

MEASURING RACIAL DISPARITIES IN  
CHILD WELFARE SERVICES

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Submitted to the Faculty of the College of Arts and Sciences

Of American University

In Partial Fulfillment of

The Requirements for the Degree of

Doctor of Philosophy

In


Economics

Chair:

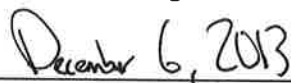
  
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ABSTRACT

This dissertation provides empirical analyses on racial disparities in the child welfare system. The first empirical essay examines racial disparities in the foster care placement decision and is followed by two essays that examine racial disparities in the post-adoption setting.

Chapter 2 provides a case study of foster care placements in Texas from 2000 to 2010. This paper describes the foster care placement decision using the theory of statistical discrimination. Results show black children are more likely to be placed in foster care when compared to white and Hispanic children. Potential sources for these disparities are the presence of caretaker drug abuse and financial problems.

Chapter 3 develops a multidimensional problem index to identify the families most likely to need post-adoption services, and the main factors contributing to the problems these families face. There are racial disparities in the multidimensional problem index. Black families experience economic problems at higher rate than white families. Child-level problems, especially socio-emotional issues are more common among white children relative to black children. Black children adopted by white parents have the lowest problem scores.

The final chapter shows which factors contribute to unmet demand for post-adoption services, and considers racial disparities in service demand and use. This paper

uses a generalized maximum entropy (GME) estimation technique to manage the problems of small sample size, multicollinearity, and a lack of continuous variables. Families who adopt from foster care demand a substantial amount of tutoring, mentoring, and respite care; much of this demand is unmet. Black parents demand more tutoring and mentoring services than do white parents. White parents demand more respite care relative to black parents. Once a service has been demanded, unmet demand is always more common among black parents relative to white.

Given the large number of minority children in foster care systems and the history of racial disparities throughout institutions in the U.S., developing robust empirical analyses of foster care placements and related service utilization is an important step toward creating more equitable and effective foster care services. The research presented here is meant to contribute to this important endeavor.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The objective of this research is to determine if there are racial disparities in services provided after initial contact with child protective services and after adoption from foster care. Minority children are overrepresented in contact with child protective services (CPS) and placement in foster care, and underrepresented in adoptions from foster care. While many studies have considered the effect of race in the utilization of various child welfare services, the results are mixed with respect to the size and direction of the effect of race; this may be a consequence of misspecification. Previous research fails to fully consider the sources of possible racial disparities in service utilization among children in foster care and also fails to adequately address common and severe data limitations in empirical work. This research brings new techniques of measurement to the problem. The findings here will help states make more informed decisions with regard to the allocation of the \$25 billion in child welfare services.

Most families become involved with their local child welfare system because of a report of suspected child abuse or neglect (US DHHS, 2013). When a child has been seriously harmed, or when there is a high risk of future abuse or neglect, the child is often removed from their home and placed with a relative or in foster care. Most children who spend time in foster care reunite with their families of origin; this was true for 52% of the 245,260 children exiting foster care in 2011 (US DHHS, 2012a). Other children cannot safely return home. For these children, the benefits of adoption are greater than the

benefits of remaining in foster care, and the costs of adoption are less (Barth et al., 2006; Hansen, 2008). It is also the case that children adopted from foster care often experience more problems than children adopted from other sources (Barth and Miller, 2000; Barth et al., 2001; Houston and Kramer, 2008; Vandivere et al., 2009). These negative adoption outcomes, such as adoption dissolution<sup>1</sup>, can be mitigated through effective post-adoption services (Fahlberg, 1997; Barth et al., 2001; Dhami et al., 2007).

## 1.2 How Children Enter Foster Care<sup>2</sup>

Children are placed in foster care when it is determined that it is unsafe for them to remain at home. The process starts with a report to a child welfare services (CWS) agency of suspected abuse or neglect. Although anyone can report suspected child maltreatment, state laws require some professions to report suspected child abuse or neglect. These “mandatory reporters” are the primary source for reports of child maltreatment (US DHHS, 2013).<sup>3</sup>

A report is either “screened in” or “screened out” by a CPS worker. Reports are “screened in” when there is sufficient evidence to proceed with an investigation. A report is “screened out” when there is insufficient information (e.g. lack of address) to conduct an investigation, or when there is no evidence that abuse or neglect has occurred.

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<sup>1</sup> Adoption dissolution is when an adoption is terminated after being legally finalized.

<sup>2</sup> This section provides only a general description of how children are placed in foster care; specific details will vary by state.

<sup>3</sup> These mandatory reporters include social workers, teachers, other school personnel, health care workers, mental health professionals, child-care providers, medical examiners, and law enforcement (US DHHS, 2012c).

A CPS caseworker is assigned to investigate screened in reports of child maltreatment. Caseworkers gather information to assess the severity of abuse or neglect, the risk of future maltreatment, and the appropriate services to provide. Investigators (i.e. caseworkers) speak with the child, the parents, and other people who know the child. They may talk to the child alone or in the presence of caregivers, depending on the severity of maltreatment, the risk for future maltreatment, and the age of the child (US DHHS, 2013). Cases are then either substantiated or unsubstantiated.<sup>4</sup> A case is substantiated when the caseworker determines a child was abused or neglected, based on the state's definitions of abuse and neglect.<sup>5</sup>

Following substantiation, the investigator must determine the child's risk of future maltreatment. The case of a child facing a low risk of harm might be closed with or without the family being offered community based or in-home services (US DHHS, 2013). For children at higher risk of future maltreatment, the refusal of services might result in the child being removed from the home (US DHHS, 2013). Children who are deemed to be in immediate danger are removed from their homes and placed in a foster home, with a relative, or in a shelter while court proceedings are pending (US DHHS, 2013).

Every child in foster care is required to have a permanency plan. This plan details the steps to be taken to provide a child with a permanent home. Federal law requires courts to hold a hearing, within twelve months of placement, to assess the

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<sup>4</sup> Some states use the terms "founded" and "unfounded."

<sup>5</sup> Cases are unsubstantiated when the caseworker cannot determine if abuse or neglect occurred, based on the state's definition. Families in unsubstantiated cases might still be offered services.

implementation of the permanency plan; court hearings are held at least every 12 months thereafter (US DHHS, 2013).

The Adoption and Safe Families Act (ASFA) of 1997 shifted the focus of the child welfare system from family reunification and toward child well-being through permanency. As discussed below, adoption of ASFA was motivated by concern for the harm experienced by a growing foster care population remaining in care for extended periods. Policy makers became aware that foster care was not a sufficient alternative to a permanent home. It is difficult to measure the true effect of foster care, but many researchers find time spent in foster care is correlated with negative life outcomes such as juvenile delinquency, adult criminal activity, and poor employment outcomes.

### 1.3 A Brief History of Federal Child Welfare Policy

Although child welfare systems operate at state and local levels, federal policies have had a prominent role in shaping their structure and objectives. States must adhere to specific guidelines in order to receive federal funding for certain child welfare programs. The Children's Bureau within the Administration for Children and Families in the United States Department of Health and Human Services is the primary agency responsible for implementing federal legislation concerning the health and well-being of children and families. The Children's Bureau works with state and local child welfare agencies to develop programs that promote child and family well-being, and prevent, investigate, and treat child maltreatment (US DHHS, 2012b).

