A Quasi-experimental Evaluation of Family Centered Treatment® in the Maryland Department of Juvenile Services Community Based Non-residential Program: Child Permanency and Well-being

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Revisions March 2021:

This report has been revised to clarify the nature of the Maryland Department of Juvenile Services Non-Residential Community-Based Program, and how the outcomes of that program reported here fit into the domains of child welfare. Additional revisions address questions for clarification arising from independent reviews of this research.

Executive Summary

The *Maryland Department of Juvenile Services Non-Residential Community Based Program* supports adjudicated delinquents at risk of out-of-home placements or secure or locked detention and provides reunification services for youth returning from out-of-home placements. In support of a commitment to child permanency and child welfare, and in the face of budget cuts, a pilot program was implemented to provide Family Centered Treatment® (FCT) to adjudicated youth in their homes and communities as an alternative to costly out-of-home placements. The pilot is a diversion program; many youths who would otherwise be removed from their homes and interred in a restrictive residential setting, may instead remain in their home and receive FCT services. FCT is an intensive in-home treatment model adapted to work effectively with the specialty population of resistant delinquent youth. The overriding goal is to maintain youth in their homes and community, with their families, and divert them from further penetration into the juvenile, child welfare or adult system.

This study examined outcomes from the first 4.5 years of field implementation of FCT with the Maryland delinquent youth population. A quasi-experimental research design is used to compare FCT treatment outcomes to those of the Group Homes and Therapeutic Group Homes from which youth receiving FCT are diverted. Because FCT cases are diversions from Group Homes, the two samples (denoted "FCT youth" and "GH youth") are similar in terms of the risk factors that affect treatment outcomes.

Child Permanency Outcomes: Least Restrictive Placement

We examine post-treatment out-of-home placements over a two year follow up period and find the following results for FCT youth compared to GH youth. These child permanency outcomes relate to the stability of the in-home living situation and the preservation of family relationships, i.e. avoidance of removing youth from their homes. For the first-year post treatment we find the following outcomes for FCT:

- 24% fewer youth in Restrictive Residential placements: p= 0.002
- 20% reduction in length of Restrictive Residential placement for average youth: p = 0.03
- 30% reduction in length of average Restrictive Residential placement: p = 0.002
- 39% reduction in days spent in Pending (out-of-home) Placements for average youth: p = 0.01
- 27% reduction in days spent in the average Pending Placement: p =0.007
- 23% reduction in length of average Community Detention: p = 0.007

There are no significant differences in child permanency outcomes in the second year.

Child Well-being Outcomes: Delinquent Behavior

Cross-group comparisons of the pre- post-treatment changes in behaviors show no significant differences between frequencies of offenses or proportions of youths with new offenses over the two year follow-up period, but do show a significant decrease in the proportion of adjudications for the FCT group in the second year following treatment. (p=0.02, effect size> 100%).

While we find no differences between groups in offense variables, we find both groups do significantly decrease their delinquent behaviors in the first year and sustain those downward trends into the second year following treatment. The GH youth show a significant increase in the frequency of adjudications in the second year following treatment.

Cost Effectiveness

Importantly, we find that FCT is a proven highly cost-effective alternative to out-of-home residential placements. For the subset of 446 FCT youth examined here (those aged 17 years or less at intake and followed for at least one-year post-treatment before aging into the adult system), actual treatment costs of FCT were $5.4m. Had these youth been placed in Group Homes or Therapeutic Group Homes, treatment costs would have been $17.7m. Therefore, a $5.4m diversion program saved the state of Maryland $12.3m over the course of 4.5 years. In other words:

- **Every dollar spent on FCT saved the state $2.29 in out-of-home placement cost**

1. Introduction

The *Maryland Department of Juvenile Services Non-Residential Community Based Program* supports adjudicated delinquents at risk of out-of-home placements or secure or locked detention and provides reunification services for youth returning from out-of-home placements. In support of a commitment to child permanency and child welfare, and in the face of budget cuts, a pilot program was implemented to provide Family Centered Treatment® (FCT) to adjudicated youth in their homes and communities as an alternative to costly out-of-home placements. The pilot is a diversion program; many youths who would otherwise be removed from their homes and interred in a restrictive residential setting, may instead remain in their home and receive FCT services. FCT is an intensive in-home treatment model adapted to work effectively with the specialty population of resistant delinquent youth. The overriding goal is to maintain youth in their homes and community, with their families, and divert them from further penetration into the juvenile, child welfare or adult system. FCT has been recognized by the California Evidence Based Clearinghouse as a Family Stabilization Program with high Child Welfare Relevance and Promising Research Evidence.

The Annie E. Casey Foundation reported that more than 633,000 youth were living in out-of-home placements at some point in 2012 and that many of these youth did not belong in child welfare or juvenile justice placements. They ended up there because their communities had insufficient alternatives to help families resolve conflicts or address teens' behavioral health issues. (see, e.g The Annie E. Casey Foundation, 2015). From a child welfare system perspective, studies estimate that up to 59% of first-time offenders in the juvenile justice system have a child welfare history (Halemba & Siegel, 2011).

The needs of youth in societal and multiple systems is complex. Research has shown a link between maltreatment and delinquency (Barth & Jonson-Reid, 2000; Widom, 1989). Children and youth with maltreatment histories are at twice the risk of juvenile court contact than those without (Stouthamer-Loeber, Loeber, Homish, & Wei, 2001). Once contact is made with the juvenile justice system, youth with child welfare histories are more likely to be detained for formal case processing (Conger & Ross, 2006) and are more likely to receive sanction of placement outside the home rather than probation (Ryan, Herz, Hernandez, & Marshall, 2007). The need for effective home and community interventions appears high.

The purpose of this study is to examine outcomes from the first 4.5 years of the field implementation of FCT with the population of Maryland delinquent youth. We seek to answer the following questions:

1. To what extent has FCT reduced out-of-home placements for youth in this population?
2. What are offense recidivism rates for study youth?
3. What are offense recidivism rates for FCT youth relative to those youth receiving alternative services?
4. How has the program impacted MD DJS expenditures on this population?

We use a quasi-experimental design to compare FCT treatment outcomes to those of the Group Homes and Therapeutic Group Homes (hereafter referred to as Group Homes or GH) from which youth receiving FCT are diverted. As FCT cases are diversions from Group Homes, the two samples ("FCT youth" and "GH youth") are similar in terms of the risk factors that affect treatment outcomes. A combination of standard and propensity score matching using archival administrative data on identified risk factors is used to estimate average treatment effects.

We find that, in the first 4.5 years of implementation, the FCT program provides

improved results compared to Group Homes at a substantially lower cost. During the first year following treatment, we find the *proportion* of youth in post-treatment (out-of-home) Restrictive Residential placements is lower for youth receiving FCT, the average frequency of subsequent Restrictive Residential placements is lower, and the average youth spends fewer days in Restrictive Residential placements. Moreover, the average FCT youth spends fewer days in Pending (out-of-home) Placements, and the average length of those Pending Placements is lower. We find no significant difference in the proportion of youth in post-treatment Community Detentions or in the frequency of Community Detentions, but the duration of the average Community Detention is significantly lower for those receiving FCT. In the second year following treatment, we find no significant differences in out-of-home placement outcomes. Finally, we find no significant differences in offending behaviors during the first or second year following treatment, but we find that youth in the FCT group are less likely to be adjudicated in the second year following treatment and the average youth has significantly fewer adjudications.

Importantly, we find that FCT is a highly cost-effective alternative to restrictive Group Home placements. For the subset of 447 FCT youth examined here (those aged 17 years or less at intake, who can thus be followed for at least one year post-treatment before aging into the adult system), actual treatment costs of FCT were $5.4m. Had these youth been placed in Group Homes or Therapeutic Group Homes instead, treatment costs would have been $17.7m. Therefore, a $5.4m diversion program saved the state of Maryland $12.3m. In other words, every dollar spent on FCT saved the state $2.29 in residential treatment costs.

In this report, we present a brief overview of FCT and its application to the Maryland DJS population. Section 2 presents an overview of the General Treatment Model and its implementation with the MD DJS population. Section 3 presents the research design and the concept of matching estimators. Section 4 describes the data, and variables and their measurement, while Section 5 presents the results. Section 6 discusses possible design confounds and how this research meets conventional standards to support causal evidence. Section 7 illustrates the cost-effectiveness of FCT. Conclusions follow in Section 8.

2. Family Centered Treatment®

2.1 General Model[1]

Family Centered Treatment® (FCT) is a model of treatment designed for use in the provision of intensive in-home services for youth and their families at especially high risk for disintegration. Treatment is conducted in natural settings (i.e., in the home, school, and/or community), and typically lasts six months, with several hours of contact in multiple sessions every week. FCT can be used with a variety of specialized need populations where the family system has been impacted and is in need of support or change.

The origins of FCT derive from practitioners' efforts to find simple, practical, and common-sense solutions for families faced with forced removal of their children from the home, or dissolution of the family, due to external and internal stressors and circumstances. The practice approach grew out of a desire and mission to create opportunities for change in families that were stuck in a downward spiral. Families served were most often those who had not responded to traditional services and, in the infancy of its practice, were referred to FCT as a "last resort."

[1] This section draws heavily from Painter, Smith and Sullivan [2008].

The model was developed over a 20-year period of practice experience, and was refined based on research, experience, and client feedback. Client response and feedback were integral to defining what components of treatment are effective. Though FCT has evolved from applied success, critical components are recognizable as derivatives of major models of evidenced-based practice; the basic framework for treatment draws from components of the evidence-based models of *Eco Structural Family Therapy* (Aponte 1976, Aponte 1986, Minuchin 1981) and *Emotionally Focused Therapy* (Johnson and Greenberg 1985). While FCT is comprehensive and designed to address the operant issues of family functioning -- centering treatment on the family system -- it is also a treatment that integrates behavioral change with a primary emphasis on value change for participating family members. A fundamental premise of FCT is that long-term changes made by youth and their families are predicated upon their valuing the changes made, i.e., changes made for compliance or conformity are not sustainable after treatment ends.

Family Centered Treatment is structured into four phases:

- *Joining and Assessment*; the Family Centered Specialist (FCS) engages and gains acceptance by the family and works with them to identify areas that affect their functioning.
- *Restructuring*; the FCS and family use experiential practice to alter ineffective behavioral patterns among family members. This process includes techniques to modify the crisis cycle to more adaptive patterns of family functioning.
- *Value Change*; the emphasis on value change differentiates FCT from other behaviorally based methods. Through powerful emotional intervention techniques, family members integrate new behaviors into their personal value systems to create long term change. Giving to others or back to the community is integral to this phase.
- *Generalization*; with new skills for dealing with conflict and increased understanding of its own dynamics, the family continues its work, but the treatment is less intense and frequent. The focus is on practice, review of what has "worked" previously, and reversals.

