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) 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, however, should not be predictive of a stage outcome once all legal and other extralegal factors are considered. If race does not indicate a statistically significant presence, then DMC is explained by differences, for example, in legal characteristics (i.e. crime severity). If race is a statistically significant indicator, then something else in addition to legal and other extra-legal factors accounts for DMC. One example could be possible race 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. Data for this first assessment study consisted of 8,507 distinct referrals for the one year period ranging from July

1st, 2012 through June 30th, 2013. 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.

The overall findings indicated that at the **front-end of the system** the influence of race appears to be most prominent. Referrals to the juvenile court were high and efforts needed to be made to divert youth and in particular, Blacks, away from coming into contact with the court. In addition, race disparities were also evident at adjudication and judicial disposition.

A second assessment was conducted six months later and used data consisting of distinct referrals to the juvenile court (n=8,969) for the one year period for 2013. The following was found:

- Blacks charged with a person offense increased the chances of **detention** than comparable White youth.
- Black females had greater odds of being **adjudicated** than similarly situated males. Likewise, Whites charged with a person offense were more likely to be adjudicated than Black youth.
- Older White youth and Whites from single-parent households were reported to receive a **judicial disposition** involving home/probation than similar Blacks.

In short, a consistent finding from Leiber's two assessment studies and that by the Department of Justice is that referrals to the juvenile court were high but signs are evident that the number of referrals is in the decline. Yet, continued efforts are needed 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 needed to 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 waived to adult court has declined, **almost all of the youth given a notice of transfer and those waived are Black**.

In this third assessment by Leiber, 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 third 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 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:

(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.
(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.
	This stage encompasses a court finding that

(6) Cases Resulting in Delinquent Findings	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 June 30, 2014

Presented in Table 1 (located on the next page) are the relative rate indexes for the years 2009 through June 30, 2014. 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 June 30, 2014 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 5 of 7 stages** and in particular, at referral to the juvenile court, secure detention, and cases resulting in confinement in secure facilities. Black youth continue to be underrepresented in cases diverted. A decline in the RRI is evident in cases resulting in delinquent findings. The following narrative summarizes these trends.

2. Although somewhat down in the first half of 2014, the relative rate index involving referrals to court remains high at 3.95. In other word, almost 4 Black youth per 100 youth are referred relative to 1 White youth per 100 youth. Thus, the **number of referrals for both Whites and Blacks are down which is good. But, the relative overrepresentation of Black youth to White youth in court referrals continues to be an issue that has shown relatively no change over the last 5 and half years.**

3. **Black youth continue to be underrepresented for cases diverted**. In 2009, the RRI was .90, in 2014, the RRI is .89.

4. RRI values pertaining to secure detention initially showed a decline from 2.1 in 2009 to 1.32 in 2012. But in 2013 and through part of 2014, an increase in disparities related to secure detention is evident at 1.64 and 1.96, respectively. 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.

5. For 2013 and through the first six months of 2014, the RRI's for cases petitioned shows overrepresentation and has been steady at 1.46 and 1.51, respectfully.

6. The relative rate resulting in **delinquent findings continues to show a decline** - for 2013, 1.16 and 1.09 for 2014 compared to 2.11 in 2012.

7. Rates for cases resulting in confinement in secure juvenile facilities began 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. **Up to this point in 2014, the relative rate shows an increase to 1.77.**

8. 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 or 2014 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, 90 in 2013 and for the first six months of 2014, is 30. But, the number of youth recommended for a waiver is high at 256 in 2013 and 107 for the first half of 2014**. More specific, for July 1, 2013 through June 30, 2014, 292 youth received a notice of waiver with only 12 of those being White. Of those waived, 87 were Black and 3 were White.**

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 at most stages relative to White youth in the JCMSC's juvenile justice system especially at court referral, secure detention, and placement in a secure facility.