In 1935, the Child Welfare Services Program and Title IV-B of the Social Security Act created the first federal funding provided to states for protective and

preventive child abuse services, as well as for foster care payments (US DHHS, 2012c). The Social Security Act also created the Aid to Dependent Children (ADC) program to help states provide financial assistance for impoverished children.<sup>6</sup>

In the 1950s federal policy makers were made aware that many children were being denied ADC benefits (O'Neill Murray and Gesiriech, 2004). Many states denied benefits to children of unwed mothers and to parents deemed by the state to be "immoral" (O'Neill Murray and Gesiriech, 2004). The Flemming Rule was implemented in 1960 to prohibit states from denying benefits to children deemed to be living in unsuitable homes. States had two options: provide services to improve conditions in the child's home, or place the child in a suitable alternative living arrangement while continuing to provide financial support (O'Neill Murray and Gesiriech, 2004).<sup>7</sup>

The 1961 amendments to the Social Security Act created a foster care component to ADC. States received federal matching funds for payments made for children placed in foster care; however, this only applied to children who would have received ADC if they remained at home. This policy created the first link between ADC eligibility and federal funding for foster care payments (O'Neill Murray and Gesiriech, 2004). These federal policies provided funding for many victims of child abuse or neglect, but they did not address the underlying problem of child maltreatment. The Child Abuse Prevention and Treatment Act (CAPTA) of 1974 was the first federal policy to focus on the social problem of child abuse and neglect. CAPTA provided federal funds to states to

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<sup>6</sup> ADC was renamed Aid to Families with Dependent Children (AFDC) in 1962 and AFDC was replaced with the block grant program Temporary Assistance to Needy Families (TANF) in 1996.

<sup>7</sup> The Flemming Rule was created in response to the "Louisiana Incident" in which Louisiana dropped 23,000 children from their welfare roles after determining that they had been born out of wedlock (O'Neill Murray and Gesiriech, 2004).

develop programs for reporting, investigating, and treating child abuse and neglect (US DHHS, 2012c).

Reports of child maltreatment and foster care placements grew dramatically throughout the 1960s and 70s (Barbell and Freundlich, 2001). In the 1970s it was brought to the attention of federal policy makers that a very large number of Native American children were being removed from their families. In response, the Indian Child Welfare Act (ICWA) was passed in 1978. The law allows all child welfare cases involving Native American children be adjudicated by a Tribal court. ICWA also placed an emphasis on matching Native American children with foster care placements and adoptions reflecting their culture. This was the first time the federal government implemented a policy in child welfare to address racial disparities in the system.

As the number of children entering foster care increased throughout the 1970s, so too did their length of stay in foster care (O'Neill Murray and Gesiriech, 2004). The Adoption Assistance and Child Welfare Act of 1980 (AACWA) sought to reduce this length of stay. AACWA amended Title IV-E of the Social Security Act to authorize monthly subsidies to families adopting a special needs child from foster care<sup>8</sup>; the amount of the subsidy is left to the discretion of the state. Although AACWA created adoption subsidies, the law emphasized family reunification as the ideal way for a child to exit foster care. While the implementation of AACWA is associated with a substantial decrease in the foster care population, the policy's focus on family reunification could lead to some placement decisions that were not in the best interest of a child's safety and

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<sup>8</sup> The child welfare information gateway (a service of the federal Children's Bureau) describes a special needs child or youth as having a factor or condition related to any of the following: ethnic or minority background, age, membership in a sibling group, disability (medical, physical, or emotional), risk of developing a disability based on birth family history, or any condition that makes finding an adoptive family more difficult (US DHHS, 2010).



well-being. Furthermore, the policy seemed to have little effect on the amount of time children in foster care were waiting for a permanent home.

Beginning in the mid 1980s there was a dramatic increase in the number of children in care. The foster care population grew from approximately 276,000 children in 1984 to 468,000 in 1994, a 70% increase (US House of Representatives, 2000). Many researchers attribute this to families suffering from the effects of a slowing economy, the crack-cocaine epidemic, and the growth of HIV/AIDS (Barbell and Freundlich, 2001). While the foster care population continued to grow, so too did concerns that the focus on family reunification created by AACWA was causing children to be returned to unsafe living environments, and that states were paying too little attention to finding permanent living arrangements for children in foster care beyond their families of origin (O'Neill Murray and Gesiriech, 2004). To ameliorate these problems, the Adoption and Safe Families Act of 1997 (ASFA) was passed.

ASFA aimed to improve child safety, provide services to families in crisis, and further promote the adoption of children in need of a permanent home. The law reauthorized the adoption subsidies established under AACWA and made Medicaid available to all adopted children with special needs. ASFA also created the Adoption Incentive Payment Program, which for the first time provided states with a financial incentive for increasing adoptions from foster care. Not only did ASFA seek to increase adoptions from foster care by encouraging states to do so, but also the law reduced the time frame to hold permanency hearings, and helped facilitate the termination of parental rights. ASFA created an important shift in the focus of child welfare policy by encouraging state child welfare systems to emphasize adoption when family reunification

is not possible. Although many children in foster care remain in need of permanent homes, ASFA is generally viewed as being successful in achieving its goals (Hansen, 2007; Golden and Macomber, 2009).

Along with the directives above, ASFA renewed funding for another relevant law, the Family Preservation and Family Support Services Program; this law provided federal funding for services supporting families in which children were at risk of maltreatment. ASFA created the Promoting Safe and Stable Families program (PSSF), replacing the Family Preservation Program. The primary initiatives of PSSF enable each state to provide, according to their discretion, a coordinated program of family preservation and support services, time-limited reunification services, and adoption promotion and support services. The 2001 amendments to the PSSF program reauthorized the federal funding allocated to states for achieving the program's goals.<sup>9</sup>

The initiatives of ASFA and PSSF operate in a context that is governed by the ideals of the Multiethnic Placement Act of 1994 and the Interethnic Adoption Provisions of 1996 (MEPA-IEP). MEPA was passed when it was brought to the attention of Congress that black children in foster care wait significantly longer than do white children to be adopted (Brooks et al, 1999). The policy sought to decrease this disparity, assist with the recruitment and retention of foster and adoptive parents, and eliminate discrimination based on race or ethnicity of the child or prospective parent. In order to achieve these goals, states and other entities involved in placement decisions would not receive federal assistance if they denied a person the opportunity to become a foster or

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<sup>9</sup> The 2001 amendments also created two new federally-funded services: the mentoring of children with incarcerated parents, and the provision of education and training vouchers for children who age out of foster care.

adoptive parent based on race or ethnicity, or if they denied or delayed the placement of a child into foster care or adoption based on race or ethnicity. Two states have been found guilty of violating MEPA: in 2003, the Administration for Children and Families imposed a \$1.8 million fine on the state of Ohio for violating MEPA; in 2005, South Carolina was fined \$107,481 (Ohl, 2010).

