Court (per 1000 population)	48.4	166.9	3.4	39.1	142.6	3.65	32.4	137.6	4.25	26.1	115.4	4.42	23.8	120.4	5.06
2. Cases Diverted (per 100 referrals)	114.5	104.1	0.9	81.3	77.6	0.95	94.5	78.3	0.83	85.2	79.5	0.93	95.2	84.0	0.88
3. Cases Involving Secure Detention (per 100 referrals)	27.8	59.5	2.1	33.7	56.3	1.67	30.8	50.9	1.65	34.1	45.0	1.32	10.4	17.0	1.64
4. Cases petitioned (charge filed per 100 referrals)	29.9	36.4	1.2	41.4	35.3	0.85	27.5	41.1	1.49	59.6	43.4	0.73	16.4	24.1	1.46
5. Cases Resulting in Delinquent Findings (per 100 referrals)	54.3	72.2	1.3	25.2	50.4	2.00	31.7	45.8	1.44	22.7	48.0	2.11	54.6	63.4	1.16

Table 1. continued

	2009			2010			2011			2012			2013		
6. Cases resulting in Probation Placement (per 100 found delinquent)	22.8	22.5	1.0	77.1	70.0	0.91	70.4	72.9	1.04	78.0	75.4	0.97	67.6	70.6	1.04
7. Cases Resulting in Confinement in Secure Juvenile Facilities (per 100 found delinquent)	14.2	23.9	1.7	6.4	7.6	1.19	4.1	7.2	1.76	6.5	8.5	1.30	23.9	25.2	1.05 ^b
8. Cases Transferred to Adult Court (per 100 referrals)	2.3	5.3	2.3	2.0	5.7	2.86	2.6	3.7	1.42	1.5	3.3	2.23	0.0	6.4	-

a: Juvenile Justice Rates of Occurrence

b: Out-of-home placement sentence issued, data specifying secure confinement unavailable

- Insufficient number of cases; unable to conduct RRI analyses for decision stage

Note: Data for 2009 taken from *Investigation of the Shelby County Juvenile Court*, April 26, 2012. Data for 2010-2013 provided by Juvenile Court of Memphis and Shelby County (JCMSC). How to read relative rate index (RRI), for example, refer to juvenile court 3.4 Blacks to 1White.

Logistic Regression Results

An examination of the relative rate indexes, especially for 2013, shows that DMC still exists. The RRI's show an increase at referral and declines at delinquent findings and cases resulting in secure confinement. Recall that the RRI provides information concerning the extent of DMC and does not inform us of the causes of DMC. Next, multivariate analyses in the form of logistic regression, is used to give added insight into the predictors of case outcomes or the underlying causes of DMC. The DOJ study and the first assessment study by Leiber reported evidence of selection bias once this statistical technique was utilized. The purpose of this second assessment study is to examine the extent to which race still matters net consideration of legal (i.e., crime severity) and extralegal (i.e., age) factors which are provided in the court records.

Data for the Current Study

For the purpose of this study, data was obtained directly from JCMSC. This data was cleaned for the objective of conducting the research. More specific, raw data of all delinquent referrals in Shelby County from January 1, 2013 through December 31, 2013 (N= 69,252) were provided. The dataset was converted from Excel to SPSS format and all analyses were conducted using the SPSS statistical software.

The data were first sorted according to three variables: juvenile id, complaint date, and disposition severity (disposeverity). Based on this command, only the referral/complaint with the most severe disposition outcome for a given complaint date would be retained for each juvenile. In addition, complaints filed within 7 days of one another under the same juvenile id were assumed to be linked to the same incident, and therefore only the complaint with most severe disposition outcome within 7 days was retained.

The final data consists of N=8,969 distinct referrals for the one year period (2013). The sample parallels the Shelby county data by distinct complaints, as evidenced in Table 2 on the next page (page 9).

