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. For JCMSC, 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 JCMSC 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 part of the Agreement between Shelby County and the Department of Justice, within nine months, JCMSC 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). The Equal Protection Monitor, Michael Leiber, conducted an assessment study of the level and causes of DMC. The results are examined to determine if change has occurred since the DOJ findings report. In this 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 assessment study using logistic regression are provided to tap into the possible causes of DMC.

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:

(1) Juvenile Arrests	This stage consists of all juvenile arrests.
(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.
(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 JCMSC's 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. In JCMSC, 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). Data for 2013 was based on data through October 31st. Rates for 2013 are based on the first ten months of the year, the data available when this analysis was taken. As a result, final results for 2013 may be slightly different, but since materials presented here are based on 10/12 (83 percent) of the year, major changes are unlikely.

As can be seen in Table 1, Black youth are disproportionately represented in most stages and in particular, at referral to the juvenile court, secure detention, and delinquent findings. Black youth continue to be underrepresented in diversion. Declines in the RRI exist at secure detention, petition, delinquent findings, and confinement in secure facilities. An increase in an outcome in probation for Black youth is evident.

For example, in 2009, for every 1 White, 3.4 Blacks are referred to court; for every 1 White, 2.1 Blacks are held in secure detention; for every 1 White, 1.7 Blacks are confined in a secure facility, and for every 1 White, 2.3 Blacks are waived to adult court. Relative Rate indexes for 2010, 2011, 2012, and 2013 are presented and for the most part, parallel the results of 2009, although there are some exceptions.

The relative rate indexes involving referrals to court have increased every year since 2009. In 2012, the RRI for referral is 4.42 and in 2013, 4.72. The increase in RRI levels appears to be a result of some 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 occurrences. RRI values pertaining to secure detention have declined from 2.1 in 2009 to 1.32 in 2012 and 1.30 in 2013. The change in 2013 is particularly noteworthy (commendable) since it not only involves a drop in the degree of disparity in detention, but also a very marked drop in the overall rate of detention. JCMSC should be pleased with this outcome. Rates for cases resulting in confinement in secure juvenile facilities also show a decline from 1.7 in 2009 to 1.30 in 2012 and 0.79 in 2013. 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. Recall that a relative rate index of 1 is neutral or 1 White to 1 Black. 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. Still, RRI declines are evident in detention, cases petitioned (from 2011), 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[a]		
	White[b]	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**	26.0	123.0	**4.72**
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	91.1	80.8	0.89
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**	13.1	17.1	**1.30**
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	37.6	35.6	0.95
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	32.8	43.2	1.32

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	65.1	72.9	1.12
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**	30.2	23.7	**0.79**[c]
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**	0.5	4.0	-

a: RRI calculated as an estimate for the year 2013 based on the YTD data available through 10-31-13
b: Juvenile Justice Rates of Occurrence
c: 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). Estimates for the year 2013 were calculated using YTD monthly averages for each stage and multiplying by 12. How to read relative rate index (RRI), for example, refer to juvenile court 3.4 black to 1 white.

Logistic Regression Results

An examination of the relative rate indexes, especially for 2012 and 2013, show that DMC still exists. The RRI's show some stability at referral and declines at detention and transfer to adult court. Recall that the RRI provides information concerning the extent of DMC and does not inform us of the causes of DMC. Next, multivariate analysis 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 reported evidence of selection bias once this statistical technique was utilized. The purpose of this assessment study is to examine the extent to which race matters net consideration of legal (i.e., crime severity) and extralegal (i.e., age) factors.

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 July 1st, 2012 through June 30th, 2013 (N= 57,215) 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 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 8,507 distinct referrals for the one year period ranging from July 1st, 2012 through June 30th, 2013. The sample parallels the Shelby county data by distinct complaints.