Since the implementation of ASFA, federal child welfare policies have continued to support child well-being, permanency, and promote the adoption of children from foster care. The Adoption Promotion Act of 2003 and the Fostering Connections to Success and Increasing Adoptions Act of 2008 (FCSIA) created additional financial incentives for states to enhance adoptions from foster care. FCSIA raised the payments states receive for a special needs adoption to \$4,000, and increased the payment for adoptions of older children to \$8,000 (US DHHS, 2012c). Since the late 1990s, the foster care population has continued to fall. From 1999 to 2011, the number of children living in care fell from 567,000 to 400,540. Over the same period, there also has been a general increase in the proportion of children exiting foster care via adoption – from 17% of foster care children in 1999 to 20% in 2011.

## 1.4 Living in Foster Care

The size of the foster care population has declined by close to one-third since the late 1990s – from just under 600,000 to 400,540 by 2011 (US DHHS, 2012a). Numerous studies find negative effects associated with time spent in foster care.<sup>10</sup> Jonson-Reid and

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<sup>10</sup> Most studies estimate correlations, not causation, between time spent in foster care and various outcomes (e.g. behavioral problems, criminal activity, drug abuse). Doyle (2007; 2008; 2013) uses a quasi-experimental (instrumental variables) approach to estimate causality. This estimate is only for children on the margin of placement (a marginal treatment effect). While a quasi-

Barth (2000) and Grogan-Kaylor et al. (2008) discover that children involved in the child welfare system were more likely to become juvenile offenders. Jee et al. (2006) find increased prevalence of chronic health problems among children who were in foster care for at least one year. Paxson and Waldfogel (2002) show youth who spent time in the child welfare system were more likely to suffer from substance abuse than those who did not spend time in the system. Pecora et al. (2006) find that foster care alumni experience low rates of post-secondary educational attainment, low rates of health insurance coverage, and high rates of poverty. Doyle (2007; 2008; 2011) uses an instrumental variables estimator to measure the effect of foster care placement. Results show that children on the “margin of placement” are less likely to experience delinquency and teen motherhood, to use less emergency health care, to have better employment outcomes, and to be charged with a crime as an adult when they remain at home as opposed to being placed in foster care (Doyle, 2007; 2008; 2011).

These detrimental effects of foster care are one reason child welfare policy began to emphasize permanency as a major focus in child welfare systems. Although the most common goal in a permanency plan is for a child to reunite with their family of origin, not all children can safely return home. Since the passing of ASFA in 1997, adoption has become more common when family reunification is not possible.

## 1.5 Adoption from Foster Care

Adoption is a way to provide a permanent home for children who cannot return to live with their families of origin. Researchers find adoption to produce greater benefits

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experimental approach seeks to provide internal validity to the estimates, the approach does not ensure external validity.

than long-term foster care, and at lower costs (Barth et al., 2006; Hansen 2008). Hansen (2008) estimates the benefit-to-cost ratio of adoption to foster care could be as large as three-to-one. It is also the case that children adopted from foster care on average experience more problems than children adopted from other sources (Barth and Miller, 2000; Barth et al. 2001; Houston and Kramer, 2008; Vandivere et al., 2009). These negative adoption outcomes, such as adoption dissolution, can be reduced through the use of effective post-adoption services (Fahlberg, 1997; Barth et al, 2000; Dhami et al, 2007). Approximately half of the children adopted from foster care use mental health services; they also are more likely to have a mentor or to have used crisis counseling (Vandivere et al, 2009). A troubling finding from the 2007 National Survey of Adoptive Parents (NSAP) is that while children adopted from foster care are more likely to require post-adoption services, parents of a child adopted from foster care are more likely to report unmet demand than parents who adopted from other sources (Vandivere et al, 2009).

## 1.6 Post-Adoption Services

Adoptions from foster care are generally stable and successful; nevertheless, difficulties, disruptions, and dissolutions do occur (Barth and Miller, 2000).<sup>11</sup> Vandivere et al. (2009) shows that a greater percentage of children adopted from foster care have health, social, and emotional problems relative to children adopted internationally or domestically through a private agency. A family's need for services will vary with the characteristics of the household and of the adopted child, as well as with the child's

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<sup>11</sup> Adoption disruption is when an adoption process is not finalized after the adoptive parents have been identified; the child may or may not have already been placed in the home. Adoption dissolution is the termination of an adoption after the adoption has been legally finalized.

experiences before and during foster care. Barth and Miller (2000) emphasize a child's age at adoption as an important predictor of problems post-adoption. Children adopted at older ages are more likely to have been older when separated from their biological families, and to have spent more time in foster care (Barth and Miller, 2000). The number of foster care placements is another factor that researchers show contributes to child behavioral problems (Newton et al, 2000; Webster et al 2004; Rubin et al, 2007). Many families who adopt children from foster care will require services to help promote adoption stability. An important goal of this paper is to contribute to our understanding of which families will have the greatest need for services and why.

## 1.7 Racial Disparities in the U.S. Child Welfare System

In 2011, black children represented 14% of the U.S. child population, while white children accounted for 53.2% (ChildStats, 2011).<sup>12</sup> In the same year, 23% of children entering foster care were black, while 44% were white (US DHHS, 2012a). Moreover, black children exit foster care through family reunification or adoption at a slower rate (Chipungu and Bent-Goodley, 2004; Baccara et al., 2010). Racial disproportionality in the flow of children through the child welfare system, from investigation through permanency, has been well studied.<sup>13</sup> The overrepresentation of black children in foster care will lead to black children disproportionately experiencing the negative effects

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<sup>12</sup> Black non-Hispanic, and white non-Hispanic.

<sup>13</sup> See van Ryn and Fu (2003), Fluke et al. (2003), and Ards et al (2003) for papers on racial disparities in child maltreatment. See Lindsey, 1991; Hill, 2001, 2007; Needell et al., 2003; Knott and Donovan, 2010; Wildeman and Emanuel, 2013. See Garland et al. (2003), Burns et al. (2004), and Hurlburt et al. (2004) for papers on racial disparities among children living in foster care. See Brooks et al. (1999) and Hansen and Pollack (2007) for papers on racial disparities in adoptions from foster care.

associated with time spent in foster care, as discussed above (e.g. unemployment, homelessness, and addiction). Despite a large literature, there is no consensus on the causes of the system's racial disparities.

Any decision made from the initial report to placement is a potential source for racial disparities in foster care entries. There are two main theories for the existence of racial disparities in foster care entries: the risk model and the bias model (Barth et al., 2001; Drake et al., 2011). The risk model points to racial disparities in poverty, crime, addiction, and other social ills as the primary source of disproportionality. The theory posits minority families are more likely to experience these risk factors (e.g. poverty) and therefore are more likely to be reported for child maltreatment, have the maltreatment substantiated, and have a child placed in foster care. The bias model proposes racially-biased decision making in reporting, substantiating, and placement lead to racial disparities in foster care entries. In the bias model, the core idea is that people from different cultures find it difficult to interpret accurately information regarding one another. As a result, social workers may practice "stereotype application": they unconsciously and automatically assign the characteristics of a group or class of an individual to the individual himself (van Ryn and Fu, 2004). These two theories are not mutually exclusive; both factors are likely to contribute to racial disparities in child welfare systems.