Table 1. Rates of Juvenile Court Actions by Race, and Relative Rate Index, 2009-2014[a]

	2009			2010			2011			2012			2013			2014[a]		
Decision Stage (and base rate for calculation)	White[b]	Black	RRI	White	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**	26.8	105.6	**3.95**
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**	101.6	90.8	**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**	10.4	17.0	**1.64**	8.6	16.8	**1.96**
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**	16.7	25.2	**1.51**

Table 1. continued

	2009			2010			2011			2012			2013			2014[a]		
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	72.9	67.6	0.93
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	12.5	22.1	**1.77**[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**	0.0	6.4	**-**	2.7	5.9	**-**

a: RRI calculated as an estimate for the year 2014 based on the YTD data available through 6-30-14
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). 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 and 2014, show that DMC still exists. The RRI's reveal overrepresentation at referral, secure detention and placement 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 two assessment studies by Leiber reported evidence of selection bias once this statistical technique was utilized. The purpose of this third assessment study is to examine the extent to which race still matters once legal (i.e., crime severity) and extralegal (i.e., age) factors are considered.

Data for the Current Study

For the purpose of this study, data was obtained directly from the Juvenile Court. This data was cleaned for the objective of conducting the research. More specific, raw data of all delinquent referrals in Shelby County from July 1, 2013 through June 30, 2014 (N=77,749) 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=8,385 distinct referrals for the one year period of July 1, 2013 through June 30, 2014. The data distributions parallel the Shelby county Court data by distinct complaints, as evidenced in Table 2 on the next page (page 10).

Table 2. Data and Distributions by Stages from July 2013 through June 2014

Stages[c]	Shelby Juv. Court[a] (N=8,535) N	Leiber[b] (N=8,385) N
Detention		
No	7,195	7,155
Yes	1,340	1,230
Non-judicial		
Yes	7,767	6,702
No	768	1,683
Adjudication		
No	754	454
Yes	1,363	1,229
Judicial disposition		
Probation	946	1,014
Placement	312	215
Waiver		
No	-----	202
Yes	92	90

a: Shelby county data counted by distinct complaints as taken from JCMSC 2013 & 2014 RRI Reports
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-nine 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-two 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 with 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, 11 percent live at home with both parents and 11 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 the mid-year of 2014 to create this variable. Thus the count making-up prior referral could be underestimated. Still, on average the sample evidenced 1 prior referral 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-three percent of the sample was referred by a summons while 35 percent were taken into custody. The number of charges, crime severity, and four 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 (79%) and the most common crime type is a property offense (34%), followed by person (31%), drugs (10%), and domestic (9%). Please note that person offenses would rank as the leading type of offense if collapsed with domestic offenses. The reference category for the four 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 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), 74 percent, and diversion (no, yes), 3 percent. The reference group for both variables is dismissed. Formal stages are represented by adjudication and judicial disposition. Seventy-three percent of the youth that reach adjudication are adjudicated delinquent. Eighty-two percent received probation at judicial disposition whereas only 18 percent received an outcome involving out-of-home placement.

Waiver. 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, 2013 and the first six months of 2014 also failed to produce enough variation. Almost all youth that received a notice and actually waived were Black.

Table 3 next page

Table 3. Distribution of Variables (N=8,385)

Variable	Value	N	%
Independent			
Race	0 - White	955	11
	1 - Black	7430	89
Gender	0 - Male	5979	71
	1 - Female	2406	29
Age (young to old)	Years	M = 15.06 SD = 1.89 Range = 7-18	
School status	0 - In school full-time	7739	92
	1 - Else	646	8
Special education	0 - No	7676	92
	1 - Yes	709	8
Current living situation[a]	0 - Own home, two parents	953	11
	1 - Own home, one parent	6546	78
	2 - Home of relatives	886	11
Prior referrals (low to high)	Number	M = 1.64 SD = 2.26 Range = 0-10	
Referral method[b]	0 - Summons	5326	63
	1 - Custody	2899	35
	2 - Other	160	2
# Charges (low to high)	Number	M = 1.15 SD = 0.47 Range = 1-10	
Crime severity	0 - Misdemeanor	6627	79
	1 - Felony	1758	21
Property[c]	0 - No	5542	66
	1 - Yes	2843	34