Table 2. Data and Distributions by Stages from July 2012 through June 2013

Stages[c]	Shelby Juv. Court[a] (N=8,714) N	Leiber[b] (N=8,507) N
Detention		
No	6,240	5,791
Yes	2,474	2,716
Non-judicial		
Yes	6,355	6,754
No	2,359	1,753
Adjudication		
No	221	192
Yes	1,451	1,316
Judicial disposition		
Probation	1,028	972
Placement	376	344
Waiver		
No	-----	179
Yes	90	87

a: Shelby county data counted by distinct complaints
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.

Independent. Eighty-eight percent of the sample is Black. Males comprise 70 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-two percent of the sample was reported to be in school full-time while just 7 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-seven percent of the youth reside in their own home with one parent, 13 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 JCMSC collects this information, a variable representing the number of prior referrals does not exist. Data was gleaned using data from 2010 to June 30, 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-percent of the sample was referred by a summons while 37 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 (81%) and the most common crime type is a person offense (43%), followed by property (33%) 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. Thirty-two percent of the sample was held at some point in secure detention. Since being detained has been found 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). Seventy-nine 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) and diversion (no, yes).   The reference group for both variables is dismissed.   Formal stages are represented by adjudication and judicial disposition. Eighty-seven percent of the youth that reach adjudication are adjudicated delinquent. Sixty-three percent receive probation at judicial disposition whereas 37 percent receive an outcome involving out-of-home placement. Attempts were made to examine decision making at the hearing to consider a transfer to adult court – a stage where the DOJ report found a race effect 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) to run models for the decision to waive youth and thus is not included in the analyses.

Table 3 next page

Table 3. Distribution of Variables (N=8507)

Variable	Value	N	%
Independent			
Race	0 - White	1052	12
	1 - Black	7455	88
Gender	0 - Male	5917	70
	1 - Female	2590	30
Age	Years	M = 15.08	
(young to old)		SD = 1.97	
		Range = 7-18	
School status	0 - In school full-time	7862	92
	1 - Else	645	8
Special education	0 - No	7870	93
	1 - Yes	637	7
Current living situation[a]	0 - Own home, two parents	1054	13
	1 - Own home, one parent	6575	77
	2 - Home of relatives	878	10
Prior referrals	Number	M = 1.50	
(low to high)		SD = 2.06	
		Range = 0-10	
Referral method[b]	0 - Summons	5115	60
	1 - Custody	3105	37
	2 - Other	287	3
# Charges	Number	M = 1.12	
(low to high)		SD = 0.45	
		Range = 1-10	
Crime severity	0 - Misdemeanor	6898	81
	1 - Felony	1609	19
Property[c]	0 - No	5718	67
	1 - Yes	2789	33

Table 3. continued

Variable	Value	N	%
Person[c]	0 - No	4834	57
	1 - Yes	3673	43
Drugs[c]	0 - No	7511	88
	1 - Yes	996	12
Dependent			
Detention[d]	0 - No	5791	68
	1 - Yes	2716	32
Non-judicial	0 - Yes	6754	79
	1 - No	1753	21
Warn	0 - No	1987	34
	1 - Yes	4482	66
Diversion	0 - No	6244	92
	1 -Yes	510	8
Adjudication	0 - No	192	13
	1 - Yes	1316	87
Judicial disposition	0 - Probation	824	63
	1 - Out of home placement	492	37

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: comparisons by within race reveal Blacks to be more likely to reside in home of single-parent; Blacks more likely to be taken into custody; Blacks more likely to be charged with person offense; and Blacks evidence a greater number of prior referrals.

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 will be estimated for Whites and Blacks to address the possibility of race interaction relationships with independent variables and 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. As can be seen in Table 4 (column 1), based on this 2013 data, race is not a statistically significant predictor of the detention decision once all legal and extralegal factors are taking into account.   Comparisons of coefficients failed to show evidence of statistically significant race interaction effects with other independent variables and the decision to detain. Most of the legal and extralegal variables predict detention as one would expect. For example, the more severe the crime, the greater the chances of being held in detention.