Not only are black children more likely than white children to enter foster care, research finds black children living in foster care suffer from other racial disparities. Most studies of racial disparities in foster care focus on mental health services; although results are mixed, the most common finding is that, relative to white children, black and

Hispanic children in foster care utilize fewer mental health services (Leslie et al., 2003; Garland et al., 2003; Hurlburt et al., 2004; McMillan et al., 2004; Zito et al., 2008).

While racial disparities are present in mental health service use for children living in foster care, there is no consensus as to the origin of these disparities. Despite the lack of clarity regarding the causes of these disparities, researchers emphasize the importance of addressing the mental health needs of a child welfare population that is disproportionately composed of black children; Hurlburt et al. (2004) posit that such services could help reduce racial disparities in other aspects of life.

An objective of public policy in child welfare is to reduce inequality by giving children without safe and stable families the necessary services to overcome past abuse or neglect. Although the overarching goal of MEPA is to provide these services in a way that is race-neutral, the child welfare system appears to have provided little evidence of race-neutrality. Reports from the identification of maltreatment through adoption from foster care have demonstrated continuing racial disparities.

Racial differences in service use among children living in foster care suggest disparities might persist in the post-adoption setting; until recently, however, a lack of adequate data has impeded an empirical analysis of racial disparities in the post-adoption setting. The likelihood of these disparities is suggested by several factors. First, differences in service use suggest possible differences in the context of service provision. Being unable to decipher the distinction between demand and use, it is difficult to interpret previous findings of minority children in foster care being less likely than white children to utilize mental health services. Minority children might *use* fewer services because they have fewer problems that require mental health services, or because they are



less likely to receive the services their families demand, or because their families are less likely to demand services.

Secondly, most services are obtained or referred through the same system whether a child is living in foster care or has been adopted from foster care. A system that produces racial disparities in service use in the foster care setting might produce similar disparities post-adoption from foster care. Regardless of why minority children in foster care use fewer mental health services, the finding motivates an examination of racial disparities in the problems families face and in the services they demand and use post-adoption from foster care. Empirical analysis using data on the characteristics and service utilization of families post-adoption from foster care can aid in determining the existence and dimensions of racial disparities.

## 1.8 Outline of Research

The forthcoming chapters provide empirical analyses on racial disparities in the child welfare system. The first empirical essay examines racial disparities in the foster care placement decision and is followed by two essays that examine racial disparities in the post-adoption setting. This research provides a number of innovations to the child welfare literature.

Chapter 2 provides a case study of foster care placements in Texas from 2000 to 2010 using the National Child Abuse and Neglect Dataset (NCANDS). There are three benefits from focusing on Texas. First, the data from Texas is the most complete. Data limitations in other states lead to samples that are far from nationally representative. Secondly, focusing on Texas removes the difficulty in controlling for the substantial

cross-state variation in child welfare policy. Third, in 2005 Texas implemented cultural competence policies targeted toward reducing racial disproportionality in the state's child welfare system. This unique feature of Texas allows for an analysis of whether these policies have any impact on racial disparities in foster care placement. This is the first research to provide a formal link between the theory of statistical discrimination and the foster care placement decision. The theory of statistical discrimination provides a possible explanation for the existence and persistence of racial disparities in the child welfare system. This essay estimates the effect on the probability of foster care placement for a number of variables; this is done separately for each race.

Chapter 3 uses the 2007 National Survey of Adoptive Parents (NSAP) to develop a multidimensional index that measures the problems facing families who adopt from foster care. Previous research has found many negative effects associated with time spent in foster care. It is therefore unsurprising that children adopted from foster care are more likely to experience problems and require services or supports than children adopted from other sources (Vandivere et al, 2009). The index helps identify the families most likely to need post-adoption services, as well as the main factors contributing to the problems these families face. The essay also addresses racial disparities in the problem index. Because solving a child's problem involves family participation, child- and family-level variables are included in the multidimensional index in order to provide the most appropriate measure of service need.

After identifying the families most likely to need services in chapter 3, the final empirical essay shows which factors contribute to unmet demand for post-adoption services, and considers racial disparities in service demand and use. The 2007 NSAP

allows for a distinction between service demand and use, providing a measure for unmet demand. This offers a substantial improvement over previous research that focuses only on racial differences in service utilization. To understand racial disparities in service use, it is necessary to understand service demand too. Chapter 4 uses a generalized maximum entropy (GME) estimation technique to manage the problems of small sample sizes, multicollinearity, and a lack of continuous variables. Since child welfare researchers frequently encounter these data issues, it is important for the child welfare research community to be made aware of an alternative estimation technique that can help alleviate common data concerns.

Given the large number of minority children in foster care systems and the history of racial disparities throughout institutions in the U.S., developing robust empirical analyses of foster care placements and related service utilization is an important step toward creating more equitable and effective foster care services. The research presented here is meant to contribute to this important endeavor.

## CHAPTER 2

### MEASURING RACIAL DISPARITIES IN FOSTER CARE PLACEMENT: A CASE STUDY OF TEXAS

#### 2.1 Introduction

Chapter 1 highlights the problem of racial disproportionality in the child welfare system: black children are disproportionately represented in the foster care population and are more likely to enter and less likely to exit foster care relative to children of other races.

This chapter attempts to verify this conclusion using a model of statistical discrimination to demonstrate that racial disparities in foster care placements can exist and persist even in the absence of discriminatory decision-makers. The decision-maker in this model is a social worker investigating a family suspected of child abuse or neglect. It is the social worker that decides whether a child should be placed in foster care. The social worker's investigation provides limited and noisy information, even more so when the decision-maker has a culturally different background than the family he or she is investigating. Faced with noisy information, the social worker might use race as a proxy for risk of future maltreatment in the decision-making process. As in any statistical discrimination framework, the information about a racial group the decision-maker uses need not be accurate.

This paper uses data from the years 2000 to 2010 of the National Child Abuse and Neglect Data System (NCANDS) to estimate the correlates of foster care placement by race. The analysis is limited to Texas; Texas is the only state that submits data complete

enough to estimate a model incorporating the key independent variables. Estimating separate regressions by race shows how child, caretaker, economic, and case characteristics influence placement decisions differently for children of different races. This approach provides a more comprehensive analysis of possible racial disparities than the traditional method of using a race dummy variable.

Texas implemented a policy in 2005 that requires all Department of Family and Protective Services (DFPS) social workers to receive cultural competence training. I therefore also estimate separate regressions for the 2000 to 2005, and 2006 to 2010 subsamples. Differences in racial disparity between the two time periods will indicate whether cultural competence training is correlated with a reduction of disproportionality in foster care placements.

The results show black children face the highest probability of placement into foster care, and caretaker and economic risk factors have the largest positive impact on the placement of black children. The disparity in the probability of placement between black and white children has fallen since the implementation of cultural competence training in Texas, providing preliminary support for the training's effectiveness.

It is important to understand racial disparities in foster care placement because they may contribute to racial disparities in economic outcomes across the life cycle. Many studies find negative effects associated with time spent in foster care. Jonson-Reid and Barth (2000) and Grogan-Kaylor et al. (2008) find that children involved in the child welfare system are more likely to become juvenile offenders. Jee et al. (2006) find increased prevalence of chronic health problems among children who are in foster care for one year. Paxson and Waldfogel (2002) show youth who spend time in the child

welfare system are more likely to suffer from substance abuse than those who do not spend time in the system. Doyle (2007; 2008; 2011) shows that children on the margin of placement are less likely to experience delinquency and teen motherhood, and have better employment outcomes when they remain at home as opposed to being placed in foster care. If black children enter foster care at a higher rate and exit at a slower rate than white children, they will experience these negative effects disproportionately.