Table 2. Data and Distributions by Stages from January 2013 through December 2013

Stages ^c	<u>Shelby Juv. Court^a</u> (N=9,090) N	<u>Leiber^b</u> (N=8,969) N
Detention		
No	7,586	7,605
Yes	1,504	1,364
Non-judicial		
Yes	7,716	7,285
No	1,374	1,684
Adjudication		
No	784	472
Yes	1,357	1,212
Judicial disposition		
Probation	951	806
Placement	347	406
Waiver		
No	----	----
Yes	128	90

a: Shelby county data counted by distinct complaints as taken from JCMSC 2013 yearly RRI Report

b: Dataset provided by Shelby county and cleaned to represent distinct referrals

c: Stages created using disposition outcomes of the data cleaned to represent distinct referrals

---- Information not provided

Variables

Table 3 provides the independent and dependent variables used for the logistic regression analyses. The selection of variables was based on available data, the DOJ study, and past research dealing with assessment studies. The first assessment study and the present assessment study include independent variables (e.g., prior referrals, summons, custody) and stages (e.g., adjudication, judicial disposition) not included in the DOJ study. The inclusion of these variables was done to provide a more detailed examination of the factors that may impact decision-making and possibly provide a better context for understanding the presence and/or absence of bias.

Independent. Eighty-eight percent of the sample is Black. Males comprise 71 percent of the sample and the average age of youth is 15 years old. Two measures of school status are used: attending school v. else and whether the youth was in special education. Ninety-three percent of the sample was reported to be in school full-time while just 8 percent were in special education. The current living situation of a youth is captured by two dummy variables: own home, and one parent and home of relatives. Living in his/her own home with two parents is the reference group for both variables. Seventy-eight percent of the youth reside in their own home with one parent, 12 percent live at home with both parents and 10 percent live with relatives.

The extent of past involvement with the juvenile justice system is measured by the number of prior referrals. While the juvenile court collects information on each referral, a variable representing the number of prior referrals does not exist. Data was gleaned using data from 2010 through 2013 to create this variable. Thus the count making-up prior referral could be underestimated. Still, on average the sample evidenced 1.5 prior referrals and variation on the variable is present ranging from no past referrals to 10 or more past referrals.

Referral method is treated as a dummy variable with summons representing one variable and custody the second variable. In both instances, the reference group is other. Sixty-two percent of the sample was referred by a summons while 36 percent were taken into custody. The number of charges, crime severity, and three indicators of crime type are also included as legal variables. The average number of charges is a little over 1; most offenses are classified as a misdemeanor (80%) and the most common crime type is a person offense (43%), followed by property (35%) and drugs (12%). The reference category for the three crime type variables is other.

Dependent. Decision-making is examined at seven stages and each stage constitutes the dependent variables. Detention is defined as a youth held in an actual center/facility and excludes waiting room/holds and those waiting to be picked up. Fifteen percent of the sample was held at some point in secure detention. Since being detained has been found elsewhere to have an indirect influence on case outcomes through race, detention will also be considered as an independent variable. For example, Blacks have been found in prior research to be more likely to be detained than similarly situated Whites; in turn, being detained predicts placement at judicial disposition. If this is found, because Blacks were more likely to be detained in the first place, Blacks then will receive placement at judicial disposition through the effects of detention on decision making at this stage.

Non-judicial is differentiated by yes (receive some type of non-judicial outcome – diversion, fine, release, etc.) and no (moving forward in the court proceeding thus recipient of a judicial outcome). Eighty-one percent of the sample received a non-judicial outcome; thus a significant percent of youth are diverted away from the system. Following the DOJ report, the non-judicial option is further delineated to examine decision making involving warning (no, yes), 70 percent, and diversion (no, yes), 4 percent. The reference group for both variables is dismissed. Formal stages are represented by adjudication and judicial disposition. Seventy-two percent of the youth that reach adjudication are adjudicated delinquent. Sixty-seven percent receive probation at judicial disposition whereas 33 percent receive an outcome involving out-of-home placement. In the DOJ report race was found to be a predictor as Blacks were more likely than similarly situated Whites to be waived. In our sample, there was not enough variation among race (i.e., not enough Whites) and numbers to run models for the decision to waive youth for 2013. Looking at waiver hearing data to possibly collapse data for 2012 and 2013 also failed to produce enough variation. Of the 192 waived to adult court over the two year time frame, none were White.