These four phases provide the pattern for treatment. However, the model allows the flexibility to move back and forth between the restructuring and value change phases in order to respond to individual family dynamics. FCT practitioners transition the family from one phase of FCT into the next phase as the family demonstrates behaviors reflective of key indicators of change.

FCT practitioners must complete The Wheels of Change© training program, which includes field training and competency evaluations. Fidelity to the treatment model and adherence to dosage standards are assured through case staffing and supervision at the team and individual levels.

A detailed exposition of the Family Centered Treatment model can be found at:

www.familycenteredtreatment.org/s/The-Definitive-Report-for-Family-Centered-Treatment-R2020-1.pdf

2.2 Implementing Family Centered Treatment in the Maryland DJS Non-Residential Community Based Program

A youth's involvement in the juvenile justice system is most often preceded by multiple factors such as: previous or current episodes of parental abuse and/or neglect; domestic violence; family history of mental illness; exposure to substance abuse; unidentified or untreated physical and/or psychological disorders; and/or a chronic lack of parental control or supervision. Youth frequently exhibit a wide variety of maladaptive behaviors, including law violations, gang involvement, school failure, excessive truancy, substance

abuse, and school and community disruptions. Youth in this population may have emotional disorders and exhibit a range of behavioral problems including poor judgment, lack of self-esteem, difficulty with problem solving, and difficulty managing their anger. Family economic stressors often exacerbate an already malfunctioning system. Many of these youth are crossover youth; involved in, or at risk of being involved in, both the child welfare and juvenile justice systems.

The fundamental premise of FCT is that these eco-systemic factors can best be addressed in an intensive home-based environment with an emphasis on family systems work to improve family functioning, to provide youth and their families' opportunities to successfully and independently function in the community at large, and to ensure the youth has no further involvement in the justice system. Strategies and interventions are provided to improve the delinquent youths' academic performance and attendance, or vocational skills and job opportunities, and to improve their level of functioning at home and in the community, enabling them to become responsible and productive members of society.

Program services include case management (assessments, development of individualized services plan, linkages, coordination, and advocacy), supervision, group meetings, outreach services, crisis prevention/intervention services and community services. The Program is designed to maintain the youth in the community; thus, while the FCT model requires a minimum threshold of intensity and frequency of 2 multiple hour sessions per week, the level of service intensity is modified contingent upon the youth's progress. Emphasis is placed on ensuring proper linkages are made with community service providers, including community detention, electronic monitoring, substance abuse services when needed, and vocational/educational programs. Services are coordinated with mainstream community resources whenever appropriate, e.g., the Commission for Children, Youth and Families, the Department of Social Services, the Public School System, the Department of Family Services/Mental Health Authority, Maryland Health Partners, private health care and human services providers, and community organizations. All services are individualized and based on reliable assessment tools. The treatment plan is developed based on needs and desires of the family and youth, using a strengths-based model of intervention, rather than being dictated by the therapist.

FCT services are provided to youth and families across the state of Maryland from five geographically distinct regions. The program is open only to high-risk youth (at imminent risk of out of home placement), and 100% of the qualified referrals are accepted into the program, i.e., qualifying referrals are never refused services.

Services are expected to last 6 months, but services may be extended if need is determined by all collaterals. Cases may close early for several reasons. If treatment goals are met before the 6-month mark, there is an early successful completion of treatment and discharge. Unsuccessful early discharges occur when the family is non-compliant with services, or if the courts or an MD DJS worker remove the youth from FCT services because he/she offends early on during treatment.[2] Unsuccessful early discharges were observed in several cases in which the referred youth had a pending out-of-home placement that was unknown to the FCT provider, and the case was closed by MD DJS when the placement was affected. We are unable to identify unsuccessful early discharges, but including them in the FCT sample is conservative

[2] It was not always understood that reoffending and acting out are natural and expected responses in the first phases of systemic change. As long as the youth is no threat to himself or community safety, it is counterproductive to remove him from FCT. (Marlatt, 2002)

as any resulting bias should understate FCT effectiveness.

2.3 The Comparison Pool receives Group Home Services

The comparison pool[3] consists of all those youth assigned during the study period to one of three types of Restrictive Residential programs—Group Homes, Therapeutic Group Homes or Committed Residential Placements. Group Homes are licensed by the state of Maryland to provide treatment and housing for offending youth. Group Homes are considered community-based, in that most of the programs use community-based services and students attend local schools. In this sense Group Homes are similar to FCT. However, youth are separated from their family and other members of their immediate network, a key difference from the FCT model. All Group Homes provide a formal program of care, social work, health services and transition services for youth returning to their homes.

Therapeutic Group Homes (TGH) are similar to Group Homes but are licensed by the Mental Health Administration. Like group homes, therapeutic group homes provide a formal program of care, social work, and health services, but the emphasis in TGH is on provision of mental health services for youth who are emotionally or developmentally disabled. Most, but not all, youth in TGH continue to receive community-based ancillary services including the use of local schools. Like Group Homes, and in contrast with FCT, youth are separated from their family and immediate network and transition services for returning to the home are provided by the TGH.[4]

The designation "Committed Residential Placement" has no meaning with respect to the level of care; it was initially formed for funding and accounting convenience but contains providers of Group Home and other residential services at that level of care and higher. We are informed by Maryland DJS that FCT youth are often diverted from these types of placements, so those youth are included in our comparison. Given that the level of care in this type of placement is at least as high as that of Group Homes, and therefore a placement for high-risk youth, these youth are a reasonable and conservative addition to the comparison pool.

All youth in the comparison pool are high-risk youth that receive a variety of services that are traditional alternatives to FCT. All youth in the FCT group are high-risk youth who would otherwise be placed in a Group Home, Therapeutic Group Home, or Committed Residential Placement (hereafter referred to as Group Homes). Therefore, the MD DJS Non-residential Community-Based program creates a natural experiment for assessing the effectiveness of FCT relative to "treatment as usual" in the restrictive residential setting.

3. Research Design

This study uses a quasi-experimental design to compare FCT treatment outcomes to the outcomes of the Group Home services identified by MD DJS as being those from which FCT youth are diverted.

We estimate the average effect of treatment (assignment to FCT) on the Treated (SATT). Following the Rubin Causal Model (Holland 1986), define:

[3] We will use "comparison pool" to refer to the unmatched sample of GH youth.

[4] Maryland Department of Juvenile Services *Residential Programs Sorted by Classification and Placement.*

Y_{0i} = potential outcome for youth i if they were assigned to the comparison group (Group Homes)
Y_{1i} = potential outcome for youth i if they were assigned to the treatment group (FCT)

Conceptually, each youth has two potential outcomes. However, each youth is ultimately assigned to either the treatment or the control and therefore each youth only has one observed outcome. Define the treatment assignment as:

$D_i = 0$ if youth is assigned to the control (Group Homes)
$D_i = 1$ if youth is assigned to the treatment (FCT)

Then the observed outcome for youth i can be defined as:

$$Y_i = \begin{cases} Y_{0i} \text{ if } D_i = 0 \\ Y_{1i} \text{ if } D_i = 1 \end{cases}$$

The difference in mean outcomes for the treatment and control groups yields:

$$E[Y_i \mid D_i = 1] - E[Y_i \mid D_i = 0] = E[Y_{1i} - Y_{0i} \mid D = 1] + \{E[Y_{0i} \mid D = 1] - E[Y_{0i} \mid D = 0]\}$$

The first term on the right-hand side is the SATT. The last term (in curly brackets) represents potential bias. The bias is equal to the difference in potential outcomes without treatment for the group of youths ultimately assigned to treatment and the group of youths ultimately assigned to the control group. This bias is often referred to as "selection bias" as the bias term captures differences in the types of youth that are selected into treatment. These differences would exist even in the absence of treatment so including them in the treatment effect estimation creates a bias. Random assignment generally ensures that the selection bias term is zero because all observable and unobservable differences in the treated and control youths that may affect potential outcomes are equated through the randomization process.

Because treatment by FCT is not randomly assigned, a simple comparison of average outcomes for the FCT and Group Home populations is likely to be biased. This bias is the result of differences (potentially observable and unobservable) between the types of youths assigned to FCT and the type of youths assigned to group homes.

Matching estimation can be used in these types of circumstances. Matching controls for all observable differences between treatment and comparison populations but cannot control for unobservable differences. In a sense, matching tries to recreate random assignment by generating treatment and comparison groups that look "the same" in terms of all the variables that are thought to affect the outcome of interest. The intuition behind matching is relatively straightforward; for each youth assigned to FCT find a youth assigned to Group Homes that looks just like them. Then take the difference in their outcomes. Do this for every single youth assigned to FCT and then average the results to get the average effect of treatment on the treated (SATT). This creates a weighted average of differences in mean outcomes for the treated and control youths grouped by their vector of observable characteristics X_i. Mathematically:

$$SATT = \int E[Y_i \mid X_i, D_i = 1] - E[Y_i \mid X_i, D_i = 0] dF(X_i \mid D_i = 1)$$

Matching can be problematic when the number of matching variables is large, as it becomes computationally prohibitive to find a perfect match for every treated observation. This is known as the curse of dimensionality. Propensity score matching can be used in these cases. The propensity score is a measure for each person of the likelihood of getting treated. Let us define the propensity score as:

$$\pi(X_i) = prob(D_i = 1 \mid X_i)$$

The propensity score equation considers all of the observable characteristics that may affect assignment to treatment and ultimate outcomes. Rather than matching on individual characteristics, youth are matched on the overall likelihood of getting treated. Intuitively each FCT youth is matched with a youth from the comparison pool who is equally likely to get treated based on their observable characteristics. Therefore, if a black, 16-year-old male with one prior offense is as likely to be assigned to FCT as a white, 16-year-old male with two prior offenses, then these observations can be appropriately used for a match. The propensity score method allows one to make tradeoffs between the control variables as long as the likelihood to get treated remains constant. Mathematically,

$$SATT = \int E[Y_i \mid \pi(X_i), D_i = 1] - E[Y_i \mid \pi(X_i), D_i = 0] dF(\pi(X_i) \mid D_i = 1)$$

Propensity score matching is demonstrated to be equally reliable to classical matching and superior when the number of control variables is large (Rosenbaum and Rubin 1983).