Table 3. continued

Variable	Value	N	%
Person[c]	0 - No	5744	69
	1 - Yes	2641	31
Domestic[c]	0 - No	7647	91
	1 - Yes	738	9
Drugs[c]	0 - No	7521	90
	1 - Yes	864	10
Dependent			
Detention[d]	0 - No	7155	85
	1 - Yes	1230	15
Non-judicial	0 - Yes	6702	80
	1 - No	1683	20
Warn	0 - No	1725	26
	1 - Yes	4977	74
Diversion	0 - No	6477	97
	1 -Yes	225	3
Adjudication	0 - No	454	27
	1 - Yes	1229	73
Judicial disposition	0 - Probation	1014	82
	1 - Out of home placement	215	18

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 produced problems with multi-collinearity. Thus, the models were re-estimated without the hazard rate. Once the hazard rate was dropped from the analyses, statistical checks for multi-collinearity revealed acceptable levels of sharedness among the variables.

Findings

Detention. Table 4 (page 17) presents the logistic regression result for estimating the decision to detain. In the present study, while race does not have a statistical significant main effect with detention outcomes (column 1), there is once again 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 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 112 times relative to all other youth. Estimations for other interactions produced evidence of two additional statistically significant relationships between race with the number of charges and domestic assault with the dependent variable. **Blacks who have a greater number of charges increased the odds of being detained by 32% than similarly situated Whites. White youth involved in domestic assaults, however, have a decreased likelihood of being detained** by 90%. For Blacks, domestic assault is not a statistically significant determinant of the decision to detain (though the effect is positive). Most of the legal and extralegal variables predict detention as one would expect. For example, crime severity is predictive of detention.

Overall, in 3 of 4 assessment studies race has been found either individually or in combination with other factors, person offense, to influence the decision to detain net considerations of other variables. 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. In Leiber's second assessment study, Black youth involved in a person offense increased the likelihood of being detained by over two times relative to all other youth net controlling for other factors, including domestic assault cases.

--Table 4 next page--

Table 4. Logistic Regression Results - Detention (N=8,385)

Variable	Full Model (1)	White (2)	Black (3)
Race	.02[a] (1.03)	-	-
Gender	**-.42**** (.66)	-.01 (.99)	**-.44**** (.64)
Age	.04 (1.05)	-.07 (.93)	.05 (1.05)
School status	**.55**** (1.74)	**1.09**** (2.97)	**.48**** (1.61)
Special education	-.26 (.77)	-.17 (.84)	**-.29*** (.75)
Own home, one parent	.16 (1.17)	-.15 (.86)	.18 (1.19)
Home of relatives	**.43**** (1.54)	.73 (2.07)	**.37*** (1.45)
Prior referrals	**.24**** (1.27)	**.28**** (1.33)	**.25**** (1.28)
Summons	**-3.22**** (.04)	**-4.14**** (.02)	**-2.94**** (.05)
Custody	.32 (1.38)	.09 (1.09)	**.53*** (1.70)
# Charges	**.17*** (1.18)	-.18 (.83)	**.27****† (1.32)
Crime severity	**1.52**** (4.59)	**.95*** (2.59)	**1.58**** (4.84)
Property	**-1.14**** (.32)	**-2.62**** (.07)	**-.96**** (.38)
Person	.28 (1.33)	**-1.24*** (.29)	**.47****†† (1.60)
Domestic	.01 (1.00)	**-2.26**** (.10)	.27†† (1.31)
Drugs	**-1.11**** (.33)	**-3.05**** (.05)	**-.82**** (.44)
-2 Log Likelihood	3798.66	266.15	3482.12

a: Regression coefficient; Exp(B) is presented in the parenthesis ( ).
**p<.01, *p<.05
††p<.01, †p<.05, Coefficient comparisons yield statistical significance