## 2.2 Background

In the 1990s, adoption advocates brought evidence to Congress that black children in foster care wait significantly longer to be adopted than do white children. In response, Congress passed the Multiethnic Placement Act of 1994 and the Interethnic Adoption Provisions of 1996 (MEPA-IEP). These laws tie federal assistance to states and other entities involved in placement decisions to adherence to guidelines; specifically, states receiving federal funds cannot delay or deny the adoption of a child or the placement of a child in foster care based on race or ethnicity. The law also requires states to develop plans for the recruitment of foster and adoptive parents who are representative of the racial and ethnic diversity of the children in need of families. The aim of MEPA-IEP is to decrease the amount of time that children in foster care wait to be adopted, help with the recruitment and retention of foster and adoptive parents, and eliminate discrimination based on race or ethnicity of the child or prospective adoptive parent (Brooks et al, 1999). Hansen and Pollack (2007) find that MEPA-IEP seemed to have a positive, but not long-lasting effect on adoptions of black children from foster care.

MEPA-IEP guidelines covered only adoption; they did not include all areas of child welfare decision-making. A decade after MEPA-IEP were passed, Chipungu and Bent-Goodley (2004) were still calling for the need to eliminate race-based decision-making throughout the child welfare system. As noted above, recent entry and exit statistics indicate the problem remains. Disparities have been documented by numerous studies of California (Needell et al., 2003; Lu et al., 2004) and the nation (Knott and Donovan, 2010; Bhatti-Sinclair and Sutcliffe, 2012; Wildeman and Emanuel, 2013). Though disparities may be lessening, Bhatti-Sinclair and Sutcliffe (2012) find that a black child in 2009 was still 25% more likely to be removed from his or her home relative to a similar white child. A recent study by Wildeman and Emanuel (2013) analyzes the entire U.S. child population and shows black children are 2.26 times more likely than similar white children to be placed in foster care before the age of 18.

Researchers in social work assert that racially-biased decision-making is likely to take place during child welfare investigations and at other stages in the child welfare system because the class and race of the social worker may differ from the class and race of the client. The core idea is that people find it difficult to accurately interpret information regarding persons from another culture. As a result, social workers may practice “stereotype application”: they unconsciously and automatically mentally assign the characteristics of a group or class of an individual to the individual himself (van Ryn and Fu, 2004). In the child welfare context, this leads to child welfare investigations in which the social worker might not understand which services are best for a family because of cultural differences. Differences in education, socioeconomic status, gender, age, or other life experiences can also create substantial communication and

interpretation problems (Korbin, 2002). These researchers assert that racial bias can be eliminated by training social workers to be aware of and sensitive to cultural differences; such awareness and sensitivity is called “cultural competence.”<sup>14</sup>

The main objective of becoming culturally competent is to provide child welfare workers with appropriate information regarding other races, ethnicities, and cultures so the stereotype application does not overwhelm their decision-making process. The next section shows how “stereotype application” is similar to “statistical discrimination.”

The state of Texas offers cultural competence training to all child protective services (CPS) staff. Senate Bill 6, which passed the 79<sup>th</sup> Texas legislature and became law on September 1 implemented the cultural competence training.<sup>15</sup> “Knowing who you are” is a two-day training program the state provides to all CPS staff members during Basic Skills Development; Casey Family Programs developed the training. The goal of the training is to reduce disproportionality in Texas by developing greater cultural awareness among CPS workers and thus reducing cultural biases in removal and permanency decisions (Texas Department of Family and Protective Services (DFPS), 2012). Texas also offers an advanced course in cultural competence entitled “Undoing Racism.” At the end of calendar year 2011, more than 5,000 DFPS staff members had undertaken a course in “Knowing Who You Are” and approximately 2,700 DFPS staff members had received “Undoing Racism” training (Texas DFPS, 2012).

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<sup>14</sup> Cultural competence training is not exclusive to social workers; educators, health care providers, and law enforcement often undergo cultural competence training.

<sup>15</sup> In May 2011 the training was expanded to all Department of Family and Protective Services (DFPS) programs and is now offered to all DFPS staff in Texas.



### 2.3 Statistical Discrimination in Child Placement

All applications of the framework of statistical discrimination have a common structure: a decision-maker possesses prior information, observes additional information, and finally must decide how to allocate a scarce resource. The decision-maker is not assumed to be discriminatory; however, noisy information can lead to persistent, unequal treatment of individuals from different demographic groups. Phelps (1972) was the first to clearly describe how statistical discrimination can arise in labor markets when employers imperfectly observe information about potential employees.<sup>16</sup> Arrow (1973) stresses the importance of the cost of obtaining accurate information. A person's race is low-cost information that a decision maker can use as a proxy for more costly information. Aigner and Cain (1977) refine the framework by showing that it is not necessary to assume there is an *a priori* actual difference between races or that there is a difference in the accuracy of race as a proxy.

This framework is applicable to any decision-making problem in which information useful to the decision-maker is costly to obtain. For example, in health care markets the costly information is "high diagnostic certainty" (Hofer, 2009 p.1950). Balsa and McGuire (2001) and Balsa, McGuire, and Meredith (2005) ask whether doctors act as Bayesians when they make decisions about diagnosing a patient's symptoms. That is, they ask: do doctors update their prior information about group prevalence rates, and do they do this updating differently for different races? They consider the case where a patient gives a noisy signal of useful information, and noisiness differs by race. The more noise in the signal, the less weight the decision-maker places on the information

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<sup>16</sup> In labor markets, the imperfect information is a worker's true productivity.

obtained when making a decision. In this case, doctors may place more weight on prior information known about racial or ethnic groups based on statistical averages. The process of inferring diagnosis from a signal plus noise can cause two individuals of different races with identical signals to be treated differently, even by a non-discriminatory decision-maker. The more uncertainty decision-makers face, the more weight they are likely to place on prior information about group averages when deciding how to allocate a valuable service.<sup>17</sup> The health care decision-making example is easily extended to child welfare decision-making. Social workers are not believed to be discriminatory, but may have a background that is culturally different than the families they work with, leading to decision-making about needed services based on noisy information. Race may be used as a proxy for risk of future maltreatment when deciding to place a child in foster care. The literature on stereotype application and cultural competence stresses that this process takes place unconsciously and the supplemental information provided by race does not need to be accurate (e.g., van Ryn and Fu, 2004).