Standard matching and propensity score matching may be combined as well. This is appropriate when there is a small number of variables and where tradeoffs in the matching process are unacceptable. For example, if strong theoretical or empirical reasons exist to believe that race is a key determinant of treatment and outcomes, then any differences in race in the matching process are not acceptable. In this case a strict match on race is enforced, while tradeoffs in other covariates are allowed within the propensity score framework. If we define Z_i as the vector of covariates where strict matching will be enforced, then the SATT is given by:

$$SATT = \int E[Y_i \mid Z_i, \pi(X_i), D_i = 1] - E[Y_i \mid Z_i, \pi(X_i), D_i = 0] dF(Z_i, \pi(X_i) \mid D_i = 1)$$

Matching methods, and in particular, propensity score matching are proved to replicate findings from random assignment in several studies (Heckman et al 1997, Dehejia and Wahba 1999). This is true even in cases where substantial differences exist in mean outcomes and covariates among the unmatched treatment and control groups (Dehejia and Wahba 1999). For matching to adequately address the sample selection bias issue and provide accurate estimates of the effect of treatment on the treated, the propensity score distributions for the treatment and control groups must have substantial overlap (a feature referred to as "common support") (Dehajia and Wahba 1999). It is also necessary that all variables be measured in the same way for both the treatment and control groups and that the groups are drawn from the same economic geography (Heckman et al. 1997). The latter two conditions are satisfied in this study as all participants are drawn from Maryland and all data are collected in the same fashion, from the same administrative dataset, for FCT and GH youths. Matching is further restricted so that youth from one geographic area in Maryland are only matched with youth in that area. The common support requirement is also met, a point we discuss in more detail in Section 5.2.

A combination of standard and propensity score matching was used to estimate the SATT for the reported outcomes over each of the two years following treatment in FCT or discharge from a group home services. Outcome variables and their measurement are described in table 1A and in Section 4 below.

The first step in the analysis is to estimate the propensity score model. Selection into FCT or the comparison pool is driven in part by Maryland Department of Juvenile Services *Classification and Placement Assessment for Adjudicated Youth* (2004) (hereafter referred to as the CPAAY). Placement decisions are based on a matrix of placement options determined by the combination of (i) the category of the youth's current adjudicated offense, (ii) a *history score*, derived from a record review for the adjudicated youth, and (iii) a *risk assessment score*. The combination of scores determines a recommended placement, ranging from standard probation to secure confinement, but the case manager/probation officer has discretion to recommend an alternative placement of a higher or lower level of care.[5] Ultimately, however, the final placement decision may rest with the court and a judge will often mandate a different placement than that recommended by MD DJS -- typically one with a higher level of care/supervision. Moreover, parents of delinquent youth will sometimes advocate for a residential placement rather than a home placement. For these reasons, the CPAAY tool is an imperfect predictor of selection into FCT vs. the comparison pool. Nevertheless, an approximation of the CPAAY is a reasonable specification for a statistical selection model. Record reviews are proxied by frequencies of offenses, adjudications, and Restrictive Residential placements prior to the admission to FCT or GH services. Due to often lengthy delays between the placement decision and the physical placement, it is not possible to reliably identify the "current" adjudicated offense associated with a placement decision; this is proxied by the youth's adjudication history prior to treatment. Also due to pending placements, a reliable assessment as to whether the youth was under DJS supervision at the time of the placement decision could not be determined. The risk assessment scores are not available in electronic format.

The general selection model can be represented as:

[5] A record review and Classification and Placement matrix are represented in the Appendix to this paper.

$$y_i^* = \beta x_i + \varepsilon_i$$

where y_i^* is the probability of being placed into FCT and is not directly observed, x_i is a vector of explanatory variables, and ε_i is an error term. The observed counterpart to y_i^* is a dichotomous variable indicating whether the youth received FCT ($y_i = 1$) or treatment in a Group Home ($y_i=0$). The vector of explanatory variables contains youth demographic characteristics, age at treatment intake, age at first offense, category of first offense, frequency of prior offenses by offense category, frequency of prior adjudications by offense category, and frequency and duration of Restrictive Residential placements and Detentions by category.

FCT was provided across five geographically defined regions. *Region* is another variable that we expect is endogenous to the selection process, as community attitudes and politics may influence the decision to allow offenders to remain in the community, and local judiciary may be biased toward one type of placement relative to another. Moreover, geographical area is highly correlated with exogenous factors that can be expected to affect risk profiles and the success of treatment. For example, the Baltimore region covers the City of Baltimore, which has a higher concentration of serious juvenile offenders than other areas, and the well-documented demographic correlates of the inner city crime "premium:" low income, low education levels, high density, high level of gang activity, etc. Finally, each region represents a different team of FCT supervisors and practitioners. For these reasons, we omit Region from the selection model and require exact matching of FCT youth with GH youth from the same area. The Maryland counties served by each region are documented in the Appendix.

Matching is implemented in STATA using the nearest-neighbor matching code (nnmatch.ado) developed by Abadie and Imbens (2001) based on their theoretical assessment of matching estimators (2008). Matching was implemented using the four closest matches for each FCT youth. The choice of four matches was done to reduce variance of the estimator without increasing the bias that might result from poor matches. The estimates are corrected for bias resulting from imperfect matches and robust standard errors are calculated (Abadie and Imbens 2001, 2008).

4. Data, Variables and Measures, and Summary Statistics

Data on youth demographics, offense and placement history were obtained from the Maryland Department of Juvenile Services ASSIST administrative database. The data contain a record for each service placement, offense, and adjudication event in the youth's history with MD DJS, beginning with their first referral to the juvenile system and up to events recorded on December 28, 2008, the approximate date of the data export.

Tables 1A and 1B contains descriptions of the working data (1A) and outcome variables and measurements (1B). The treatment group contains every youth who started and was subsequently discharged from FCT services between July 1, 2003 and December 31, 2007.[6] The comparison pool consists of every youth documented by Maryland DJS as being discharged from Group Homes during the same time frame. While 794 youth were discharged from FCT over the study period, and 1702 were discharged from Group Home placements, the sample is restricted to youth aged 17 years or less at treatment intake, in order to include only those youth who can be tracked through the juvenile system over a follow-up period of at least one year. Accordingly, we have observations for one-year post-treatment for 447 youth in the

[6] If a youth or family refused services within the first 1-3 visits or were removed from FCT by the courts or MD DJS within the first 1-3 visits, they were considered a "non-starter" and were not included in the sample.

treatment group, and 888 youth in the comparison group. For two years post-treatment, we have observations for 256 youth in the treatment, and 484 youth in the comparison pool.[7]

We are interested in the impact of FCT on new out-of-home placements and new delinquent behaviors during the follow-up period. From a child welfare perspective, the out-of-home placements are in the domain of Child Permanency and delinquent behaviors are in the Child Well-being domain. Permanency outcomes are divided into four different types of new out-of-home or restrictive placements: Restrictive Residential (RR), Pending Placements (PP)[8], Community Detention (CD), and Secure Detention (SD). Delinquent behaviors are represented by new Offenses and new Adjudications, and we also examine the impact on the most serious delinquent behaviors: Category 1 and 2 Offenses and Adjudications.

There are several possible ways to measure outcomes. For robustness, we include multiple measures:

- Proportion of youth with at least one new placement/offense/adjudication
- Frequency of new placements/offenses/adjudications averaged over all youth
- Days spent in placement averaged over all youth
- Days spent in placement for those youth who experienced the placement
- Year-to-year changes in offense/adjudication frequencies and proportions

The follow-up period is divided into the first year (days 1-365) following discharge from FCT or Group Homes, and the second year following discharge from services (days 366-730). Table 1A provides more detail on each outcome type and measurement.

For the purposes of propensity score estimation and baseline equivalence analyses, data on pre-treatment offenses and adjudications are disaggregated by category of offense; category 1 offenses being most serious and category 5 being least serious. Similarly, data on RR placements are disaggregated according to level of care/restriction; Community Based Residential (CBR) is the least restrictive of restrictive out-of-home placements, Special Programs the next higher level, and Secure Confinement the most restrictive. Table 1A provides a list of the type of programs in each placement group. Offense and placement variables are disaggregated in this way in the matching exercise because youth with more serious offenses/restrictive placements may be treated differently than those with less severe histories, and severity of history may be predictive of treatment success.

[7] While a significant portion of all youths treated during the study period aged out of the juvenile system, and is therefore not included in this study, we have no reason to believe that the age distribution of this sample is atypical. In other words, our results are valid estimates for the treatment effect for younger offenders who do not age out of the juvenile system in one or two years following placement. We cannot estimate treatment effects for older offenders using the existing data set.

[8] "Pending Placements" is a distinct placement type designation in the ASSIST database. It refers to a situation where the youth has a judicial disposition of delinquent and a program assignment, but has not been admitted to the assigned program because of time needed to process the placement or because space is not available in the proper placement. The youth may spend this time in a detention facility, electronic monitoring, or in the care of a parent or guardian. Historically, approximately 1/3 of youth in Maryland detention facilities have a placement pending. The duration of a Pending Placement can be significant; the mean pre-treatment duration for this sample is approximately 60 days, with a range of 1 to 563 days. Therefore, Pending Placements are included as a child permanency outcome in this analysis.

5. Results

5.1 Selection Model

Table 2 presents the probit estimates of the selection model discussed in Section 3, from which the propensity scores derive. The treatment variable is a binary variable indicating placement in FCT. All continuous frequency variables enter the model in the quadratic form to allow for non-linear relationships. Because the sample sizes fall as the follow-up period lengthens and youth age out of the juvenile system, a separate model is estimated for each follow-up year.

The Propensity Score Model for year 1 contains the sample of 1325 youth with at least one year of follow-up in the juvenile system. In this model, age at intake is a significant positive determinant of placement in FCT. Race has a positive impact on the probability of placement in FCT; African Americans and Hispanics are more likely to be placed in FCT than Caucasians. The more CDs and the fewer SDs, the more likely the youth will be in the FCT group, and the second order effect of secure detentions is positive. The squared terms on frequency of CBR placements and Special Programs are positive and significant, so the total effect of these variables on the probability of placement in FCT is positive. The duration of Special Programs and SD placements are positive determinants of GH placements. The squared terms on placement durations add no explanatory power to the model and are thus omitted from the model specification.

The frequency of more serious offenses has no significant effect on selection into treatment, while the frequencies of category 3 and 4 offenses negatively impact the likelihood of placement in FCT. The second order terms on frequency of category 3 and 4 offenses are positive and significant. These results likely reflect differences in overall offense frequencies. Likewise, increases in the frequency of categories 2 and 4 adjudications increase the likelihood of a GH placement, at an increasing rate. The frequency of category 4 adjudications decreases the likelihood of placement into FCT, while the squared terms on category 2 and 4 adjudications are positive and significant. The frequency of all offenses and all adjudications over the year before receiving services are not significant determinants of placement into FCT.

Model 2 contains the sample of youth with at least two years of follow-up in the juvenile system, and the same specification as Model 1. The results are only slightly different; age at first offense is a positive determinant of placement into the comparison group, while race is no longer significant. The frequency of community detentions is not a significant determinant of placements for this sample. Finally, adjudications are not significant determinants except through the second order effect of category 1 adjudications.