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. **Consistent with the two previous assessment studies conducted by Leiber, in the present research, race once again is not a statistically significant predictor of non-judicial decision-making (column 1**). Additive or direct race effects exist for decisions involving a warning and diversion. As can be seen in column 4, **Blacks are more likely to receive a warning** by 38% than Whites net controls. **Blacks, however, are less likely to receive diversion** than Whites by 44% (column 7). This latter result is consistent with the previously discussed findings in the form of the relative rate index. Tests for differences by the separate race models yield evidence of one race interaction effect with being a drug offender and the decision to warn. Recall that Blacks were found more so than Whites to receive a warning at the non-judicial stage. As can be seen in column 5, **being a White drug offender increased the odds of receiving a warning**. No such relationship exists for Blacks (column 6).

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 were considered. The results from Leiber's first assessment study showed that this effect remained. Blacks were 1 ½ times more likely than Whites to be referred to a court hearing net controls. In the second and third assessment study by Leiber, race was not a statistical significant determinant of the decision to be referred further on at this stage. Thus, in 2 of 4 assessment studies race had a direct relationship on the decision but the last 2 have failed to show a direct effect. The latter findings could be the result of greater awareness and sensitivity to greater equity in the treatment of similar youth, irrespective of race. The Court is commended for making strides in this regard.

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 were evident in the second study. These results could differ from those reported by DOJ because of several factors: (1) the studies by Leiber took into account more variables or information about the youth, (2) different data was used, and (3) as stated previously, the Court, as a result of the Agreement and efforts taken, have attempted to correct for the bias in decision-making at this stage. The findings from the latest assessment study by Leiber, however, show that Black youth are less likely to participate in diversion than similar White youth. **Thus, in terms of trends as reported by the RRI's and from the results of 2 of the 4 assessment studies, diversion is an area that is in continued need of attention to address DMC.**

It is important to note that non-judicial could be viewed as a ranked order variable; thus requiring the use of multinomial regression rather than logistic regression. In both assessment studies and the present or third assessment, for the purpose of presentation logistic regression was used. Although not reported here, analyses involving multinomial regression yielded similar results as reported with the logistic regression.

Table 5. Logistic Regression Results - Non-Judicial

	Non-Judicial			Warn			Diversion		
	Full	White	Black	Full	White	Black	Full	White	Black
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Race	.20	-	-	**.32****	-	-	**-.61****	-	-
	(1.23)			(1.38)			(.54)		
Gender	**-.58****	-.29	**-.62****	**.15***	.33	.13	**-.47****	-.51	**-.47****
	(.56)	(.75)	(.54)	(1.17)	(1.39)	(1.14)	(.63)	(.60)	(.62)
Age	**.09****	.14	**.09****	**.06****	.07	**.05****	.06	-.08	**.09***
	(1.10)	(1.15)	(1.09)	(1.06)	(1.07)	(1.06)	(1.06)	(.92)	(1.09)
School status	**.31****	.09	**.34****	-.14	.39	-.22	-.18	-.61	-.05
	(1.36)	(1.09)	(1.41)	(.87)	(1.47)	(.81)	(.84)	(.54)	(.95)
Special education	-.22	-.48	-.22	-.09	.87	-.16	**-.66***	-[b]	-.51
	(.80)	(.62)	(.80)	(.92)	(2.39)	(.85)	(.52)	-	(.60)
Own home, one parent	.04	.04	.04	-.13	-.45	-.05	.01	.21	-.14
	(1.04)	(1.04)	(1.04)	(.88)	(.64)	(.95)	(1.01)	(1.24)	(.87)
Home of relatives	.25	.80	.20	-.04	-.09	.02	-.43	-.45	-.55
	(1.28)	(2.22)	(1.22)	(.96)	(.91)	(1.02)	(.65)	(.64)	(.58)
Prior referrals	**.42****	**.58****	**.41****	**-.21****	**-.27****	**-.21****	.04	.04	.03
	(1.53)	(1.79)	(1.51)	(.81)	(.76)	(.81)	(1.04)	(1.04)	(1.04)
Summons	**-1.90****	**-2.57****	**-1.82****	**2.17****	**2.75****	**2.02****	.99	-[b]	.66
	(.15)	(.08)	(.16)	(8.76)	(15.70)	(7.53)	(2.70)	-	(1.94)
Custody	**-.73****	-.97	**-.70****	-.04	.31	-.16	.71	-[b]	.30
	(.48)	(.38)	(.50)	(.97)	(1.37)	(.85)	(2.03)	-	(1.34)
# Charges	**.29****	.24	**.31****	.13	.35	.07	.07	-.13	.21
	(1.33)	(1.28)	(1.36)	(1.14)	(1.42)	(1.08)	(1.08)	(.88)	(1.23)

