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## Underlying Causes of Youth Certification: Regression Analysis

Certification Research Brief #4  
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The previous Certification Briefs #1, 2, and 3 have demonstrated racial *disproportionality* in the certification decision in terms of the youth who had a felony allegation compared to youth certified. Another way to measure this *disproportionality* is to use Office of Juvenile Justice and Delinquency Prevention's (OJJDP) relative rate index (RRI). The RRI for African Americans at the court contact point of certification for 2008-2011 is 3.7. In other words, African American youth were over three and a half times more likely to be certified compared to Caucasian youth during 2008-2011. Given the evidence of racial *disproportionality*, while also recognizing the over-representation of African American youth who alleged to have committed very serious offenses, further analysis is needed to determine whether racial *disparity* or unequal outcomes/treatment exists.

The purpose of this research brief is to explain the findings of a logistic regression conducted to determine the influence of individual factors, including race and gender, on the likelihood of the certification decision (while holding the other factors constant).

### METHOD

Please see Certification Research Brief #1 for a discussion of the method of the certification study. A dichotomous dependent variable of being certified (yes or no) was used for the regression analysis. Independent variables were divided into three categories: type of offense, demographics, and risk factors. The type of offense category included the level of the offense (Felony, Felony A, Felony B, Felony C, or Felony D/misdemeanor),<sup>1</sup> kind of offense (against person, against property, or drug/other),<sup>2</sup> and whether or not the allegation was mandatory.<sup>3</sup> The demographic variables included African American (yes or no),<sup>4</sup> male (yes or no), or 17 or older (yes or no). All ten risk factors from the MO Juvenile Offender Risk Assessment were also included in the analysis as dummy variables (yes or no).<sup>5</sup> Being held in secure detention was the final variable in the model (yes or no).<sup>6</sup>

The certification model reported below includes only those variables that were found to be statistically significantly at the probability level of  $p < 0.01$ . Thus, we are 99% sure that the differences are not due to chance alone. An odds ratio of less than 1 decrease the odds (while holding the other factors constant). An odds ratio of more than 1 increase the odds (while holding the other factors constant).

Because a small number of cases were non-Caucasian and non-African American, all other racial/ethnic categories were combined into a generic "Other" category. Because risk assessments were not required for certified youth and due to missing risk assessment data, 1,960 youth were not included in the regression analysis below. The number of youth included in the regression analysis is 11,657 youth, 276 of whom were certified. Needs assessment data were not included in the regression because 46 percent of the certified youth would have been removed from the analysis.

## FINDINGS<sup>7</sup>

### *Demographic Variables*

- The independent variable that increases the odds of being certified **most** is age.
  - If a youth is 17 years of age or older on the referral date and has a felony allegation, s/he has increased odds (30 times more likely) to be certified (holding all other variables constant).
- Being African American and being male are statistically significant and do point to *disparity*.
  - Males are at increased odds (almost 2 1/2 times more likely) to be certified.
  - African Americans are at increased odds (2 times more likely) to be certified.
- If one lives in an urban area, one is at decreased odds (1/3 times *less* likely) to be certified.
- However, being male, being an African American, or living in an urban area does not increase the likelihood of certification as much as age or some of the offense variables discussed below.

**Table 1: Logistic Regression Results for Certification Decision**

Category	Variable	B	SE	Odds Ratio (Confidence Interval)
Demographics	Age (17 or older)	3.388	0.210	<b>29.61</b> (19.62-44.67)
	Male	0.856	0.317	<b>2.34</b> (1.27-4.38)
	African American	0.713	0.185	<b>2.04</b> (1.42-2.93)
	Urban	-0.976	0.317	<b>0.37</b> (0.27-0.54)
Current offense	Felony unclassified (vs. felony D)	1.560	0.396	<b>4.76</b> (2.19-10.33)
	Felony A (vs. felony D)	2.435	0.424	<b>11.42</b> (4.97-26.20)
	Felony B (vs. felony D)	1.708	0.384	<b>5.52</b> (2.60-11.72)
	Felony C (vs. felony D)	0.930	0.376	<b>2.54</b> (1.21-5.29)
	Weapon (vs. Drug/other)	2.180	0.53	<b>8.85</b> (3.12-25.07)
	Person (vs. Drug/other)	1.604	0.325	<b>4.97</b> (2.63-9.41)
	Property (vs. Drug/other)	1.461	0.352	<b>4.31</b> (2.16-8.60)
	Mandatory Allegation Certification Hearing	1.741	0.243	<b>5.70</b> (3.55-9.18)
Risk Factors	Prior referral	0.603	0.186	<b>1.83</b> (1.27-2.63)
	Placement history	0.561	0.151	<b>1.75</b> (1.30-2.36)
Other	Secure Detention	1.127	0.178	<b>3.08</b> (2.18-4.37)

Total cases	11,617
Chi square (df)	955.761 (17)
-2 Log Likelihood	1621.132
% classified correctly	97.70%

### *Current Offense*

- The second most important factor in the certification decision is the *level of the offense*.
  - A youth is at increased odds of being certified (compared to a Felony D), if a youth has a(n):
    - class A felony allegation (11 times more likely).
    - class B felony allegation (5 1/2 times more likely).
    - unclassified felony allegation (almost 5 times more likely).
    - class C felony allegation (almost 3 times more likely).
  - The likelihood of certification decreases with the level of the offense.