5.2 Matching on Propensity Score and Region: Baseline Equivalence and Common Support

To illustrate the effect of propensity score matching on observable baseline characteristics, pre-treatment characteristics are compared across the FCT group and the matched comparison group. For the sample of youth followed for the first year post-treatment, Table 3 shows the mean pre-service characteristics of the matched comparison group resulting from matching on region and the propensity scores.[9] Mean propensity scores are presented at the

[9] Four youth were dropped from the comparison group because they skewed the means of the matched group on important characteristics. Specifically, we found the means for the matched comparison group to be higher for Special Program and Secure Confinement placements, even though the unmatched means were not significantly different. This is an artifact of using 4 matches for each treatment observation, with replacement, and an

bottom of the table, and there is no significant difference in scores between the two groups. Clearly, the matching procedure is successful at removing most of the differences in baseline observable characteristics between the treatment and comparison group. Remaining differences are found in the frequency of CDs and the duration of CBR placements ($0.05 < p < 0.10$). The comparison group has a higher mean pre-service frequency of community detentions, though the difference is quite small. The average number of days spent in CBR services is significantly and substantially higher for FCT youth. It is not clear whether this difference would bias estimated treatment effects in a meaningful way; there is no significant difference between the *proportion* of youth with CBR placements, and no difference in the *frequency* of CBR placements, but the average placement is longer for FCT youth.

There are no statistically significant differences in pre-service characteristics for the year two sample. For brevity, these results are not reproduced here, but are available upon request from the authors.

Because FCT serves as a true alternative to Group Home placements, we expect that the two populations are relatively similar, and that good common support exists among the treatment and control groups. An examination of the distributions of the propensity score for the two groups confirms that there is adequate common support for matching to be a reasonable estimator. The graphs for each follow-up year can be found in Figures 1 and 2. In each figure, the upper left histogram represents the distribution of the propensity score for the control group and the upper right histogram represents the distribution of the propensity score for the treatment group. For common support, similar patterns in the distribution are required. For example, one does not want to observe that all treatment observations have a propensity score near one while all control observations have a propensity score near zero. In this data, for both follow-up years, the propensity score distribution for the treatment group is skewed right (more treated observations have higher propensity scores) and the distribution for the control group is skewed left (more control observations have lower propensity scores). However, there is significant overlap of the distributions, including the tails, so that adequate matches are found for observations with very high or very low values of the propensity score. This allows for reasonable matching on observable characteristics.

5.3 Child Permanency Outcomes: Restrictive Placements

Child permanency treatment outcomes measure frequencies, proportions and durations for the 4 types of restrictive placements over the follow-up year one (first 365 days after discharge from services) and year two (days 366-730 after discharge from services). These outcomes seek to measure the stability of the in-home living situation and preservation of family relationships by the reduction of out-of-home placements. Table 4 presents the average treatment effect on the treated (SATT) resulting from nearest neighbor matching on propensity score and area. Effect sizes are calculated only for significant impacts.

In the first year following treatment, the proportion of youth with new RR placements, as well as the frequency and duration of RR placements is significantly lower for youth receiving FCT. There is a 24% reduction in the

aggregation of matching characteristics via the propensity score. The result was that some youth who had relatively high frequencies of placements also had high placement weights. In other words, these youth would have been matched with a relatively large number of treated youth with relatively low Special Program and Secure Confinement placement frequencies.

proportion of youth with at least one RR placement over the course of the year ($p = 0.002$). Overall, youth in the treatment program have an estimated 20% fewer RR placements ($p = .03$). The average duration of RR placements per youth is lower by an estimated 30% ($p = .002$). Moreover, youth receiving FCT spend an average of 39% fewer days in new PPs ($p = .01$), and the duration conditional on being placed in a PP during the follow-up year is 27% lower ($p = .007$). The duration of CD is 23% lower ($p = .007$) for youth receiving FCT, conditional on being placed in CD. For multiple types of placements, and across alternative measures of placements, FCT clearly enhances child permanency compared to services provided in restrictive placements.

5.4 Child Well-being Outcomes: Delinquent Behaviors

We analyze delinquent behavior outcomes measured as (i) absolute outcome means, and (ii) as changes in behaviors between a baseline and follow-up period. Because we ultimately find few significant cross-group impacts, we include a within-group analysis of delinquent behaviors across the follow-up period to examine patterns of behaviors over the study period.

5.4.a Delinquent Behaviors: Absolute Outcome Means and Average Treatment Effects

Table 4 presents an analysis of absolute outcomes in the delinquent behavior domain. Absolute outcomes are measured as frequencies of behaviors and proportions of youth engaged in behaviors over year one and year two. Table 4 presents the SATT resulting from nearest neighbor matching on propensity score and area. Effect sizes are calculated only for significant effects.

There is no significant difference in the proportion of youth who re-offend during the follow-up period. Moreover, there is no significant difference in the frequency of post-treatment offending behaviors, and no difference in the frequency of category 1 and 2 offenses, or the proportion of youth committing category 1 and 2 offenses. Post-treatment offenses committed by the youth in this treatment sample are more likely to be adjudicated, however, and the effect size is curiously large. The number of offenses committed over the follow-up period that were adjudicated were measured and the frequency of offenses is the same across groups. This must be reflective of court decisions as applied to the youth receiving FCT. This outcome may be interpreted as a manifestation of the emphasis on accountability in Family Centered Treatment; the model attempts to instill accountability by accepting responsibility for one's actions as a family system value. This may be exhibited in the family's interactions with the courts as an increase in the likelihood of an offense being adjudicated. Overall, however, the fact that residential placements and days in detention are substantially lower suggests that the average youth receiving FCT committed fewer offenses of a nature that would warrant a consideration of removal from the community.

In the second year, we find no significant differences in the restrictive placement or in re-offending behaviors, and we find no second-year difference in adjudications. Both groups show a downward trend in child permanency outcomes in the second year, but there is no difference between the groups.

5.4.b Delinquent Behaviors: Changes in Outcome Means and Average Treatment Effects

To make cross-group comparisons of *changes* in behavior during the follow-up period, changes in behavior frequencies are measured for each youth as the differences in frequency of offenses/adjudications in year *t* relative to the baseline year. Changes in sample behavior proportions are measured by taking differences

in binary variables indicating whether the youth offended in year *t* relative to the baseline year. A negative mean indicates a post-treatment reduction in the offending behavior.

For changes in behavior, Table 5 shows the average treatment effect on the treated (SATT) resulting from nearest neighbor matching on propensity score and area. Comparisons are made for year one changes relative to the baseline of one year pre-treatment, while year two changes are measured relative to the pre-treatment baseline as well as the year one baseline. Effect sizes are calculated only for significant effects.

There are no significant effects on any behavioral changes for offense frequencies and proportions; both groups show virtually the same changes in offending behaviors. For adjudications, the FCT group shows a significantly and substantially larger reduction in the proportion of youth with adjudications in the second year only, and the effect size is over 100%.

5.4.c Delinquent Behaviors: Within-group Outcomes

Table 6 shows changes in behavior for both groups subsequent to receiving FCT or group home services. Comparisons are made for each of the two years following services to the baseline of one year (12 months) before admission into services. To show trends or sustainability, year two behaviors are compared to the baseline of year one behaviors, as well as the pre-service baseline year behaviors.

Both groups show significant reductions in the frequency and proportion of offenses and adjudications in the first year following services. The second-year outcomes are also significantly reduced compared to the pre-treatment baseline. In the second year, both groups sustain the year one changes in proportion of offenses, but their frequencies are unchanged. In the second year, however, the frequency of adjudications rises sharply for the comparison group relative to the year one baseline, while the proportion of youth adjudicated remains unchanged from the year before. Conversely, the treatment group is static in the frequency of adjudications but experiences a large and significant drop in the proportion of youth getting adjudicated.

5.5 Plausible Design Confounds

When treatment assignment is not random, a concern exists that there may be differences among treatment and control groups that are correlated with outcome measures. Matching on observables using either traditional matching or propensity score matching reduces but does not fully eliminate those concerns.

Matching is designed to ensure that the treatment and control groups look "alike" on observed characteristics, but a problem occurs if the treatment and control groups are so dissimilar that it is difficult to find appropriate matches. Because FCT serves as an alternative to Group Home placements for high-risk youth, we expect the two populations to be similar in those factors that affect treatment assignment and outcomes. In Section 5.2 above we show this research meets baseline equivalence and common support standards for causal inference.

Another potential confound is that there are unobservable characteristics that differ between youth assigned to FCT and youth assigned to Group Homes that explain the assignment to treatment and would also be correlated with subsequent outcomes. This is a difficult threat to disprove precisely because it involves hypotheses about unobservable characteristics. However, the nature of FCT is as a diversion program of "last resort." FCT is not designed to treat the cream of the crop or to select only youth with, for example, particularly supportive family structures. Rather, a distinguishing characteristic of FCT is that 100% of qualifying referrals are

accepted into FCT services. FCT serves as a direct substitute for Group Home services, so differences in family structure and other unobservables would not be expected among the FCT and residential treatment groups.

Because the program studied here is a diversion from Group Homes to FCT, "refusal of offer of treatment" was identified as a potential confound when designing this study. The concern is that willingness to participate in treatment may be related to motivation or need for services, which may be related to outcomes. There was no data on responses to offers of FCT treatment, so we interviewed MD DJS managers and probation officers about how decisions about placement into FCT were being made in the field. We found it was not the case that all youth and families had their choice between FCT or Group Homes, especially in the early days of the pilot program analyzed here. Most judges, probation officers, and case managers were not familiar with FCT, or did not understand FCT, or, for example, believed in-home services threated community safety. Some staff were more likely to try something new, and some were more conservative. So, the majority of the youth in the comparison pool were in Group Homes because the courts or MD DJS personnel made that decision. Families can always refuse FCT, but there is a consequence; in this case, that the youth will be removed from the home and placed in a restrictive setting. There were some parents who were not willing to participate in FCT and preferred their child be placed out of home, but this was atypical. Moreover, if a youth was referred to FCT, the FCT practitioner would make every effort to meet with the family and introduce them to FCT. FCT providers have always had a high rate of joining with families, so if the family was introduced into FCT, the likelihood of refusing treatment is low. Therefore, we have no reason to believe that "refusal of offer of treatment" has a significant presence in this dataset.

Attrition is another often-cited threat to validity. In this study, every youth in the sample is followed in the same administrative dataset, over the same time period, so we have no reason to expect systematic attrition during the follow up period. Youths can't choose to leave the system; any attrition from that database is due to relocation, death, or transition into the adult system.[10] We have no reason to hypothesize that a systematic relationship exists among youth who die or relocate that would affect analysis results. Is there something about older juveniles that introduces a systematic bias between the treatment and comparison group if they are omitted? We can find no evidence to support this. If there is something about older youth that affects treatment outcomes, we can find no reason to presume that would have a systematic effect on treatment outcomes for younger youth.