Table 3 next page

Table 3. Distribution of Variables (N=8,969)

Variable	Value	N	%
<i>Independent</i>			
Race	0 - White	1042	12
	1 - Black	7927	88
Gender	0 - Male	6360	71
	1 - Female	2609	29
Age (young to old)	Years	M = 15.07 SD = 1.90 Range = 7-18	
School status	0 - In school full-time	8329	93
	1 - Else	640	7
Special education	0 - No	8227	92
	1 - Yes	742	8
Current living situation ^a	0 - Own home, two parents	1059	12
	1 - Own home, one parent	6983	78
	2 - Home of relatives	927	10
Prior referrals (low to high)	Number	M = 1.55 SD = 2.16 Range = 0-10	
Referral method ^b	0 - Summons	5558	62
	1 - Custody	3255	36
	2 - Other	156	2
# Charges (low to high)	Number	M = 1.14 SD = 0.47 Range = 1-10	
Crime severity	0 - Misdemeanor	7184	80
	1 - Felony	1785	20
Property ^c	0 - No	5828	65

1 - Yes	3141	35
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Table 3. continued

Variable	Value	N	%
Person ^c	0 - No	5112	57
	1 - Yes	3857	43
Drugs ^c	0 - No	7917	88
	1 - Yes	1052	12
<i>Dependent</i>			
Detention ^d	0 - No	7605	85
	1 - Yes	1364	15
Non-judicial	0 - Yes	7285	81
	1 - No	1684	19
Warn	0 - No	2174	30
	1 - Yes	5111	70
Diversion	0 - No	6963	96
	1 - Yes	322	4
Adjudication	0 - No	472	28
	1 - Yes	1212	72
Judicial disposition	0 - Probation	806	67
	1 - Out of home placement	406	33

a: Variable will be treated as dummy variable; Own home, two parents reference group.

b: Variable will be treated as dummy variable; Other reference group.

c: Reference category is Other offense, e.g. weapon possession, disorderly conduct.

d: Treated as both independent and dependent variable.

Note: Insufficient cases or variation to study waiver; all youth waived were Black.

Analysis Procedures

As stated previously, this part of the assessment study used multivariate procedures in the form of logistic regression. This procedure allows for the estimation of the relative effects of each of the independent variables on a dependent variable. The Exp(B) will be also used to calculate the odds ratio to discuss the relative impact of an independent variable on a dependent variable. The first model will represent the full or additive equation, which allows for the examination of a direct or main effect of an independent variable on an outcome (e.g., race with detention). Next, separate models were estimated for Whites and Blacks to address the possibility of race interaction relationships with independent variables and in predicting a case outcome. For example, race and gender may act in combination to impact decision making. That is, it is possible that being a White female may result in different treatment than a Black female. The estimation of separate models along with tests involving Z-score comparisons allows for the examination of this possibility.

Past research has also shown that as youth move through the juvenile justice system the sample becomes more alike; thus, increasing the chance for error or selection bias. To correct for this possibility, a hazard rate was created and included in the model at judicial disposition. The results were re-estimated without the hazard rate and the findings parallel those with the hazard rate. Statistical checks for multi-collinearity revealed acceptable levels of sharedness among the variables.

Findings

Detention. Table 4 (next page) presents the logistic regression result for estimating the decision to detain. Recall that the DOJ study reported a strong relationship between race and detention in that Black youth were almost 2¾ times more likely to be detained than similarly situated White youth. In the first assessment study by Leiber, race was not found to be a statistically significant predictor of the detention decision once all legal and extralegal factors were taken into account. This does not mean that racial differences do not exist or can be ignored. Rather, it means that we can specify the way which such racial differences come into being and possibly fashion programs or revise policies to move toward greater equity.