Table 5. continued

Variable	Non-Judicial Full (1)	Non-Judicial White (2)	Non-Judicial Black (3)	Warn Full (4)	Warn White (5)	Warn Black (6)	Diversion Full (7)	Diversion White (8)	Diversion Black (9)
Crime severity	**2.00****	**2.21****	**2.00****	-.17	**-.73***	-.11	**.33**	-.41	**.49***
	(7.42)	(9.07)	(7.42)	(.84)	(.48)	(.90)	(1.39)	(.66)	(1.63)
Property	**.59****	**1.36***	**.54****	-.12	.07	-.15	**.97****	**1.02***	**1.10****
	(1.80)	(3.91)	(1.72)	(.89)	(1.08)	(.86)	(2.64)	(2.77)	(3.01)
Person	**1.32****	**1.56***	**1.30****	.07	.48	.03	**.79****	-.26	**1.06****
	(3.74)	(4.77)	(3.68)	(1.08)	(1.61)	(1.03)	(2.19)	(.77)	(2.89)
Domestic	.08	1.27	.01	-.13	-.25	-.13	**-1.50***	-[b]	-1.04
	(1.08)	(3.57)	(1.01)	(.88)	(.78)	(.88)	(.22)	-	(.35)
Drugs	**.47****	1.07	**.46***	.24	**.90****	-.03†	.05	-.25	.44
	(1.60)	(2.92)	(1.58)	(1.27)	(2.45)	(.97)	(1.05)	(.78)	(1.55)
-2 Log Likelihood	4967.78	389.82	4558.05	6068.54	661.06	5379.61	1878.23	330.45	1538.23

a: Regression coefficient; Exp(B) is presented in the parenthesis ( )
b: Insufficient cases, variables dropped from analysis
** p<.01, *p<.05
† p<.05, Coefficient comparisons yield statistical significance.

Adjudication. Table 6 provides the logistic regression results for understanding adjudication decision-making. In the present assessment study, **race once again does not have a statistical direct effect on adjudication outcomes** (column 1). Further, tests involving coefficient comparisons **also failed to produce evidence of race differences in the relative effects of the independent variables with adjudication**.

Recall that the DOJ study did not report adjudication decision-making as a problem area. 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 second assessment study, race once again did not have a direct effect on the dependent variable. But, two race interaction relationships were found. Black females and White youth charged with a person offense were found to have an increased likelihood of adjudication.

Judicial Disposition. In the right side of Table 6, the logistic regression results for predicting judicial disposition outcomes are presented. In the present assessment study and consistent with the previous two assessment studies, **race is not a statistically significant determinant of judicial decision-making**. Tests for the presence of race combination relationships with independent variables also failed to show the existence of such effects with the dependent variable.