We were unable to control for attrition during treatment. All youth included in the treated group did start FCT, i.e., the family agreed to begin services and the FCT practitioner did begin the first phase of treatment. But we were unable to distinguish between youth who completed services and those who were discharged early for noncompliance, refusal to continue, youth running away, etc. Assuming early discharges were not an issue for Group Homes (i.e., refusing to continue is not an option), we expect this may result in an underestimate of the effectiveness of FCT.

Finally, missing data is a potential confound. This study utilizes administrative data, and there are no missing values on age, gender, or race. There were eight missing values on propensity score. Four youth were dropped from the comparison pool because they skewed the means for the matched comparison group on important

[10] A youth may change his name, in which case he may be in the ASSIST database as two different observations, but we assume if this does occur that it is an insignificant proportion of the sample.

characteristics, even though the unmatched means on these characteristics were not significantly different. In the presence of missing data from listwise deletion of observations, missing data standards for causal evidence are satisfied if baseline equivalence is established on the sample of youth in the impact analysis, as we have shown in Section 5.2.

6. Cost Effectiveness

FCT services are substantially less costly than residential services. Table 7 presents a cost-effectiveness analysis in 2006 dollars. The summary statistics are those for the observed length of service for the treatment events analyzed in this study. Daily costs for 2006 were provided by MD DJS resource coordinators. The analysis differentiates between Group Homes and Therapeutic Group Homes due to cost differences. Cost data are not available for Committed Residential Placements, so those placements are grouped with lower cost Group Homes in order to be conservative. We present two cost analyses; the first contains all observations and observed length of service on youth in Group Homes and Therapeutic Group Homes, but the maximum values reveal obvious outliers in terms of length of service. We observe 116 youth with more than 365 days in placement, and 7 youth with more than 730 days, whereas the average expected length of stay is 6-9 months for Group Homes and 6-12 months for Therapeutic Group Homes. Hence, a conservative second analysis truncates the length of placement for the comparison group to 368 days (the maximum length of service observed in FCT). The results show average costs per youth in FCT at $12,080, costs per youth for Group Homes ranging from $36,630 to $39,996 and costs per youth for Therapeutic Group Homes ranging from $36,348 to $37,513.

Program savings are demonstrated by comparing the total costs of the FCT program youth to the expense's MD DJS would have incurred for these youth had they been placed in Group Homes and Therapeutic Group Homes, referred to as the *counterfactual costs*. Assuming youth in the FCT program would have been placed in Group and Therapeutic Group homes at the same rate (87.5% and 12.5%, respectively), the total counterfactual costs are over $17.7m under the observed length of service and approximately $16.3m for the truncated length of service. Accordingly, providing this program to the 446-youth analyzed in this study saved MD DJS $12.3m over the cost of residential placements. The more conservative estimate of savings is just under $11m. In other words, every dollar spent on FCT saved MD DJS $2.03 to $2.29 over traditional services to this group.

A more complete cost analysis would consider the program's success rate at keeping youth in the community following discharge from treatment, showing the costs of placements subsequent to treatment discharge. Unfortunately, that analysis requires more detailed cost data than is currently available. Nevertheless, we know that the program results in a significant reduction in residential placements in the first year after discharge from FCT, and in reductions in detention days. Therefore, the savings from FCT extend well past the treatment discharge date, and the cost savings demonstrated here represent a conservative lower bound estimate on total savings.

In summary, FCT is a highly cost-effective alternative to residential placements. Even if FCT and Group Homes produced identical treatment outcomes, FCT produces them at a drastically lower cost and therefore the cost savings alone justify the program. Moreover, FCT does result in fewer residential placements post-treatment, yielding additional savings post-treatment .

7. Conclusion and Discussion

We have presented an evaluation of a field implementation of the Family Centered Treatment model which uses archival administrative data in a quasi-experimental design with a large sample size, a well-defined comparison group, and rigorous statistical controls on delinquent youth risk characteristics.

In the first year following treatment, we find that FCT results in a significant and substantial reduction in frequency, duration, and proportion of youth in Restrictive Residential placements, days in Pending out-of-home Placements, and days in Community Detentions; demonstrating a major indicator of behavioral change and thereby increasing child permanency and community safety.

Moreover, in the first year and second year following treatment, youth receiving FCT significantly reduced the frequency of offenses and adjudications relative to the year before admission to treatment. The proportion of youth with offenses and adjudications was also significantly reduced and these findings were sustained in year two post-treatment. Importantly, we find a two-year downward trend in adjudications for youth receiving FCT, while those in the comparison group showed an upward trend in the frequency of adjudications after the first year. This between-group difference is significant at all conventional levels.

We conclude that Family Centered Treatment model is a highly cost-effective alternative to Group Home placements in the MD DJS Community Based Non-Residential Program. FCT performs at least as well as the restrictive residential programs from which FCT youth are diverted, and better in the sense that program youth exhibit a downward trend in adjudications over a two-year period and experience more child permanency post-treatment. These outcomes are achieved at substantial cost savings; every dollar spent on the FCT program saved the state of Maryland between $2.03 and $2.29. Total savings for the sub-sample of program youth analyzed in this study are estimated to be $10.9m to $12.3 million over 4.5 years.

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Table 1: Description of Working Data

Variable Name	Variable Description
youthid	Unique Youth Identifier
Age at first offense	age at first offense in offense history
Age at intake	Age at treatment intake
Region	Maryland geographical service regions, identified by county of residence at time of treatment
$Category_j$ of first offense	=1 if first offense was $Category_j$, j=1, 2, 3, 4, 5
male	=1 if male
AAmerican	=1 if AAmerican
Hispanic	=1 if Hispanic
White	=1 if Caucasian
Proportion of youth with placements by type	Number of youth with at least one placement as a proportion of all youth, by placement type. Placement types: *Pending Placement*, *Community-Based Residential* (includes Alternative Living Units, Residential Education Programs, Group Homes, Substance Abuse Programs, Therapeutic Group Homes, Treatment Foster Care) , *Special Programs* (includes Impact Programs, Residential Treatment Facilities, Substance Abuse Youth Centers, Wilderness Programs, Committed Youth Centers), *Secure Confinement* (includes long term secure confinement 6 and 12 month), *Community Detention*, and *Secure Detention*
Placement frequencies by type	For each youth, the number of placements by type of placement.
Placement durations by type	For each youth, the duration in days in each type of placement
Conditional placement duration by type	Duration in days in each type of placement, conditional on being placed, by placement type.
Proportion of youth offending	Number of youth with at least one offense as a proportion of all youth
Offense frequencies by $category_j$	For each youth, the number of offenses by $category_j$, j=1,2,3,4,5.
Frequencies of offenses, all categories	Number of all offenses before treatment and after treatment, for each youth
Offense frequencies year before treatment	For each youth, the number of offenses in all categories in the year before treatment
Proportion of youth with adjudications	Number of youth with at least one adjudication, as a proportion of all youth. Adjudications are measured as offenses committed during the follow-up period that were adjudicated.
Adjudication frequencies by $category_j$	For each youth, the number of adjudicated offenses by $category_j$, j=1,2,3,4,5.
Frequencies of adjudications, all categories	Number of all adjudications before treatment and after treatment, for each youth
Adjudication frequencies year before treatment	For each youth, the number of adjudications in all categories in the year before treatment

Table 1B: Definition and Measurement of Variables

			Measurements
Child Permanency: Restrictive Placement Type	Restrictive Residential (RR)	Out of home residential services: Group Homes, Therapeutic Group Homes, Foster Care, Residential Treatment Center, Impact Programs, Wilderness Programs, Substance Abuse Programs, Secure Confinements	• Proportion of youth with placement • Frequency of placement averaged over all youth • Days spent in placement averaged over all youth (i.e., placement duration) • Days spent in placement for those youth who experienced the placement
	Pending (PP)	Waiting period between commitment to placement and available space	
	Community Detention (CD)	Youth remains at home with Juvenile Service Supervision	
	Secure Detention (SD)	Detention Center, Reformatory	
Child Well-being: Delinquent Behavior	Offense Category 1 Category 2	Charge of violation of the law Arson 1, Assault 1, Murder, Rape1, Robbery w/deadly weapon, Sex 1,2 Burglary 1, DUI, DWI, Handgun Violation, Robbery, Sex 3	• By offense date: Frequency of alleged offenses by youth • Proportion of youth with at least one alleged offense • Year-to-year changes in offense frequencies/proportion of youth with offenses
	Adjudication Category 1 Category 2	Court decision to adjudicate youth on offense charge See above See above	• By offense date: Frequency of adjudications by youth • Proportion of youth with at least one adjudication • Year-to-year changes in adjudication frequencies/proportion of youth with adjudications
Follow-up periods	Year 1		First 12 months (365 days) following discharge from FCT or Group Home
	Year 2		Months 13-24 (days 366-730) following discharge from FCT or Group Home

Table 2: Propensity Score Models for Year 1 and Year 2 Post-Treatment
(t-statistics in parentheses)

	Propensity Score Model Year 1	Propensity Score Model Year 2
Age at intake	0.099*** (2.02)	0.150** (1.98)
Age at first offense	-0.260 (-1.02)	-0.0511* (-1.47)
Age at first offense^2	0.010 (0.96)	0.022 (1.43)
AAmerican	0.267*** (2.92)	0.102 (0.83)
Hispanic	0.629*** (3.44)	0.432 (1.80)
Male	0.051 (0.5)	0.145 (1.00)
First offense category 1	-0.175 (-1.06)	-0.258 (-1.15)
First offense category 2	-0.134 (-0.75)	0.174 (0.69)
First offense category 3	0.089 (0.63)	0.034 (0.17)
First offense category 4	0.130 (1.24)	0.215 (1.45)
Frequency CB Residential	-0.199 (-0.87)	-0.451 (-1.33)
Frequency Special Programs	-0.417 (-1.24)	-0.080 (-0.18)
Frequency Community Detention	0.194** (2.04)	0.178 (1.40)
Frequency Secure Detention	-0.290*** (-3.87)	-0.294*** (-3.15)
Frequency CB Residential^2	0.265*** (2.63)	0.479*** (2.99)
Frequency Special Programs^2	0.641*** (2.68)	0.565* (1.6)
Frequency Community Detention^2	-0.015 (-0.80)	-0.002 (-.07)
Frequency Secure Detention^2	0.018* (1.79)	0.027*** (2.55)
Duration CB Residential	0.001 (1.39)	0.002 (1.54)