Table 4. Logistic Regression Results - Detention (N=8507)

Variable	Full Model (1)	White (2)	Black (3)
Race	-.29[a]	-	-
	(.75)		
Gender	-.07	-.44	.01
	(.93)	(.64)	(1.01)
Age	.14**	.27*	.12**
	(1.15)	(1.32)	(1.13)
School status	.06	-.69	.21
	(1.06)	(.50)	(1.24)
Special education	.10	.62	.05
	(1.10)	(1.85)	(1.05)
Own home, one parent	-.04	-.37	.06
	(.96)	(.69)	(1.06)
Home of relatives	-.20	-.32	-.13
	(.82)	(.73)	(.88)
Prior referrals	-.01	-.14	.02
	(1.00)	(.87)	(1.02)
Summons	-4.45**	-7.09**	-4.08**
	(.01)	(.01)	(.02)
Custody	4.19**	3.17**	4.41**
	(65.99)	(23.86)	(82.25)
# Charges	-5.54**	-4.36**	-5.76**
	(.01)	(.01)	(.01)
Crime severity	.45**	-.27	.56**
	(1.57)	(.76)	(1.76)
Property	-.65**	-.59	-.58**
	(.53)	(.55)	(.56)
Person	-.50**	-1.32**	-.35
	(.61)	(.27)	(.71)
Drugs	-.42	-1.35*	-.02
	(.66)	(.26)	(.98)
-2 Log Likelihood	1637.53	190.11	1409.08

a: Regression coefficient; Exp(B) is presented in the parenthesis ( ).
**p<.01, *p<.05
Note: Coefficient comparisons failed to yield evidence of statistically significant difference 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 the present study show this effect remains. Thus, while the RRI information shows a decline in the rate comparing Blacks to Whites, once multivariate analyses was performed, Blacks are treated differently relative to similarly situated Whites.

As can be seen in column 1, Blacks are 1 and half times more likely than Whites to be referred to a court hearing net controls. While there are some individual effects with the dependent variable by race (column 2, column 3), comparisons of the coefficients failed to yield evidence of statistical significance. Females receive the more lenient outcome relative to males. That is, being a female decreased the likelihood of receiving a formal court hearing by 40 percent (column 1) and this relationship is not conditioned by race (column 2, column 3).

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 (Table 5, right hand side). Females are more likely to receive a warning than are males net controls. No such effect exists between gender and diversion. 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	White	Black	Full	White	Black	Full	White	Black
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Race	.43[a]**	-	-	.09	-	-	.04	-	-
	(1.53)			(1.10)			(1.04)		
Gender	-.51**	-.60	-.49**	.14*	.39*	.10	-.14	-.65*	-.06
	(.60)	(.55)	(.61)	(1.16)	(1.47)	(1.10)	(.87)	(.52)	(.95)
Age	.01	.03	.01	.03*	-.01	.03*	.13**	-.01	.15**
	(1.00)	(1.03)	(1.00)	(1.03)	(.99)	(1.03)	(1.13)	(1.00)	(1.16)
School status	.59**	1.05**	.50**	-.23*	-.27	-.22	.13	.47	.06
	(1.81)	(2.87)	(1.64)	(.79)	(.77)	(.80)	(1.14)	(1.60)	(1.06)
Special education	.10	-.81	.16	.01	.17	.01	-.32	-1.68	-.18
	(1.10)	(.45)	(1.17)	(1.01)	(1.19)	(1.00)	(.73)	(.19)	(.84)
Own home, one parent	.01	.52	-.10	.05	.02	.06	-.11	-.14	-.07
	(1.01)	(1.69)	(.91)	(1.05)	(1.02)	(1.06)	(.90)	(.87)	(.93)
Home of relatives	-.18	.45	-.30	.12	-.18	.16	-.28	-.59	-.23
	(.83)	(1.56)	(.74)	(1.13)	(.84)	(1.18)	(.75)	(.56)	(.80)
Prior referrals	.31**	.38**	.31**	-.18**	-.25**	-.17**	.06*	.20**	.05
	(1.37)	(1.46)	(1.36)	(.84)	(.78)	(.84)	(1.06)	(1.22)	(1.05)
Summons	-3.28**	-2.44**	-3.49**	2.17**	2.69**	1.91**	1.76*	1.68	2.17*
	(.04)	(.09)	(.03)	(8.72)	(14.65)	(6.76)	(5.79)	(5.36)	(8.75)
Custody	-2.20**	-.83	-2.47**	.62**	.81	.41	.69	.97	.99
	(.11)	(.44)	(.08)	(1.85)	(2.24)	(1.51)	(1.99)	(2.63)	(2.70)
# Charges	.39**	.14	.50**	.03	.02	.04	-.11	-.01	-.17
	(1.47)	(1.15)	(1.65)	(1.04)	(1.02)	(1.04)	(.90)	(.99)	(.84)