- A youth is at increased odds of being certified (compared to a drug/other offense), if a youth has a(n):
  - allegation that involves a weapon (almost 11 times more likely).
  - person offense, (5 times more likely).
  - property offense, (4 times more likely).
- If a youth is alleged to have committed a mandatory allegation,<sup>8</sup> the youth is at increased odds (over 6 times more likely).

#### *Risk Factors and Other*

- Although all ten risk assessments were included in the analysis, only two were statistically significant. In other words, eight of the risk variables did not impact the certification decision.
  - If a youth had a previous referral, this increases the likelihood (2 times).
  - If a youth had a prior out-of-home placement, this increases the likelihood (1 ½ times).
  - Although the two risk factors are statistically significant, the risk variables do not increase the likelihood of certification compared to age or the other offense type variables.
- If a youth was held in secure detention, this increases the likelihood (3 times more likely).

### **CONCLUSION**

The findings of the study demonstrate that all of the factors discussed above, with the exception of living in an urban area, increase the likelihood of being certified. However, some factors increase the likelihood to a greater extent. The four factors that contribute most to certification are the following: the age of the youth (17 years of age or older), the level of the offense (Felony A vs. Felony D), whether it is a weapons charge compared to a drug/other offense, and whether or not the allegation is mandatory.

This study does demonstrate that there are racial and gender *disparities* in the certification decision. This series of research briefs have demonstrated that *racial disproportionality* and *racial disparity exist* in Missouri's juvenile justice system at the certification court contact point. However, these factors do not have the greatest impact on the certification decision relative to the four factors just discussed. Two of the ten risk variables increase the likelihood of certification, but they have the least impact of all of the variables in the model.

More research is needed to understand the underlying causal mechanisms that contribute to racial and gender *disparity*. What role does social class play in who is certified? Why are more African American youth alleged to have committed a mandatory allegation? What role do attorneys play in terms of who is certified when a youth allegedly commits a mandatory allegation? What role do policing practices have on who allegedly commits certain allegations? What policies and procedures lead to a higher percentage of African American youth being formally processed?

More research is also needed to understand why a youth's involvement with the juvenile justice and child welfare system increases the likelihood of certification. Research suggests that a scared straight approach does not decrease recidivism. Contemporary research shows a relationship between child maltreatment and delinquency (Dannerbeck and Yan, 2011).

A recommendation of this study is to do more analysis to determine if one of the causal factors that contribute to the certification of youth is the child welfare and juvenile justice system's lack of attention to trauma. Recent attention (Child Welfare Information Gateway, 2011) has focused on the importance of a trauma informed practice within the juvenile justice system. If a trauma-informed protocol was put in place to allow the juvenile justice and child welfare system to screen youth for trauma, and more importantly, provided the youth and his/her family with the necessary resources to

address this trauma, perhaps the link between involvement with the juvenile justice system and the child welfare system would diminish rather than accelerate a youth's involvement with one or both of these systems. Ultimately, this could lead to individualized treatment plans that address the root cause of a youth's trauma, which if unaddressed, can lead to delinquency and potentially certification.

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## ENDNOTES

- <sup>1</sup> Level of offense was recoded as a dummy variable with felony D/misdemeanor as the reference group.
- <sup>2</sup> Kind of offense was recoded as a dummy variable with drug/other as the reference group.
- <sup>3</sup> The following allegations require a mandatory certification hearing: 1<sup>st</sup> degree murder (10021), 2<sup>nd</sup> degree murder (10031, 10034, & 10036), forcible rape (11005, 11008, 11086, & 11088), sodomy (11082, 11084, 11086, & 11088), robbery (12010), assault (13011, & 13020) and distribution of drugs (32461, 32463, 32465, & 32470). The law only requires a mandatory certification hearing. It does not require that the youth be certified.
- <sup>4</sup> The decision was made to code the data African American (yes/no) instead of minority (yes/no), because previous research has shown that African Americans experience the most racial/ethnic disparity in Missouri (Patterson 2012; Dannerbeck 2006), and therefore, lumping African Americans with all other minority groups does not demonstrate the unique experiences they face.
- <sup>5</sup> The risk factors are presented from the perspective of the greatest risk (for instance, negative peer relationships rather than positive ones). The ten risk factors are (yes/no): 1) age at first referral less than or equal to age 12, 2) prior referrals, 3) a history of one or more prior assault referrals, 4) a history of prior out-of-home placement, 5) negative peer influences, 6) history of child abuse/neglect, 7) substance abuse problem, 8) school attendance problems, 9) ineffective management style and 10) prior parental incarceration.
- <sup>6</sup> Four cases have missing data for the secure detention variable.
- <sup>7</sup> In order for a youth to be certified, a case must be formally processed (e.g., court involvement). Although the regression analysis includes all youth with a felony allegation (both informally and formally processed), the overall results do not change when only formally processed youth are included. The odds ratios for all of the variables were very similar and the overall pattern of the model did not change.
- <sup>8</sup> If a youth is alleged to have committed a third felony that is unrelated to the previous two felonies, the statute also mandates a certification hearing. There is not consistency across the state in terms of the definition of previous *unrelated* felonies. Consequently, data about the 3<sup>rd</sup> felony was not included in the model.