Table 2 (continued)		
Duration Special Programs	-0.001*** (-2.72)	-0.003*** (-2.38)
Duration Community Detention	0.000 (0.31)	0.001 (0.68)
Duration Secure Detention	-0.008*** (-5.12)	-0.012*** (-4.68)
Offense Frequency: Category 1	-0.051 (-0.47)	0.017 (0.09)
Offense Frequency: Category 2	0.007 (0.09)	-0.014 (-0.13)
Offense Frequency: Category 3	-0.119*** (-2.44)	-0.151** (-2.29)
Offense Frequency: Category 4	-0.106** (-2.26)	-0.208*** (-3.21)
Offense Frequency: Category 5	-0.035 (-1.22)	-0.047 (-1.14)
Offense Frequency: All categories year before treatment	-0.011 (-0.70)	0.008 (0.34)
Offense Frequency: Category 1^2	0.037 (1.38)	0.013 (0.20)
Offense Frequency: Category 2^2	0.000 (0.03)	0.006 (0.54)
Offense Frequency: Category 3^2	0.009*** (2.09)	0.011* (1.79)
Offense Frequency: Category 4^2	0.008** (2.21)	0.018*** (3.49)
Offense Frequency: Category 5^2	0.000 (-0.27)	-0.001 (-0.62)
Adjudication Frequency: Category 1	0.016 (0.08)	-0.403 (-1.5)
Adjudication Frequency: Category 2	-0.226 (-1.58)	-0.156 (-0.86)
Adjudication Frequency: Category 3	0.037 (0.44)	0.068 (0.61)
Adjudication Frequency: Category 4	-0.199*** (-2.84)	-0.099 (-0.91)
Adjudication Frequency: Category 5	0.082 (1.14)	0.028 (0.31)
Adjudication Frequency: All categories year before treatment	-0.058 (-1.52)	-0.044 (-0.75)

Table 2 (continued)

Adjudication Frequency: Category 1^2	0.023 (0.30)	0.206** (2.17)
Adjudication Frequency: Category 2^2	0.099*** (2.53)	0.070 (1.55)
Adjudication Frequency: Category 3^2	0.020 (1.56)	0.016 (0.99)
Adjudication Frequency: Category 4^2	0.031*** (3.06)	0.007 (0.42)
Adjudication Frequency: Category 5^2	-0.004 (-0.31)	0.003 (0.21)
Constant	0.471 (0.28)	1.218 (0.53)
Number of Observations	1325	736
Pseudo R^2	0.189	0.221

*****indicates significance at the 99% level**
****indicates significance at the 95% level**
***indicates significance at the 90% level**

Table 3: Comparison of Youth Characteristics and Risk Factors before and after Matching: Baseline Equivalency

	FCT [b] n = 447	(Matched) Comparison Group[a] n = 1788
	mean (st dev)	mean (st dev)
Age at first offense	12.85 (1.73)	12.86 (1.66)
Age at intake	15.20 (1.05)	15.19 (1.10)
Proportion of males	0.75 (0.43)	0.73 (0.45)
Proportion African American	0.59 (0.49)	0.59 (0.49)
Proportion Caucasian	0.31 (0.46)	0.33 (0.47)
Proportion Hispanic	0.08 (0.27)	0.077 (0.27)
Geographical Region		
Baltimore	0.33 (0.47)	0.33 (0.47)
Montgomery	0.16 (0.37)	0.16 (0.37)
Southern Maryland	0.19 (0.39)	0.19 (0.39)
South Mountain	0.20 (0.40)	0.20 (0.40)
Tri-County	0.10 (0.30)	0.10 (0.30)
First Offense Category		
Category 1	0.10 (0.30)	0.08 (0.27)
Category 2	0.08 (0.27)	0.08 (0.27)
Category 3	0.13 (0.34)	0.14 (0.34)
Category 4	0.36 (0.48)	0.37 (0.48)
Category 5	0.33 (0.47)	0.34 (0.47)
Frequency of offenses		
Category 1	0.43 (0.89)	0.37 (0.76)
Category 2	0.62 (1.53)	0.56 (1.34)
Category 3	1.36 (2.53)	1.27 (2.03)
Category 4	2.44 (2.40)	2.50 (2.40)
Category 5	3.33 (3.46)	3.26 (3.32)
All Categories	8.19 (6.30)	7.96 (6.34)

Table 3 (continued)	FCT n = 447	(Matched) Comparison Group n=1788
All categories in year before treatment	4.38 (5.12)	4.39 (5.37)
Proportion of youth with offenses		
Category 1	0.28 (0.45)	0.26 (0.44)
Category 2	0.31 (0.46)	0.33 (0.47)
Category 3	0.53 (0.50)	0.51 (0.50)
Category 4	0.81 (0.39)	0.81 (0.40)
Category 5	0.83 (0.38)	0.82 (0.38)
Frequency of Adjudicated offenses		
Category 1	0.14 (0.47)	0.12 (0.45)
Category 2	0.24 (0.71)	0.21 (0.60)
Category 3	0.53 (1.07)	0.51 (0.92)
Category 4	0.94 (1.22)	0.98 (1.15)
Category 5	0.85 (1.76)	0.84 (1.12)
All categories	2.70 (2.42)	2.67 (2.30)
Proportion of youth with adjudications		
Category 1	0.11 (0.31)	0.09 (0.28)
Category 2	0.16 (0.36)	0.15 (0.36)
Category 3	0.32 (0.47)	0.32 (0.47)
Category 4	0.57 (0.50)	0.60 (0.49)
Category 5	0.48 (0.50)	0.51 (0.50)
All categories in year before treatment	1.70 (1.76)	1.63 (1.71)
Placement frequency		
Community Based Residential	0.23 (0.56)	0.21 (0.51)
Special Programs	0.19 (0.48)	0.19 (0.43)
Secure Confinements	0.004 (0.07)	0.008 (0.09)
Community Detention	1.11 (1.19)	1.23* (1.23)
Secure Detention	1.23 (1.36)	1.23 (1.39)

Table 3 (continued)	FCT n = 447	(Matched) Comparison Group n=1788
Placement Duration in Days		
Community Based Residential	37.16 (131.30)	25.16* (83.93)
Special Programs	28.20 (102.00)	31.64 (111.92)
Secure Confinements	1.35 (20.33)	1.88 (23.31)
Community Detention	45.09 (53.92)	48.46 (59.58)
Secure Detention	22.82 (32.03)	20.27 (28.81)
Proportion of youth with placements		
Community Based Residential	0.17 (0.38)	0.17 (0.37)
Special Programs	0.15 (0.36)	0.18 (0.38)
Secure Confinements	0.004 (0.07)	0.008 (0.09)
Community Detention	0.62 (0.49)	0.65 (0.48)
Secure Detention	0.63 (0.48)	0.65 (0.48)
Propensity Score	0.48 (0.20)	0.47 (0.18)

[a] Because four control "matches" are drawn for each treatment observation and these draws are done with replacement, the standard errors from traditional t-test of differences in means between the treatment and the matched control are downward biased. The sampling process essentially duplicates data for the control group giving a false sense of precision to the t-test estimates and making it more likely that the null hypothesis of no effect will be rejected even when the null hypotheses is true. The standard errors used in hypothesis tests on the matched control correctly account for the duplication in the control observations.

[b] Because 4 treatment observations are dropped in the matching operation, the means on the matched treatment sample are slightly different from those presented here. The differences are miniscule, however, and are thus not presented here in the interests of brevity.

*** Means are significantly different at 99% level
** Means are significantly different at 95% level
* Means are significantly different at 90% level

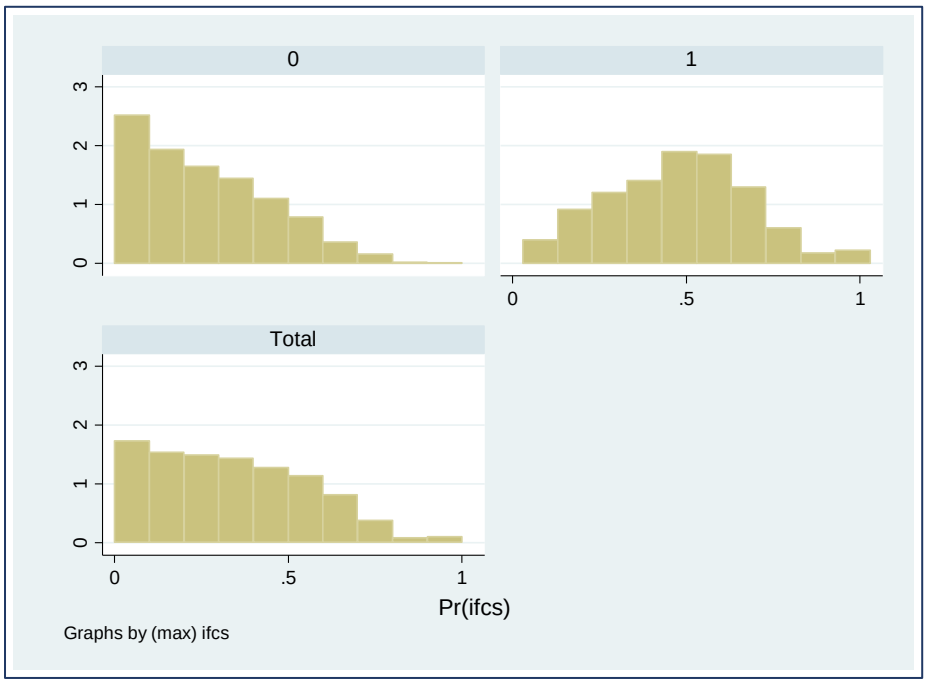


Figure 1: Common Support, Year One Following Treatment, n=1325
(0 refers to distribution of propensity scores for comparison group, 1 refers to distribution for treatment group.)

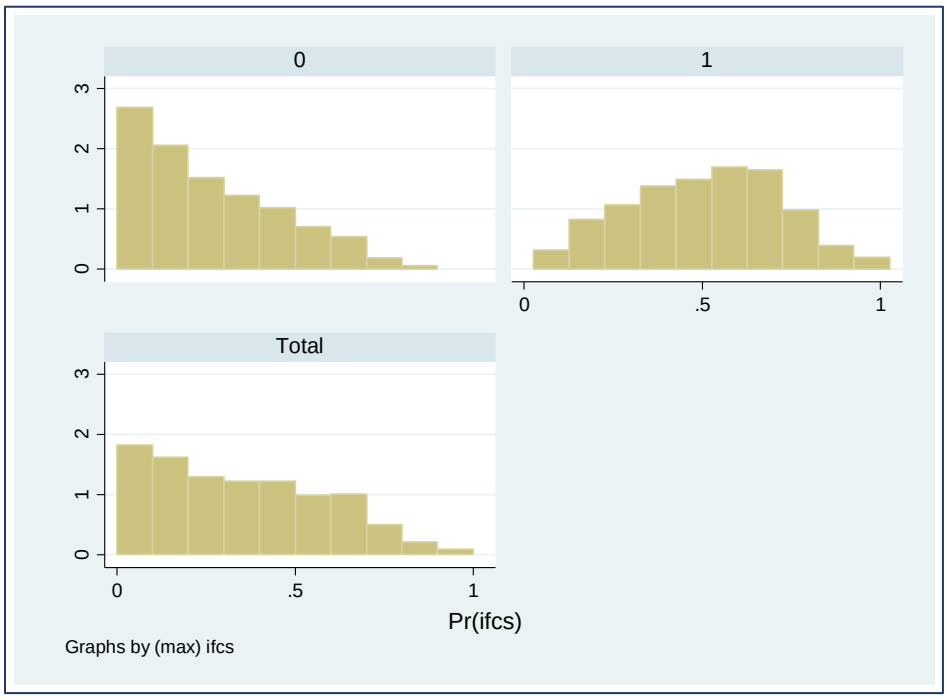


Figure 2: Common Support, Year Two Following Treatment, n=736
(0 refers to distribution of propensity scores for comparison group, 1 refers to distribution for treatment group.)