In the present study and as can be seen in Table 4, while race does not have a statistical significant main effect with detention outcomes (column 1), there is the presence of an interaction effect involving race and being charged with a person offense (column 2, column 3). In column 2, White youth charged with a person offense is inverse and not statistically significant. In column 3, Black youth charged with a person offense is positive and statistically significant. In fact, **Black youth involved in a person offense increases the likelihood of being detained** by over two times relative to all other youth. Most of the legal and extralegal variables predict detention as one would expect. For example, crime severity is predictive of detention.

Table 4. Logistic Regression Results - Detention (N=8,969)

Variable	Full Model (1)	White (2)	Black (3)
Race	-.15 ^a (.87)	-	-
Gender	-.58** (.56)	-.39 (.68)	-.58** (.56)
Age	.03 (1.03)	-.10 (.91)	.04 (1.04)
School status	.72** (2.05)	1.43** (4.16)	.59** (1.81)
Special education	-.31* (.73)	-.47 (.62)	-.33* (.72)
Own home, one parent	.19 (1.21)	.08 (1.08)	.20 (1.22)
Home of relatives	.47** (1.60)	1.39** (4.01)	.40* (1.48)
Prior referrals	.22** (1.25)	.07 (1.07)	.24** (1.27)
Summons	-3.91** (.02)	-5.77** (.01)	-3.71** (.02)
Custody	-.18 (.84)	-.09 (.92)	-.12 (.89)
# Charges	.27** (1.31)	.20 (1.23)	.33** (1.39)
Crime severity	1.76** (5.81)	1.61** (5.02)	1.80** (6.03)
Property	-.79** (.46)	-1.03** (.36)	-.68** (.51)
Person	.66** (1.94)	-.49 (.61)	.85**†† (2.34)
Drugs	-1.00** (.37)	-2.06** (.13)	-.73** (.48)
-2 Log Likelihood	4028.93	304.94	3675.09

a: Regression coefficient; Exp(B) is presented in the parenthesis ().

**p<.01, *p<.05

p<.01, Coefficient comparisons yield statistically significant differences across race models.

Non-judicial. Table 5 (next page) presents the logistic regression results for predicting the decision to use non-judicial outcomes (release, warn, diversion) versus further court processing. In the DOJ assessment study, Blacks were found to be less likely than similarly situated Whites to receive a warning and a fine, restitution or public service sanction. Or, in other words, Blacks were more likely than Whites to be referred for further juvenile court proceedings once controls are considered. The results from Leiber's first assessment study showed that this effect remained. Blacks were 1 and half times more likely than Whites to be referred to a court hearing net controls.

In the present study, **race is not a statistical significant determinant of decision making at this stage**. While there are some individual effects with the dependent variable by race (column 2, column 3, column 5, column 6, column 8, column 9), comparisons of the coefficients failed to yield evidence of statistical significance. As at detention, this does not mean that racial differences do not exist or can be ignored. Rather, it means that we can specify the way which such racial differences come into being and possibly fashion programs or revise policies to move toward greater equity.

In the first assessment study by Leiber, differentiating among the non-judicial case options with warning as one variable and diversion as another variable with release as the reference group failed to produce evidence of race main or interaction effects with the dependent variable. Similarly no main or interaction relationships are evident in the present study. It is important to note that the non-judicial variable could also be treated as a trichotomy with release/warning (non-judicial), diversion (non-judicial), and a decision for a court hearing (judicial). The variable was constructed in this manner and estimations were conducted using multinomial logistic regression. Although not presented here, the results paralleled those reported here. Comparisons of coefficients failed to show evidence of statistically significant race interaction effects with other independent variables and decision at this stage.