Table 5. continued

Variable	Non-Judicial				Warn/Dismiss				Diversion		
	Full (1)	White (2)	Black (3)		Full (4)	White (5)	Black (6)		Full (7)	White (8)	Black (9)
Crime severity	**2.09****	**1.89****	**2.14****		**-.27****	.11	**-.35****		**.73****	-.17	**.96***
	(8.08)	(6.60)	(8.51)		(.77)	(1.11)	(.71)		(2.08)	(.84)	(2.60)
Property	**.48****	-.06	**.53****		**-.23****	.16	**-.29****		**.82****	.12	**.97****
	(1.62)	(.94)	(1.70)		(.80)	(1.17)	(.75)		(2.27)	(1.12)	(2.65)
Person	**.82****	**.64***	**.85****		-.06	.01	-.08		.12	-.64	.25
	(2.28)	(1.90)	(2.34)		(.94)	(1.01)	(.92)		(1.12)	(.53)	(1.29)
Drugs	.18	.03	.19		.05	**.52***	-.11		**.36***	-.41	**.58***
	(1.20)	(1.03)	(1.21)		(1.05)	(1.68)	(.90)		(1.44)	(.66)	(1.78)
-2 Log Likelihood	5519.86	518.44	4962.81		7579.11	934.67	6620.49		3418.05	502.92	2884.85

a: Regression coefficient; Exp(B) is presented in the parenthesis ( )
** p<.01, *p<.05
Note: Coefficient comparisons failed to yield evidence of statistically significant difference across race models.

Adjudication. Table 6 (next page) provides the logistic regression results for adjudication differentiated by White and Black. Race 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 the number of charges and the odds of being adjudicated.   As can be seen, for Whites, the number of charges 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 youth with a greater number of charges increases the likelihood of adjudication by 2.15 relative to other youth net considerations of legal severity and other variables.

Judicial Disposition. The results from estimating the effects of race and the other extralegal variables and legal considerations on judicial disposition are detailed in the right hand side of Table 6 (next page). Race has no main relationship with the dependent variable. However, two race interaction relationships exist. Older Whites have a reduced probability of a receiving an out-of-home placement (column 5) than Older Blacks who have an increased odds of such an outcome (column 6). Being detained had a 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 have an increased likelihood of receiving the more severe judicial outcomes than similarly situated White youth once controls are taken into account.

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. Plans to conduct an analysis of the transfer decision will occur in the next 6 months (next assessment report).