Table 4: Absolute[a] Outcome Means and Average Treatment Effects: Matching on Propensity Score and Area
(Note: p-values are presented for average treatment effects, standard deviations are presented for unconditional means)

Child Permanency: Restrictive Placement	**Matched Comparison Group Mean (st dev)[b]** n= 1788	**FCT Mean (st dev)** n=447	**SATT[c] (p-value)** n=1325 number of matches =4	**Effect Size[c]**	**Matched Comparison Group Mean (st dev)** n=1016	**FCT Mean (st dev)** n=254	**SATT (p-value)** n=736 number of matches =4	**Effect Size**
	Year One Post-treatment				**Year Two Post-treatment**			
Proportion Restrictive Residential (RR) placements	0.50 (0.50)	0.38 (0.49)	-0.118* (0.002)	-24%	0.19 (0.39)	0.23 (0.42)	0.045 (0.288)	
Frequency RR placements	0.63 (0.70)	0.50 (0.74)	-0.123* (0.03)	-20%	0.23 (0.53)	0.26 (0.51)	0.027 (0.648)	
Duration RR placements	90.84 (114.56)	63.75 (100.14)	-26.85* (0.002)	-30%	52.83 (89.53)	52.68 (95.42)	2.24 (0.825)	
Conditional duration RR placements	184.51 (96.80)	169.88 (93.18)	-14.80 (0.215)		133.55 (87.36)	150.12 (97.85)	17.13 (0.405)	
Proportion of youth with Pending Placements (PP)	0.33 (0.47)	0.29 (0.45)	-0.04 (0.252)		0.16 (0.36)	0.19 (0.39)	0.041 (0.254)	
Frequency PP	0.47 (0.76)	0.40 (0.73)	-0.065 (0.244)		0.21 (0.54)	0.24 (0.56)	0.043 (0.450)	
Duration PP	24.38. (47.87)	14.62 (35.74)	-9.46* (0.010)	-39%	9.67 (31.56)	10.39 (26.23)	1.23 (0.629)	
Conditional duration PP	72.90 (57.59)	50.67 (51.09)	-19.32* (0.004)	-27%	54.84 (59.63)	48.02 (39.48)	-12.02 (0.33)	
Proportion with Community Detention (CD)	0.29 (0.45)	0.32 (0.47)	0.034 (0.293)		0.18 (0.39)	0.21 (0.41)	0.036 (0.381)	
Frequency CD	0.42 (0.76)	0.44 (0.74)	0.02 (0.742)		0.22 (0.53)	0.30 (0.67)	0.082 (0.128)	
Duration CD	15.52 (29.65)	14.19 (27.67)	-1.20 (0.568)		9.48 (25.66)	10.17 (23.29)	0.97 (0.656)	
Conditional duration CD	54.12 (31.23)	44.57 (32.45)	-12.42* (0.007)	-23%	49.68 (39.38)	47.08 (29.40)	-3.17 (0.722)	
Proportion of youth with Secure Detentions (SD)	0.48 (0.50)	0.34 (0.50)	0.041 (0.299)		0.30 (0.46)	0.33 (0.47)	0.046 (0.345)	
Frequency SD	0.69 (0.88)	0.69 (0.98)	0.005 (0.939)		0.43 (0.82)	0.57 (0.92)	0.15** (0.091)	
Duration SD	13.70 (23.41)	12.56 (24.47)	-0.184 (0.606)		8.35 (18.90)	9.34 (18.90)	1.16 (.574)	
Conditional duration SD	28.61 (26.81)	28.93 (30.12)	-0.192 (0.946)		27.54 (26.01)	27.84 (23.81)	-1.12 (0.796)	

Table 4 (continued)

Child Well-being: Delinquent Behaviors	Matched Comparison Group Mean (st dev) n= 1788	FCT Mean (st dev) n=447	SATT (p-value) n=1325 number of matches =4	Effect Size	Matched Comparison Group Mean (st dev) n=1016	FCT Mean (st dev) n=254	SATT (p-value) n=736	Effect Size
	Year One Post-treatment				**Year Two Post-treatment**			
Proportion of youth offending	0.59 (0.49)	0.60 (0.49)	0.011 (0.787)		0.45 (0.50)	0.41 (0.49)	-0.031 (0.555)	
Frequency of offenses	1.83 (2.50)	2.00 (2.74)	0.204 (0.285)		1.71 (3.09)	1.72 (3.41)	0.017 (0.962)	
Proportion offending in category 1 and 2	0.07 (0.26)	0.09 (0.29)	0.021 (0.257)		0.07 (0.26)	0.06 (0.24)	-0.010 (0.725)	
Frequency of category 1 and 2 offenses	0.09 (0.39)	0.12 (0.40)	0.027 (0.279)		0.16 (0.70)	0.18 (0.92)	0.020 (0.820)	
Proportion of youth with adjudications	0.23 (0.44)	0.32 (0.47)	0.068* (0.036)	30%	0.24 (0.43)	0.22 (0.41)	-0.016 (0.732)	
Frequency of adjudications	0.45 (1.04)	0.70 (1.52)	0.260* (0.003)	58%	0.77 (2.42)	0.67 (1.91)	-0.114 (0.679)	
Proportion adjudications category 1 and 2	0.03 (0.18)	0.04 (0.12)	0.009 (0.435)		0.04 (0.20)	0.04 (0.19)	-0.007 (0.725)	
Frequency of category 1 and 2 adjudications	0.04 (0.29)	0.05 (0.28)	0.010 (0.526)		0.11 (0.64)	0.11 (0.70)	-0.001 (0.985)	

* P-value < 0.05

[a] Absolute outcomes are measured as frequencies/durations/proportions occurring during the follow-up periods of the first year and the second year following treatment.

[b] Because four control "matches" are drawn for each treatment observation and these draws are done with replacement, the standard errors in a traditional t-test of differences in means between the treatment and the matched control are downward biased. The sampling process essentially duplicates data for the control group giving a false sense of precision to the t-test estimates and making it more likely that the null hypothesis of no effect will be rejected even when the null hypotheses is true. The standard errors used here in hypothesis tests on the SATT correctly account for the duplication in the control observations.

[c] A negative SATT indicates a positive outcome for the treated (FCT) group.

Table 5: Changes in Outcome Means and Average Treatment Effects[a]: Matching on Propensity Score and Area

(Note: p-values are presented for average treatment effects, standard errors are presented for conditional means.)

Child Well-being: Delinquent Behaviors	**Matched Comparison Group Mean (st error)**	**FCT Mean (st error)**	**SATT (p-value)**	**Effect Size**
[a] Changes are measured as differences in frequencies/proportions between year t and baseline year for youth i. Negative values on means indicate a reduction in behavior.	**year one n=1788 year two n=1016**	**year one n=447 year two n=254**		
Change in frequency of offenses				
Year 1 relative to pre-treatment baseline	-2.71 (0.13)	-2.38 (0.26)	0.26 (0.50)	
Year 2 relative to year 1 baseline	-0.11 (0.10)	-0.44 (0.28)	-0.39 (0.28)	
Year 2 relative to pre-treatment baseline	-2.89 (0.17)	-2.85 (0.35)	-0.11 (0.83)	
Change in proportion of offenses				
Year 1 relative to pre-treatment baseline	-0.28 (0.013)	-0.27 (0.027)	0.009 (0.831)	
Year 2 relative to year 1 baseline	-0.14 (0.02)	-0.20 (0.04)	-0.068 (0.29)	
Year 2 relative to pre-treatment baseline	-0.43 (0.018)	-0.45 (0.034)	-0.03 (0.68)	
Change in frequency of adjudications				
Year 1 relative to pre-treatment baseline	-1.22 (0.05)	-1.0 (0.11)	0.19 (0.19)	
Year 2 relative to year 1 baseline	0.22 (0.065)	-0.17 (0.25)	-0.43 (0.08)	
Year 2 relative to pre-treatment baseline	-0.88 (0.09)	-1.19 (0.18)	-0.38 (0.24)	
Change in proportion of adjudications				
Year 1 relative to pre-treatment baseline	-0.54 (0.013)	-0.47 (0.028)	0.07 (0.09)	-
Year 2 relative to year 1 baseline	-0.008 (0.017)	-0.13 (0.036)	-0.13* (0.02)	> 100%
Year 2 relative to pre-treatment baseline	-0.56 (0.016)	-0.58 (0.036)	-0.03 (0.65)	

* P-value < .05, standard errors used here in hypothesis tests on the SATT correctly account for the duplication in the control observations.

Table 6: Within Group Comparisons of Pre- and Post-treatment Delinquent Behaviors

	Mean (standard deviation)			p-values for differences in means*		
Child Well-being: Delinquent Behaviors	**one year pre-tx**	**first year post-tx**	**second year post-tx**	**change in year one relative to pre-tx**	**change in year two relative to year one**	**change in year two relative to pre-tx**
Comparison Group						
n	1788	1788	1016			
frequency offenses	4.5 (5.62)	1.79 (2.39)	1.67 (3.09)	P < 0.0001	p=0.25	P < 0.0001
proportion offending	0.89 (.317)	0.61 (.489)	0.44 (.497)	P < 0.0001	P < 0.0001	P < 0.0001
frequency adjudications	1.66 (1.89)	0.44 (0.99)	0.75 (2.42)	P < 0.0001	P < 0.0001	P < 0.0001
proportion adjudicated	0.80 (0.399)	0.26 (0.437)	0.24 (0.42)	P < 0.0001	p=0.24	P < 0.0001
Family Centered Treatment						
n	447	447	254			
frequency offenses	4.38 (5.12)	2.0 (2.74)	1.72 (3.41)	P < 0.0001	p=0.24	P < 0.0001
proportion offending	0.87 (0.336)	0.60 (0.491)	0.41 (0.493)	P < 0.0001	P < 0.0001	P < 0.0001
frequency adjudications	1.69 (1.94)	0.69 (1.48)	0.65 (1.84)	P < 0.0001	p=0.75	P < 0.0001
proportion adjudicated	0.79 (0.41)	0.32 (0.466)	0.21 (0.41)	P < 0.0001	P < 0.0001	P < 0.0001
* Standard errors correctly account for the duplication in the control observations.						