Table 5. Logistic Regression Results - Non-judicial

Variable	Non-Judicial			Warn			Diversion		
	Full (1)	White (2)	Black (3)	Full (4)	White (5)	Black (6)	Full (7)	White (8)	Black (9)
Race	.09 (1.10)	-	-	.09 (1.09)	-	-	-.18 (.84)	-	-
Gender	-.69** (.50)	-.36 (.70)	-.71** (.49)	.17** (1.18)	.85** (2.34)	.10 (1.10)	-.21 (.81)	-.73 (.48)	-.12 (.89)
Age	.10** (1.10)	.17 (1.18)	.09** (1.10)	.04* (1.04)	.11 (1.11)	.03 (1.03)	.09** (1.10)	-.08 (.92)	.11** (1.12)
School status	.39** (1.48)	.80** (2.23)	.32* (1.38)	.08 (1.08)	.37 (1.44)	.02 (1.02)	-.38 (.68)	-.74 (.48)	-.30 (.74)
Special education	.12 (1.12)	-.40 (.67)	.13 (1.14)	-.13 (.88)	.32 (1.38)	-.18 (.84)	-.21 (.81)	-18.53 (.01)	-.05 (.96)
Own home, one parent	-.08 (.92)	.18 (1.19)	-.13 (.88)	.04 (1.05)	-.02 (.98)	.06 (1.06)	.01 (1.01)	.25 (1.28)	-.09 (.92)
Home of relatives	-.07 (.93)	.35 (1.42)	-.14 (.87)	.12 (1.13)	.06 (1.06)	.14 (1.15)	-.20 (.82)	-.40 (.67)	-.24 (.79)
Prior referrals	.36** (1.44)	.49** (1.64)	.36** (1.43)	-.18** (.84)	-.16* (.85)	-.18** (.84)	.06 (1.06)	.15 (1.17)	.04 (1.04)
Summons	-2.02** (.13)	-1.70** (.18)	-2.08** (.13)	2.46** (11.71)	2.47** (11.83)	2.51** (12.25)	.74 (2.10)	^b -	.48 (1.62)
Custody	-1.18** (.31)	-.38 (.68)	-1.29** (.28)	.23 (1.25)	-.13 (.88)	.30 (1.35)	-.35 (.71)	^b -	-.66 (.52)

# Charges	.37** (1.45)	.31* (1.36)	.39** (1.48)	.23** (1.25)	.06 (1.06)	.26** (1.29)	-.01 (.99)	.09 (1.09)	-.05 (.95)
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Table 5. continued

Variable	Non-Judicial			Warn			Diversion		
	Full (1)	White (2)	Black (3)	Full (4)	White (5)	Black (6)	Full (7)	White (8)	Black (9)
Crime severity	2.43** (11.40)	2.55** (12.77)	2.44** (11.42)	-.15 (.86)	.55 (1.74)	-.23* (.80)	.78** (2.19)	-.11 (.89)	.91** (2.47)
Property	.60** (1.83)	.24 (1.26)	.66** (1.93)	-.26** (.77)	-.37 (.69)	-.26** (.77)	.71** (2.03)	.32 (1.37)	.81** (2.24)
Person	1.01** (2.74)	.49 (1.63)	1.08** (2.94)	-.06 (.94)	-.28 (.76)	-.03 (.97)	.21 (1.23)	-.67 (.51)	.33 (1.38)
Drugs	.12 (1.13)	-.35 (.71)	.23 (1.25)	.01 (1.01)	.20 (1.22)	-.09 (.91)	.09 (1.09)	-.67 (.51)	.37 (1.45)
-2 Log Likelihood	5128.81	455.40	4654.46	7125.31	782.54	6316.35	2532.24	357.23	2151.58

a: Regression coefficient; Exp(B) is presented in the parenthesis ()

b: Insufficient cases, variables dropped from analysis

** p<.01, *p<.05

Note: Tests of z coefficients across race-specific models failed to yield statistical significance.