More formally, and following the logic of Balsa and McGuire (2001), consider two maltreated children, one white and one black, and a white social worker. Assume that a report of maltreatment of each child has been substantiated, meaning that maltreatment or risk of maltreatment is supported or founded by State law or State policy (US DHHS, 2012b). For simplicity, following substantiation, suppose the caseworker

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<sup>17</sup> Hofer (2009) questions the validity of the statistical discrimination framework used by Balsa, McGuire, and Meredith (2005). First, he states that the term “discrimination” has negative connotations that are not relevant to the statistical operation (the author concurs). It is important to be clear: statistical discrimination does not refer to a personal bias but refers to cases in which the decision-maker is assumed to be non-discriminatory. Second, he questions the usefulness of a statistical discrimination model when the available information is highly accurate. As described below, for the case of services provided to children in the child welfare system, it is reasonable to believe that available information is not of high quality and that there is not a high degree of diagnostic certainty.

faces the binary decision of whether or not to place the child in foster care.<sup>18</sup> Assume a continuum of severities ( $Z$ ) is identically distributed in the white and black populations.<sup>19</sup> The continuum of severities is interpreted as the risk of future maltreatment facing the child if left in the home. It is also assumed the white caseworker more accurately interprets the information obtained while investigating a white family relative to a black family. It should be emphasized that the  $Z$  distribution does not need to reflect the true risk of future maltreatment; it represents the social worker's *beliefs* of the risk of future maltreatment. The social worker's beliefs may not reflect reality. The caseworker's problem is to choose a threshold of observed severity to compare to the signal of severity they obtain. The caseworker removes the child from their home if the signal is above the threshold; the child is not removed if the signal is below the threshold.

The caseworker observes a signal ( $S$ ), which reveals the severity of risk the child faces. The signal is accompanied by noise ( $\varepsilon$ ).

$$S = Z + \varepsilon \tag{1}$$

It is assumed that  $Z$  is normally distributed with mean  $\mu$  and variance  $\sigma_Z^2$ . The error term  $\varepsilon$  is assumed to be normally distributed with mean 0 and variance  $\sigma_\varepsilon^2$  and independently distributed from  $S$ .  $g(S)$  is the distribution of  $S$  (the sum of two normal distributions) and it is normally distributed with mean  $\mu$  and variance  $\sigma_Z^2 + \sigma_\varepsilon^2$ .

Once the child welfare worker observes  $S$ , she applies Bayes' rule to update her priors about the likelihood of the child's maltreatment severity. The updated distribution

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<sup>18</sup> In reality, the decision would also involve whether to provide the child or family with in-home or community-based services, or close the case with no services provided.

<sup>19</sup> It would be possible to incorporate the "risk model" of Drake et al. (2011) by allowing the continuum of severities to differ by race.

given the signal  $S$  is normal with mean  $(1 - \beta)\mu + \beta S$  and variance  $(1 - \beta)\sigma_Z^2$ , where  $\beta = \sigma_Z^2 / (\sigma_Z^2 + \sigma_\varepsilon^2)$ . The higher the variance of the noise ( $\sigma_\varepsilon^2$ ), the lower the weight the child welfare worker places on the signal and the higher the weight she places on the population's expected severity. For simplicity, it is assumed that  $\varepsilon = 0$  for white children. Therefore, for white children  $\beta = 1$  and the signal perfectly indicates the maltreatment severity. However, for black children  $\beta < 1$  and the white child welfare worker estimates the severity of maltreatment as a weighted average of the signal and the black population mean.

The mean of the updated distribution shows the source of potential statistical discrimination. As long as  $\beta_{black} < \beta_{white}$ , the white caseworker places less weight on the signal obtained from the investigation relative to what she knows about the severity of risks facing the children of black families in maltreatment investigations in the population on average. If the information gathered during the investigation of a black family is noisier than is the information gathered during the investigation of a white family, then a black child and a white child can be interpreted as facing different severities of risk even if they produce identical signals and their respective racial groups face identical severities on average.

Children derive utility from the consumption of goods, but also from the consumption of a safe living environment. It is assumed the two utilities are separable, allowing a focus on the safe living environment component. A child with severity  $Z$  has utility  $-aZ$  if not removed from the home, and has utility  $-b$  if removed from the home, where  $b$  is the “cost” of a foster care placement. A child with maltreatment severity  $Z$

benefits  $aZ - b$  from a foster care placement. Given the level of  $Z$ , the caseworker knows the value of removing the child from her home.

The investigator is assumed to be benevolent and decides about removing a child in order to maximize each child's expected benefit from leaving an abusive or neglectful household. The expected benefit the caseworker expects a child with signal  $S$  to receive is

$$EB(S) = aE(Z | S) - b = a[(1 - \beta)\mu + \beta S] - b \quad (2)$$

A benevolent child welfare worker seeks to set  $S^*$  (the threshold signal) so as to maximize the expected benefit in the population of potentially maltreated children. The optimal  $S^*$  is obtained by setting the above equation equal to zero.

$$S^{*opt} = \frac{b - a(1 - \beta)\mu}{a\beta} \quad (3)$$

Therefore, the social worker will remove all black children with a signal  $S > S^*$ . For white children, since  $\beta = 1$ , the threshold is set at  $Z^* = b/a$  and the social worker will remove white children with  $Z > Z^*$ .

If black children are placed in foster care at a higher rate than similar white children, it must be true that  $Z^* > S^*$ . The threshold set by the social worker depends on her ability to diagnose the child's maltreatment severity. An increase in the noise of the signal can either increase or decrease the threshold, depending on how the average gross benefit from removing a child from the home  $a\mu$  compares with the cost  $b$ . From equation (3) above, we know that  $(\partial S^{*opt} / \partial \beta) = (a\mu - b) / a\beta^2$ . When  $a\mu > b$ , the average child in the population benefits from a service, and the threshold set by the social worker decreases with the noise of the signal. The next section shows that the data are consistent with this story: caseworkers believe foster care provides a benefit to the average

neglected or abused child, so noisy signals lead to more black children being placed in foster care. It is important to note that the race of the social workers will be irrelevant when their beliefs about group averages are accurate (Berger et al., 2005). In this case social workers of the same race as the family they investigate will be no more likely to apply racial bias than social workers of a different race (Berger et al., 2005).

## 2.4 Data

The National Child Abuse and Neglect Data System (NCANDS) is one of the few data sets that provide information on child welfare decision-making. The federally-mandated NCANDS data includes a state summary file and a restricted use child-level file. The child file includes information on the demographics of the child and perpetrator, risk factors, investigation dispositions, and services provided (NCANDS, 2010).

The NCANDS data do not cover the nation evenly. While some states submitted child files as early as 1995, the majority of states did not begin submitting child files until 2004. The empirical analysis here uses the data from the years 2000 through 2010 and is restricted to substantiated cases of maltreatment.<sup>20</sup> States only have the legal right to place a child in foster care for a substantiated investigation of abuse or neglect. The unit of analysis is a unique report-child pair. Following previous research using NCANDS (Knott and Donovan, 2010; Bhatti-Sinclair and Sutcliffe, 2012), for families with more than one investigation or with more than one child investigated, a single report-child pair was randomly selected to avoid placing too much weight on families with multiple observations.

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<sup>20</sup> Observations where maltreatment resulted in the child's death were excluded from the analysis since there is no placement decision.

There is a substantial amount of missing data in the NCANDS. After case-wise deletion for the main variables of interest, Texas dominates the sample from 2000 to 2010.<sup>21</sup> For this reason, the empirical analysis in this paper uses the 464,552 valid observations from 2000 to 2010 from Texas. Although the results here cannot be generalized to the national level, the focus on Texas has the advantages of removing empirical problems stemming from the cross-state variation in child welfare policies.