In the first assessment study by Leiber, race had 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 second assessment study, once again race was not a statistically significant determinant of judicial disposition decision making. Differentiating the results by race, tests comparing coefficients produced two statistically significant interaction relationships. As in the first assessment study, older Whites had decreased odds of receiving an out-of-home placement than other youth, including Blacks. White youth from a single-parent home were found to be less likely to receive the more severe judicial disposition outcome than similarly situated Black youth .

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 three years. That is, **almost all youth receiving notice of transfer and actually waived are Black.**

Table 6. Logistic Regression Results - Adjudication, Judicial Disposition

	Adjudication			Judicial Disposition		
Variable	Full (1)	White (2)	Black (3)	Full (4)	White (5)	Black (6)
Race	-.23	-	-	.16	-	-
	(.80)			(1.17)		
Gender	**.45***	-.25	**.50***	**-.81***	-.43	**-.80***
	(1.57)	(.78)	(1.65)	(.45)	(.65)	(.45)
Age	**-.41****	**-.81****	**-.40****	**.23****	-.27	**.26****
	(.67)	(.44)	(.67)	(1.26)	(.76)	(1.30)
School status	.11	.81	.06	-.14	.15	-.22
	(1.11)	(2.24)	(1.07)	(.87)	(1.16)	(.81)
Special education	-.13	2.64	-.21	.49	-[b]	**.66****
	(.88)	(13.94)	(.81)	(1.64)	-	(1.94)
Own home, one parent	.11	-.25	.13	-.02	.55	.01
	(1.11)	(.78)	(1.14)	(.98)	(1.74)	(1.00)
Home of relatives	.37	.08	.34	-.56	-[b]	-.35
	(1.44)	(1.08)	(1.40)	(.57)	-	(.70)
Prior referrals	-.04	.07	-.04	**.30****	.29	**.30****
	(.97)	(1.07)	(.96)	(1.35)	(1.33)	(1.35)
Summons	.22	1.38	.19	**-.84***	-[b]	-.74
	(1.24)	(3.97)	(1.21)	(.43)	-	(.48)
Custody	**.92****	1.98	**.96****	**-1.25****	.68	**-1.29****
	(2.51)	(7.21)	(2.61)	(.29)	(1.98)	(.28)
# Charges	.15	-.06	-.19	**.28***	.48	.26
	(.86)	(.94)	(.83)	(1.33)	(1.62)	(1.29)
Crime severity	**-.43****	.46	**-.50****	**.82****	1.05	**.87****
	(.65)	(1.58)	(.61)	(2.27)	(2.87)	(2.38)
Property	.10	-.01	.09	.03	-[b]	-.11
	(1.10)	(1.00)	(1.09)	(1.03)	-	(.89)
Person	**-.67****	.21	**-.75****	.43	-[b]	.28
	(.51)	(1.23)	(.47)	(1.53)	-	(1.33)
Domestic	.12	-[b]	-.09	.50	-[b]	.46
	(1.13)	-	(.92)	(1.65)	-	(1.59)
Drugs	.67	**3.25***	.46	-.29	-[b]	-.33
	(1.94)	(25.85)	(1.58)	(.75)	-	(.72)
Detention	**-1.04****	**-1.96****	**-1.00****	**1.71****	**2.13***	**1.74****
	(.35)	(.14)	(.37)	(5.51)	(8.39)	(5.67)
-2 Log Likelihood	1705.89	91.85	1595.01	871.16	50.10	815.30

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.

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 the second assessment study covering court decision making for the entire year 2013 by Leiber, several themes continued to exist. In this 3rd assessment study using data from July 1, 2013 through June 30, 2014 similar patterns from the previous 2 assessments and the DOJ study continue to exist. A summary of the RRI data and results from the multivariate analyses for these studies are presented in Table 7 (page 25).