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	.40 (1.48)	-	-	-.36 (.70)	-	-
Gender	**-.56**** (.57)	**-2.71**** (.07)	**-.44*** (.65)	-.41 (.67)	1.25 (3.50)	-.30 (.74)
Age	**.10*** (1.11)	-.32 (.73)	**.11*** (1.12)	**.19**** (1.21)	**-1.05**** (.35)	**.22****++ (1.25)
School status	-.01 (1.00)	.74 (2.10)	.01 (1.01)	.29 (1.34)	**2.70**** (14.88)	.19 (1.21)
Special education	-.23 (.80)	-3.13 (.04)	-.08 (.92)	.20 (1.22)	-24.48 (.01)	.25 (1.29)
Own home, one parent	-.25 (.78)	-1.01 (.36)	-.16 (.85)	.21 (1.23)	-.94 (.39)	.28 (1.32)
Home of relatives	-.42 (.66)	-2.60 (.07)	-.19 (.83)	.25 (1.28)	-.11 (.90)	.29 (1.34)
Prior referrals	**.24**** (1.27)	**.57*** (1.76)	**.22**** (1.25)	**.35**** (1.41)	.10 (1.10)	**.34**** (1.40)
Summons	**1.58**** (4.87)	**4.65**** (104.73)	**1.49**** (4.43)	-.64 (.53)	-2.18 (.11)	-.83 (.44)
Custody	**.89*** (2.43)	**3.71**** (40.73)	.60 (1.82)	-.43 (.65)	-.44 (.65)	-.73 (.48)
# Charges	**.54*** (1.71)	-.62 (.54)	**.77**** + (2.15)	**.27*** (1.31)	-1.17 (.31)	**.33**** (1.39)
Crime severity	**.53**** (1.70)	.60 (1.82)	**.53**** (1.70)	**.89**** (2.44)	1.65 (5.21)	**.79**** (2.21)
Property	**.68**** (1.97)	1.03 (2.80)	**.62*** (1.85)	**-.58**** (.56)	-1.64 (.20)	**-.54*** (.58)
Person	-.30 (.74)	-.01 (1.00)	-.46 (.63)	-.17 (.84)	1.00 (2.71)	-.17 (.84)
Drugs	**.82*** (2.27)	**2.75*** (15.66)	.57 (1.77)	**-.82**** (.44)	-2.59 (.08)	**-.63*** (.53)
Detention	**.73*** (2.07)	**-**.78 (.46)	**1.04**** (2.83)	**.67**** (1.95)	-2.57 (.08)	**.82**** + (2.27)
Hazard Rate	-	-	-	1.21 (3.34)	-3.61 (.03)	.09 (1.10)
-2 Log Likelihood	991.98	59.60	904.67	1332.74	69.04	1220.22

a: Regression coefficient; Exp(B) is presented in the parenthesis ( ).
**$p<.01$, *$p<.05$,
++ $p < .01$, + $p < .05$ Coefficient comparisons yield evidence of statistically significant difference 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 the present study, using data given by the Memphis/Shelby County Juvenile Court and cleaned by Dr. Leiber for the time-frame ranging from July 1, 2012 through June 30, 2013, somewhat similar results were discovered. A summary of the RRI data and results from the multivariate analyses are presented in Table 7.

DMC has remained quite high for referral, with rates of referral for Black youth being over four times higher than the rates of referral for White youth. Black youth are underrepresented in diversion. Still, RRI declines are evident in detention, cases petitioned (from 2011), delinquent findings, and placement in a secure facility. An increase in probation for Black also exists. 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) 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. However, Blacks are less likely to receive a non-judicial outcome, together with a greater number of charges are likely to be referred on to a court hearing involving adjudication, and receive an out-of-home placement if older and if held in detention once legal and extralegal factors were considered.

The overall findings indicate that referrals by the police/schools to the juvenile court have remained high 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 as evident in the decline in the RRI and the finding from the multivariate analyses of no race influence at this stage.

Race was found to be influential at the non-judicial stage. Blacks are more likely than similar situated Whites to be referred on to court. In addition, 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. Efforts need to be continued to be made to address equity issues at the non-judicial stage, adjudication and judicial disposition.

In the next assessment, efforts will continue to be made with the Memphis/Shelby County Juvenile Court to capture individual outcomes for distinct cases. In addition, 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 better assessment of activity and interventions on the part of Memphis/Shelby County Juvenile Court 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

	RRI	Multivariate Results
Referral to Court	Overrep. increase	
Secure Detention	Overrep. decline	No race effect
Diversion	Underrep. steady	No race effect
Petition	Underrep. decline	Blacks more likely referred
Adjudication	Overrep. decline	Blacks/#charges adjudicated
Confinement in secure facilities	Underrep. Decline	
Out-of-Home Placement		Blacks/older out-of-home Blacks/detained out-of-home