Adjudication. In the first assessment study by Leiber, race by itself was not a significant predictor once controls were considered. Comparisons of coefficients revealed the existence of a race interaction relationship with the number of charges and the odds of being adjudicated. For Whites, the number of charges had an inverse or negative relationship with the dependent variable and was not statistically significant. For Blacks, the relationship was positive and statistically significant. Black youth with a greater number of charges increased the likelihood of adjudication by 2.15 relative to other youth net considerations of legal severity and other variables.

In the present study, Table 6 (next page) provides the logistic regression results for adjudication differentiated by White and Black. Race once again is not by itself a statistically significant predictor of the decision making at this stage once controls are considered (column 1). Comparisons of coefficients reveal the existence of a race interaction relationship with gender and person offense. As can be seen, for Whites, gender has an inverse or negative relationship with the dependent variable and is not statistically significant (column 2). For Blacks, the relationship is positive and statistically significant (column 3). **Black females have an increased likelihood of adjudication** by 1.79 relative to a white female net considerations of legal severity and other variables. A second interaction effect also exists. Black youth charged with a person offense reduces the likelihood of being adjudicated by 39 percent (column 3) whereas for **White youth charged with a person offense the effect is positive and increases the odds of being adjudicated** by over 4 times compared to other youth (column 3).

Judicial Disposition. In the first assessment study by Leiber, race has no main relationship with the dependent variable. However, two race interaction relationships were reported. Older Whites had a reduced probability of a receiving an out-of-home placement than older Blacks who had an increased odds of such an outcome. Being detained had also significant positive relationship with the dependent variable (increased odds of being taken out of the home). This effect was conditioned by race. Blacks held in detention had an increased likelihood of receiving the more severe judicial outcomes than similarly situated White youth once controls were taken into account.

In the present study, once again **race was not a statistically significant determinant of judicial disposition decision making** (column 4). Differentiating the results by race, tests comparing coefficients produced two statistically significant interaction relationships. As in the first assessment study, **older Whites have decreased odds of receiving an out-of-home placement** than other youth (column 5), including Blacks (column 6). **White youth from a single-parent home are less likely to receive the more severe judicial disposition outcome** than similarly situated Black youth (column 5, column 6).

Note: As pointed out earlier, logistic regression was not used to predict decision making at the hearing to decide whether to waive a youth to adult court. Recall that there was a lack of variability in that there were too few Whites to conduct the analysis over the last two years. That is, almost all youth waived are Black. In addition, inquiries have revealed that Black youth charged with domestic assaults are being referred to juvenile court and contributing to their

overrepresentation. An examination of the data shows that of the 783 cases involving this type of charge, 723 were Black or 92%. Selecting out for domestic assaults and treating it as a variable in the logistic regression models for each stage produced statistically significant results but the effects were inverse. Youth charged with a domestic assault often received the more lenient outcome at each stage once all controls were considered. Thus, domestic assaults contribute to Black youth overrepresentation at referral but as the proceedings move forward the youth being “kicked out” of the system.