The dependent variable is a binary outcome indicating a foster care placement.<sup>22</sup> Figure 2.1 describes foster care placements in Texas from 2000 to 2010. Across the entire time period, the average percentage of cases resulting in a placement is 15.9%. The percentage of substantiated cases resulting in a foster care placement increases from 16.4% in 2000 to its peak of 18.6% in 2005; since 2005 there was a general decline in placements until 2010 when the percentage of placements increases again. Figure 2.2 shows the decline of placements in Texas from 2005 to 2010 coincides with national trends.

Figure 2.1 also shows foster care placements by race. The year-to-year patterns are echoed in the figures for black, Hispanic, and white children. The data show black children are the most likely to be placed in foster care and white children are more likely to be placed than Hispanic children.

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<sup>21</sup> Texas also dominates the relevant sample when considering individual years.

<sup>22</sup> The NCANDS documentation defines foster care services as “services or activities associated with 24-hour substitute care for all children placed away from their parents or guardians and for whom the State agency has placement and care responsibility” (NCANDS, 2010 p. 30).

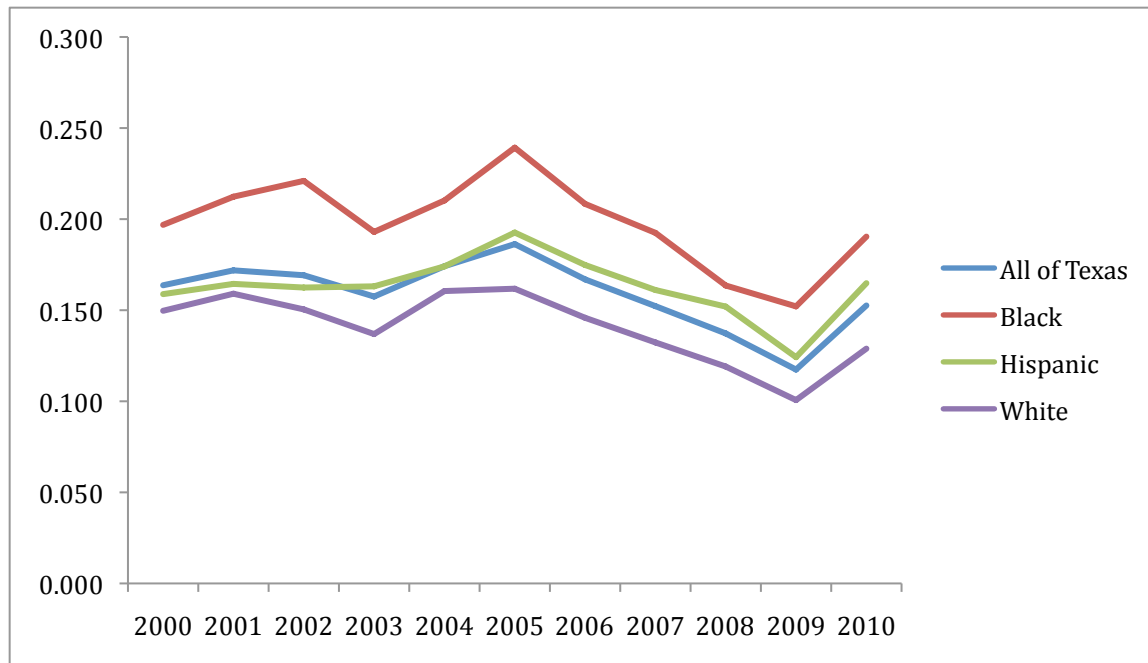


Figure 2.1: Proportion of Substantiated Child Maltreatment Cases with a Foster Care Placement

Notes: Source: National Child Abuse and Neglect Data System, 2000 - 2010. Black: black non-Hispanic; White: white non-Hispanic.

Independent variables include child's age, gender, and race, and whether the alleged maltreatment has an official report source. The additional child, caretaker, economic, and case characteristics are factors related to the risk of future maltreatment.<sup>23</sup> The child risk factors are whether the child is emotionally disturbed, has behavioral problems, and has medical problems. Being emotionally disturbed requires a clinical diagnosis. The caretaker characteristics are indicators for being emotionally disturbed, having medical problems, and suffering from alcohol or drug abuse. Economic risk factors are whether the family suffers from financial problems or receives public assistance. The case characteristics are indicators for the occurrence of physical or sexual

<sup>23</sup> See appendix for detailed definitions of the independent variables.



abuse and the caretaker being a prior abuser. Except for the child's age, all regressors are binary.

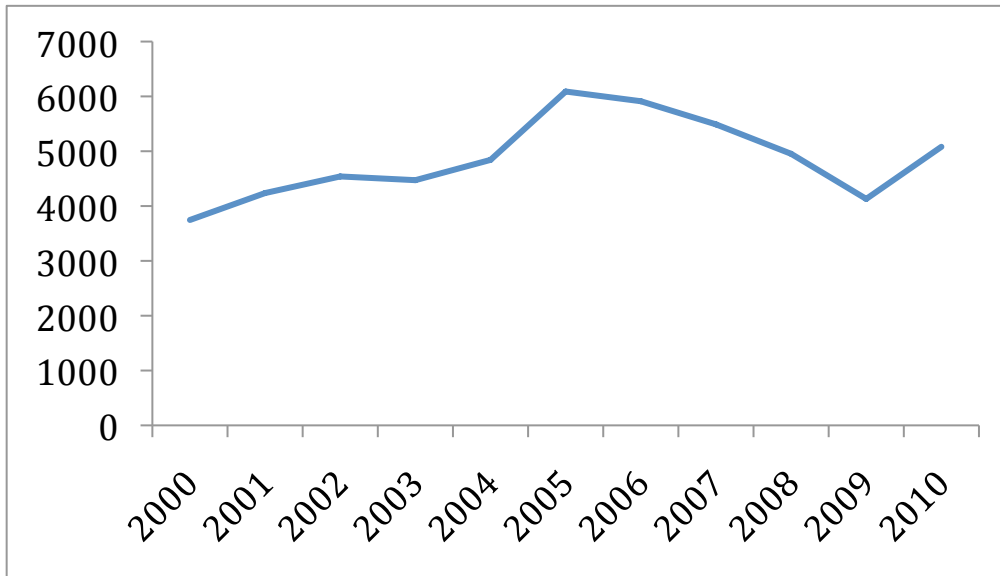


Figure 2.2: Number of Children Entering Foster Care in Texas from 2000 to 2010.