Table 7: Cost Effectiveness Analysis

		FCT	Group Home	Therapeutic Group Home
	Cost/day (2006 dollars)	$80	$198	$233
	# youth in program	446	777 (87.5%)	111 (12.5%)
Observed Length of Service	**Average Length of Service (range)**	151 days (16-367 days)	202 days (16-916 days)	161 days (16-527 days)
	Average Program Cost for one youth	$12,080	$39,996	$25, 863
	Average Daily cost/all youth	$35,680	$153,846	$37,513
	Program cost all youth during time frame	$5,387,680	$31,076, 892	$4, 163,943
	Total Counterfactual Cost [.874 (450) (39,996) + .126 (450) (36,115)]	$17,699,789		
	Total Program Savings	$12,312,109		
	Savings per dollar spent on FCT Program	$2.29		
Truncated Length of Service	**Average Length of Service (range)**	151 days (16-367)	185 days (16-368)	156 days (16-368)
	Average Total Cost/youth	$12,080	$36,630	$36,348
	Total Program Cost	$5,387,680		
	Total Counterfactual Cost [.874 (450) (36,630) + .126 (450) (34,950)]	$16,321,259		
	Total Program Savings	$10,933,579		
	Savings per dollar spent on FCT Program	$2.03		

Appendix A

Maryland Service Regions

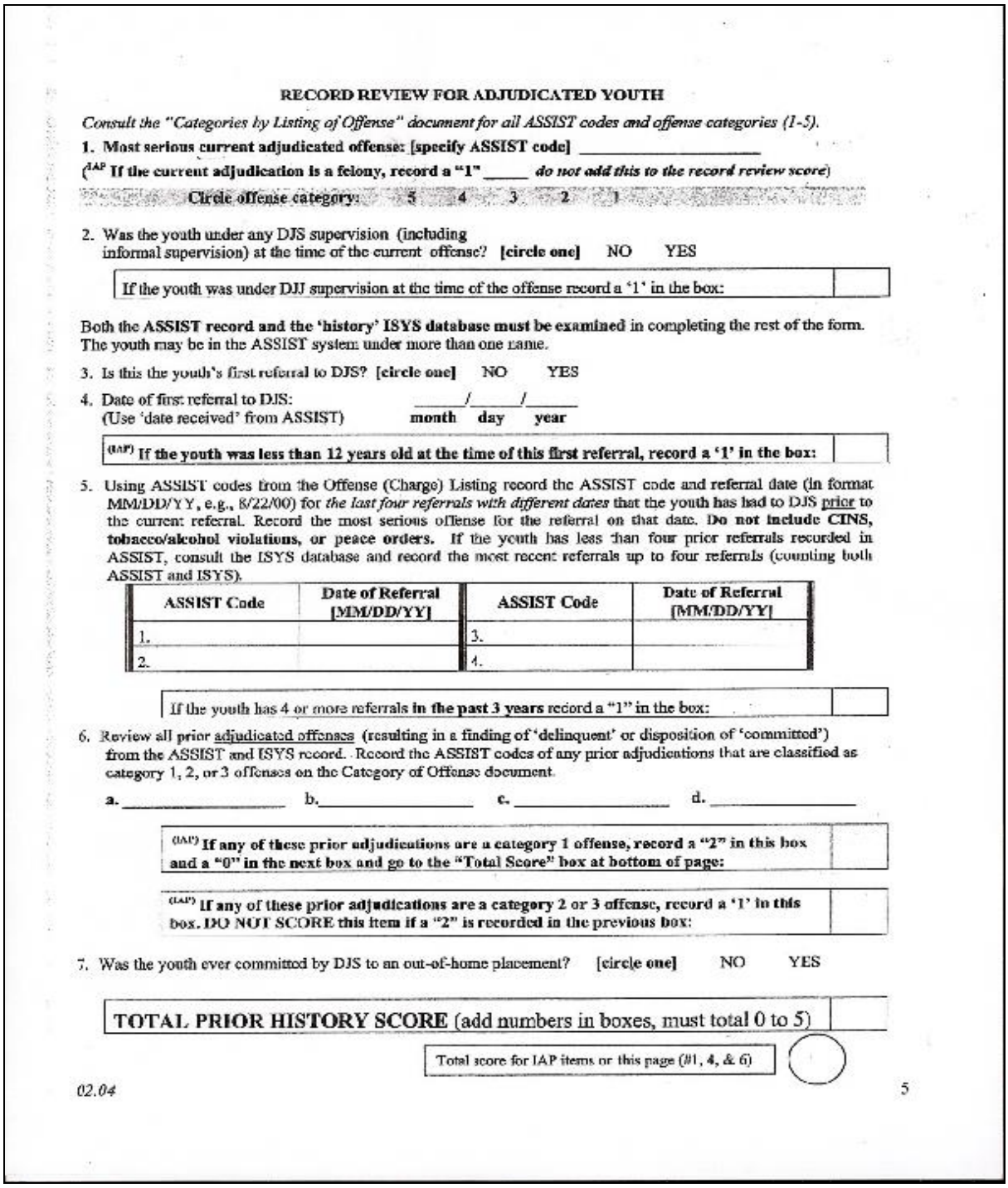
There are five geographically distinct Maryland regions; Baltimore, Montgomery, Southern Maryland, South Mountain, and Tri-County. Counties served by each region are as follows:

Baltimore	Montgomery	Southern Maryland	South Mountain	Tri-County
Anne Arundel[11] Baltimore City Baltimore County Cecil County Harford County Howard County Somerset County Wicomico County	Montgomery County	Prince George's County	Allegany County Carroll County Frederick County Washington County	Calvert County Charles County St. Mary's County

[11] Anne Arundel County is shared by the Baltimore Region (north part of the county) and the Southern Maryland Region (southern part of the county). The data on county of residence does not allow for identification of residence beyond the county level, so all Anne Arundel youth are assigned to the Baltimore Region.

Figure A: Record Review for Adjudicated Youth

Source: Bureau of Governmental Research, University of Maryland College Park (2004), *Maryland Department of Juvenile Services Classification and Placement Assessment for Adjudicated Youth, Training and Operations Manual*, Appendix A, p. 5.



RECORD REVIEW FOR ADJUDICATED YOUTH

Consult the "Categories by Listing of Offense" document for all ASSIST codes and offense categories (1-5).

1. **Most serious current adjudicated offense: [specify ASSIST code]** _____

(IAP **If the current adjudication is a felony, record a "1"** _____ ***do not add this to the record review score***)

Circle offense category: 5 4 3 2 1

2. Was the youth under any DJS supervision (including informal supervision) at the time of the current offense? **[circle one]** NO YES

If the youth was under DJJ supervision at the time of the offense record a '1' in the box:	

Both the **ASSIST record and the 'history' ISYS database must be examined** in completing the rest of the form. The youth may be in the ASSIST system under more than one name.

3. Is this the youth's first referral to DJS? **[circle one]** NO YES

4. Date of first referral to DJS: _____/_____/_____
(Use 'date received' from ASSIST) **month day year**

(IAP) **If the youth was less than 12 years old at the time of this first referral, record a '1' in the box:**	

5. Using ASSIST codes from the Offense (Charge) Listing record the ASSIST code and referral date (in format MM/DD/YY, e.g., 8/22/00) for *the last four referrals with different dates* that the youth has had to DJS prior to the current referral. Record the most serious offense for the referral on that date. **Do not include CINS, tobacco/alcohol violations, or peace orders.** If the youth has less than four prior referrals recorded in ASSIST, consult the ISYS database and record the most recent referrals up to four referrals (counting both ASSIST and ISYS).

ASSIST Code	Date of Referral [MM/DD/YY]	ASSIST Code	Date of Referral [MM/DD/YY]
1.		3.	
2.		4.	

If the youth has 4 or more referrals **in the past 3 years** record a "1" in the box:	

6. Review all prior adjudicated offenses (resulting in a finding of 'delinquent' or disposition of 'committed') from the ASSIST and ISYS record. Record the ASSIST codes of any prior adjudications that are classified as category 1, 2, or 3 offenses on the Category of Offense document.

a. _____ b. _____ c. _____ d. _____

(IAP) **If any of these prior adjudications are a category 1 offense, record a "2" in this box and a "0" in the next box and go to the "Total Score" box at bottom of page:**	

(IAP) **If any of these prior adjudications are a category 2 or 3 offense, record a '1' in this box. DO NOT SCORE this item if a "2" is recorded in the previous box:**	

7. Was the youth ever committed by DJS to an out-of-home placement? **[circle one]** NO YES

TOTAL PRIOR HISTORY SCORE (add numbers in boxes, must total 0 to 5)	

Total score for IAP items on this page (#1, 4, & 6) ( )

02.04 5

Table A: Classification and Placement Matrix

Category of Current Adjudicated Offense	History Score	Assessment Score		
		Low (<=2)	Moderate (3-6)	High (>=7)
Category 1: Arson 1; Assault 1; Murder; Rape 1, 2; Robbery w/a Deadly Weapon; Sex 1,2	2-5	Secure Confinement	Secure Confinement	Secure Confinement
	0-1	Special Program	Secure Confinement	Secure Confinement
Category 2: Burglary 1; DUI; DWI; Handgun Violation; Robbery; Sex 3	2-5	C-B Residential	Special Program	Secure Confinement
	0-1	Standard Probation Intensive or C-B Residential	C-B Residential	Special Program
Category 3: CS w/Intent to Distribute; Felony Theft; CDS distribution; Unauth. Taking of a MV; Unauth. Use misdemeanor; Unauth. Use Felony	2-5	Standard Probation Intensive or C-B Residential	C-B Residential	Special Program
	0-1	Standard Probation High or Intensive	Standard Probation Intensive	C-B Residential
Category 4: Assault 2; Burglary 2, 3; CDS Possession; Sex4; Traffic Violation Incarcerable; VOP	2-5	Standard Probation Moderate	Standard Probation High	Standard Probation High
	0-1	Standard Probation Low	Standard Probation Moderate	Standard Probation Moderate
Category 5: Alcoholic Bev. Violation; Burglary 4; Disturbing Peace; Drug Paraphernalia; False Report; Malicious Destruction; Misdemeanor Theft	2-5	Standard Probation Low	Standard Probation Moderate	Standard Probation Moderate
	0-1	Standard Probation Low	Standard Probation Moderate	Standard Probation Moderate

Source: Bureau of Governmental Research, University of Maryland College Park (2004), *Maryland Department of Juvenile Services Classification and Placement Assessment for Adjudicated Youth, Training and Operations Manual*, Appendix A, p. 12.