Table 6. Logistic Regression Results - Adjudication, Judicial Disposition

Variable	Adjudication			Judicial Disposition		
	Full (1)	White (2)	Black (3)	Full (4)	White (5)	Black (6)
Race	-.23 (.80)	-	-	-.28 (.76)	-	-
Gender	.36 (1.44)	-1.04 (.35)	.58**† (1.79)	-.01 (1.00)	-.21 (.81)	.01 (1.01)
Age	-.41** (.67)	-.20 (.82)	-.44** (.65)	-.01 (1.00)	-.75* (.47)	.03† (1.03)
School status	.11 (1.12)	.18 (1.20)	.07 (1.07)	.15 (1.16)	.94 (2.56)	.16 (1.17)
Special education	.01 (1.01)	1.83 (6.26)	-.02 (.98)	-.20 (.82)	-2.80* (.06)	-.13 (.88)
Own home, one parent	-.20 (.82)	.05 (1.05)	-.24 (.79)	-.06 (.95)	-1.14* (.32)	.10† (1.10)
Home of relatives	-.41 (.67)	-.96 (.38)	-.42 (.65)	-.20 (.82)	-.41 (.66)	-.03 (.97)
Prior referrals	-.05* (.95)	.01 (1.01)	-.06* (.94)	.11** (1.12)	.17 (1.18)	.11** (1.12)
Summons	.67* (1.96)	1.58 (4.84)	.52 (1.69)	-.79 (.46)	.14 (1.15)	-.97* (.38)
Custody	.99** (2.68)	.59 (1.80)	1.00** (2.72)	-1.22** (.30)	-.86 (.42)	-1.38** (.25)
# Charges	-.19** (.83)	-.28 (.75)	-.20* (.82)	-.18 (.84)	-.15 (.86)	-.17 (.85)
Crime severity	-.60** (.55)	.29 (1.33)	-.70** (.50)	.42* (1.52)	.59 (1.80)	.34 (1.41)
Property	.73** (2.07)	1.51** (4.53)	.62** (1.85)	-.04 (.96)	-.60 (.55)	.06 (1.06)
Person	-.29 (.75)	1.39* (4.01)	-.50**†† (.61)	-.42* (.66)	-.09 (.92)	-.45* (.64)
Drugs	.81** (2.26)	2.29** (9.89)	.63** (1.89)	-.41 (.67)	-.44 (.64)	-.34 (.71)
Detention	-1.08** (.34)	-1.13 (.32)	-1.05** (.35)	.87** (2.38)	1.19 (3.29)	.87** (2.38)
Hazard Rate	-	-	-	.50 (1.65)	-.84 (.43)	.63 (1.88)
-2 Log Likelihood	1685.69	126.43	1529.35	1424.23	112.93	1285.05

a: Regression coefficient; Exp(B) is presented in the parenthesis ().

*p<.05, **p<.01

$p < .05$, $p < .01$, Coefficient comparisons yield statistically significant differences across race models.

Summary and Conclusions

Using data from the state of Tennessee for the years 2005 through 2009, and to some extent 2010, the DOJ study found and reported the presence of DMC at almost every stage. In subsequent analysis using data from Shelby County, the DOJ findings letter reported that the presence of DMC was not accounted for solely by legal and extralegal considerations, especially at detention, the use of non-judicial outcomes in the form of warning and diversion and at the transfer to adult court hearing. In his first assessment study, Leiber used data given by the Memphis/Shelby County Juvenile Court and cleaned by Leiber for the time-frame ranging from July 1, 2012 through June 30, 2013, and reported somewhat similar results. In this second assessment study covering court decision making for the entire year 2013 by Leiber, several themes continue to exist. A summary of the RRI data and results from the multivariate analyses for this study are presented in Table 7.

DMC has remained quite high for referral, with rates of referral for Black youth being over five times higher than the rates of referral for White youth. While overall fewer youth are being held in detention, Blacks are still overrepresented relative to Whites. Black youth are underrepresented in diversion. RRI declines are evident in delinquent findings and placement in a secure facility. The Memphis/Shelby County Court is to be commended for making efforts to reduce DMC at these stages.

In terms of answering the question *why* DMC exists, the findings from the logistic regression show that factors associated with the differential offending explanation (e.g., more offending behavior, more serious crime, more problems at school, etc.) AND selection bias or the discrimination explanation (e.g., race still matters after considering differences in legal and extralegal factors) still account for DMC. Legal and extralegal factors predict decision-making at every stage. Race was not found to be a determinant of decision making at detention or to have direct main relationships at other stages. This is important since the last two studies reported race effects at the non-judicial stage. In this study, no such effect was evident. However, race interaction relationships with several independent variables and court decision making was found. At detention, Black youth involved in a person offense increases the likelihood of being detained by over two times relative to other youth. At adjudication, Black females have an increased likelihood of adjudication by 1.79 relative to White females net considerations of legal severity and other variables. Further, Black youth charged with a person offense reduces the likelihood of being adjudicated by 39 percent whereas for White youth charged with a person offense the effect is positive and increases the odds of being adjudicated by almost 4 times compared to other youth. As in the first assessment study, older Whites have decreased odds of receiving an out-of-home placement than other youth, including Blacks. White youth from a single-parent home are less likely to receive the more severe judicial disposition outcome than similarly situated Black youth.