DMC has remained quite high for referral, with rates of referral for Black youth being at almost four times higher than the rates of referral for White youth. This is a pattern that really has not changed and this issue needs to be addressed. While overall fewer youth are being held in detention, Blacks are still overrepresented relative to Whites. Black youth are underrepresented in diversion and have remained more or less steady. At petition, overrepresentation continues to exist and the pattern has been steady over the years. RRI declines are evident in delinquent findings. An increase in Black presence exists for confinement in secure facilities involving out-of-home placement.

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) AND administrative policies (e.g., police referrals involving minor offenses, detention admissions of minor offenders, etc.) 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 petition, adjudication, and confinement in secure facilities involving out-of-home placement. The Memphis/Shelby County Court is to be commended for making efforts to reduce DMC and disparity at these stages.

Still, race interaction relationships with several independent variables and court decision making was found. As before, at detention, Black youth involved in a person offense increases the likelihood of being detained relative to other youth. Likewise, Blacks with a greater number of charges have an increased likelihood of being detained. Whites charged with domestic assault are less likely to be detained than Black youth charged with domestic assault. At the non-judicial stage, while Blacks are more likely than Whites to receive a warning, they (Blacks) are less likely to participate in diversion. White drug offenders appear to also receive a warning compared to a Black drug offender. Although not studied through the use of logistic regression and similar to court referral, there is a continuing problem involving the significant

overrepresentation of Blacks for transfer to adult proceedings. In fact, over the last three years with the exception of three Whites, all have been Black.

A constant finding from the four past studies is 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, especially for domestic assaults, 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 a number of independent variables that result in Blacks being more likely to be detained than similar Whites. Similar to referrals, continued efforts need to 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 race effects were not found at several decision-making points or stages, continuation in efforts are needed to address equity issues in the form of structured decision-making involving decisions at detention, non-judicial case outcomes, and adjudication. Lastly, although the overall number of youth reaching the waiver stage via notice and those waived to adult court has declined, almost all of the youth recommended and waived are Black.

Table 7. Summary of RRI Data and Multivariate Logistic Regression for Four Studies

DOJ – Assessment Study (2005-2009, 2010 data)

	RRI	Multivariate Results
Referral to Court	Overrep.	
Secure Detention	Overrep	Blacks more likely to be detained
Diversion	Underrep.	Blacks less likely to be diverted
Petition	Overep.	Blacks more likely to be 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
Diversion	Underrep.	steady	No race effect
Petition	Underrep.	decline	Blacks more likely referred
Adjudication	Overrep.	decline	Blacks with more charges more likely to be adjudicated
Confinement in secure facilities	Underrep.	decline	
Out-of-Home Placement			Blacks who are older more likely to receive out-of-home, Whites who are older home more likely to receive probation Blacks who are detained more likely to receive out-of-home
Waiver/Transfer to Adult Court	Mostly Black		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 more likely to be detained
Diversion	Underrep.	steady	No race effect
Petition	Overrep.	steady	No race effect
Adjudication	Overrep.	decline	Black females more likely to be adjudicated Whites involved in person crime more likely to be adjudicated
Confinement in secure facilities	Underrep.	decline	
Out-of-Home Placement			Whites who are older more likely to receive probation Whites from single-parent home more likely to receive probation
Waiver/Transfer to Adult Court	Mostly Black		Lack of variation to examine

See next page

Table 7. continued

Leiber- 3rd Assessment Study (July 1,2013 through June 30, 2014, data)

	RRI		Multivariate Results
Referral to Court	Overrep.	steady/high	
Secure Detention	Overrep.	increase	Blacks involved in person crime more likely to be detained Blacks/greater # of charges more likely to be detained Whites/domestic assault less likely to be detained
Diversion	Underrep.	steady	Blacks more likely to be warned Blacks less likely to be diverted White/drug offender more likely to be warned
Petition	Overrep.	steady	No race effect
Adjudication	Overrep.	decline	No race effect
Confinement in secure facilities Out-of-Home Placement	Overrep.	increase	No race effect
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 the first six months of 2014