A constant finding from the three past studies is that referrals by the police/schools to the juvenile court have remained high, in fact increasing, and efforts need to be made to divert youth and in particular, Blacks, away from coming into contact with the court. Efforts of reform at detention appear to be taking place, to some degree, as evident in the decline in the RRI and the finding from the multivariate analyses of no direct race influence at this stage. However, a racial disparity in the use of secure detention remains and race was found to interact with Blacks charged with a person offense in that they were more likely to be detained. Similar to referrals, continued efforts need to be made at detention to reduce the number of youth and type of offender (i.e., minor offense, misdemeanor, domestic assault) who comes into contact with the system. Likewise, although main race effects were not found in this assessment study, efforts need to be continued to address equity issues at adjudication and judicial disposition. Given the findings from the past two assessment studies and although no race effects were reported in this third study, efforts to restrict and/or guide decision making should be continued at the non-judicial stage. Last and although the overall number of youth reaching the waiver stage and those waived to adult court declined, almost all of the youth waived are Black.

In the next assessment, efforts will be made to capture placement in secure facilities at judicial disposition rather than out-of-home placement as used in the present study as well as a study of waiver hearing proceedings. Furthermore, more time will have passed to allow for (1) a re-examination of the changes in the RRI findings to examine the stability of the changes accomplished to this point, and (2) a greater assessment of activity and interventions on the part of Memphis/Shelby County Juvenile Court, especially at the stages of secure detention and non-judicial, to take hold and possibly reduce DMC and further create opportunities for the equitable treatment of all youth within juvenile justice proceedings.

Table 7. Summary of RRI Data and Multivariate Logistic Regression for Three Studies*DOJ – Assessment Study (2005-2009, 2010 data)*

	RRI	Multivariate Results
Referral to Court	Overrep.	
Secure Detention	Overrep.	Blacks detained
Diversions	Underrep.	Blacks less likely to be diverted
Petition	Overrep.	Blacks more likely referred
Adjudication	Overrep.	
Confinement in secure facilities	Overrep.	
Out-of-Home Placement		
Waiver/Transfer to Adult Court	Overrep.	Blacks more likely to be waived

Leiber – 1st Assessment Study (July 1, 2012 - June 30, 2013 data)

	RRI	Multivariate Results
Referral to Court	Overrep. increase	
Secure Detention	Overrep. decline	No race effect
Diversions	Underrep. steady	No race effect
Petition	Underrep. decline	Blacks more likely referred
Adjudication	Overrep. decline	Blacks with more charges adjudicated
Confinement in secure facilities	Underrep. decline	
Out-of-Home Placement		Blacks who are older out-of-home, Whites who are older home, probation
Waiver/Transfer to Adult Court	Mostly Black	Blacks who are detained out-of-home Lack of variation to examine

Leiber- 2nd Assessment Study (2013 data)

	RRI	Multivariate Results
Referral to Court	Overrep. increase	
Secure Detention	Overrep. increase	Blacks involved in person crime detained
Diversions	Underrep. steady	No race effect
Petition	Overrep. steady	No race effect
Adjudication	Overrep. decline	Black females adjudicated Whites involved in person crime adjudicated
Confinement in secure facilities	Underrep. decline	
Out-of-Home Placement		Whites who are older home/probation Whites from single-parent home/probation
Waiver/Transfer to Adult Court	Mostly Black	Lack of variation to examine

Note: Trends of the RRI involve the examination of Table 1 from 2009 through 2013