Notes: Source: National Child Abuse and Neglect Data System, 2000 – 2010

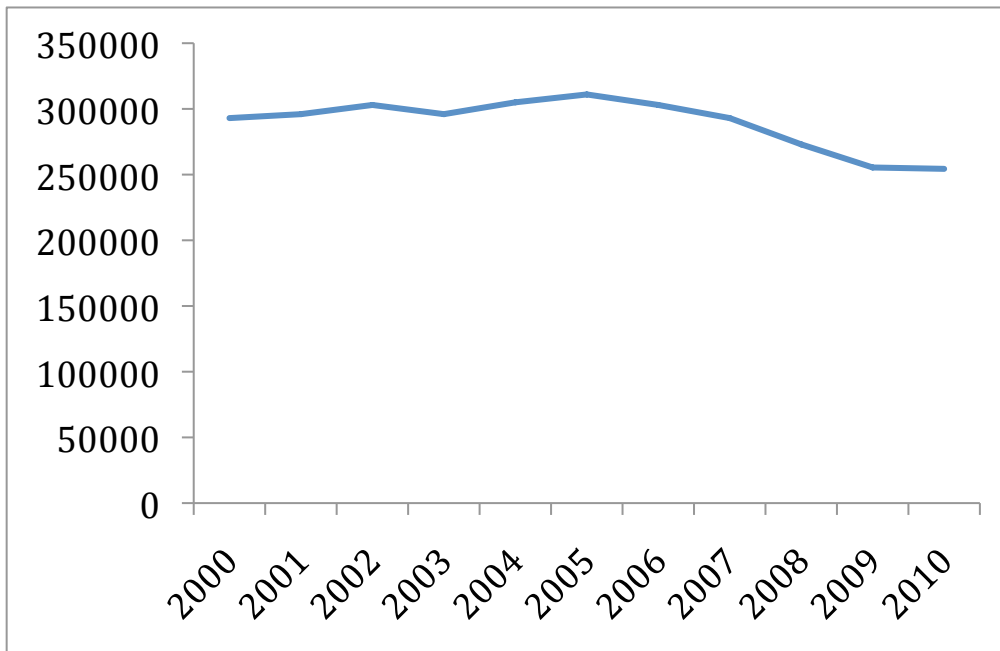


Figure 2.3: Number of Children Entering Foster Care in the United States from 2000 to 2010.

Notes: Source: Adoption and Foster Care Analysis Reporting System (AFACRS), 2000 – 2010 (US DHHS, 2012).

Tables 2.1 and 2.2 describe the independent variables for the substantiated cases in which the child was not placed in foster care. The data show all caretaker risk factors, and the economic risk factor of financial problems are most prevalent in cases involving white children. The descriptive statistics indicate that a greater proportion of white children experience these risk factors.

Tables 2.3 and 2.4 provide descriptive statistics for only those cases resulting in a foster care placement. When compared to the children in substantiated cases who were not placed, those who were placed in foster care experience a greater proportion of risk factors. Again, it is families with white children who experience the greatest proportion of caretaker risk factors and financial problems. If black children experience similar (or fewer) risks than other children but are placed in foster care at a higher rate, then it seems likely that social workers are interpreting risk factors differently depending on the race of the child.

Tables 2.1 - 2.4 show black children involved in substantiated cases of maltreatment experience fewer risk factors than white children, and those black children who are placed in foster care also experience fewer risk factors than white children who are placed in foster care. If risk factors are what drive the foster care placement decisions, the descriptive analysis suggests black children should not be more likely than white children to be placed in foster care, but they are.

Racially-biased decision-making may be the cause of the racial disparities in foster care placements. Cultural competence training seeks to eliminate this racially-biased decision-making. Although it is difficult to estimate the true effects of cultural competence training, the results find a correlation between the implementation of the

training program and a decrease in the racial disparities in foster care placements. The analysis here is limited by data availability.

Table 2.1: Descriptive Statistics of Independent Variables for Children not Placed in Foster Care.

	Full Sample N=285,799		Black N=50,245	
	Mean	Std. Dev.	Mean	Std. Dev.
Child Characteristics:				
Age	6.419	5.041	6.338	5.062
Female	0.534	0.499	0.511	0.500
Black	0.176	0.381		
Hispanic	0.430	0.495		
White	0.371	0.483		
Other Race	0.023	0.151		
Child Risk Factors:				
Emotionally Disturbed	0.004	0.067	0.004	0.061
Behavioral Problems	0.031	0.172	0.035	0.184
Medical Problems	0.017	0.129	0.020	0.140
Caretaker Risk Factors:				
Alcohol Abuse	0.107	0.309	0.051	0.221
Drug Abuse	0.238	0.426	0.208	0.406
Emotionally Disturbed	0.048	0.214	0.039	0.192
Medical Problems	0.025	0.155	0.020	0.140
Economic Risk Factors:				
Financial Problems	0.128	0.335	0.113	0.317
Public Assistance	0.278	0.448	0.276	0.447
Case Characteristics:				
Physical Abuse Occurred	0.407	0.491	0.470	0.499
Sexual Abuse Occurred	0.196	0.397	0.153	0.360
Perpetrator is a Prior Abuser	0.172	0.377	0.180	0.384
Official Report Source	0.657	0.475	0.723	0.447
Post 2005	0.527	0.499	0.505	0.500

Notes: Source: NCANDS, 2000 – 2010. Due to the large sample sizes all racial differences in proportions are statistically significant at 0.10 confidence level. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

Table 2.2: Descriptive Statistics of Independent Variables for Children not Placed in Foster Care.

	Hispanic N=122,869		White N=105,980	
	Mean	Std. Dev.	Mean	Std. Dev.
Child Characteristics:				
Age	6.370	5.000	6.576	5.071
Female	0.547	0.498	0.533	0.499
Child Risk Factors:				
Emotionally Disturbed	0.003	0.053	0.007	0.083
Behavioral Problems	0.027	0.161	0.033	0.180
Medical Problems	0.016	0.126	0.017	0.130
Caretaker Risk Factors:				
Alcohol Abuse	0.105	0.306	0.138	0.345
Drug Abuse	0.220	0.415	0.273	0.446
Emotionally Disturbed	0.034	0.181	0.070	0.255
Medical Problems	0.020	0.139	0.033	0.178
Economic Risk Factors:				
Financial Problems	0.122	0.327	0.147	0.354
Public Assistance	0.319	0.466	0.239	0.426
Case Characteristics:				
Physical Abuse Occurred	0.396	0.489	0.391	0.488
Sexual Abuse Occurred	0.204	0.403	0.211	0.408
Perpetrator is a Prior Abuser	0.164	0.370	0.181	0.385
Official Report Source	0.681	0.466	0.594	0.491
Post 2005	0.552	0.497	0.497	0.500

Notes: Source: NCANDS, 2000 – 2010. Due to the large sample sizes all racial differences in proportions are statistically significant at 0.10 confidence level. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

Table 2.3: Descriptive Statistics of Independent Variables for Children Placed in Foster Care.

	Full Sample N=53,492		Black N=12,523	
	Mean	Std. Dev.	Mean	Std. Dev.
Child Characteristics:				
Age	5.064	5.470	5.055	5.557
Female	0.501	0.500	0.487	0.500
Black	0.234	0.423		
Hispanic	0.351	0.477		
White	0.395	0.489		
Other Race	0.019	0.138		
Child Risk Factors:				
Emotionally Disturbed	0.011	0.106	0.010	0.099
Behavioral Problems	0.039	0.195	0.042	0.202
Medical Problems	0.022	0.148	0.026	0.160
<i>Caretaker Risk Factors</i>				
Alcohol Abuse	0.170	0.376	0.111	0.314
Drug Abuse	0.465	0.499	0.430	0.495
Emotionally Disturbed	0.103	0.304	0.089	0.285
Medical Problems	0.055	0.228	0.053	0.224
Economic Risk Factors:				
Financial Problems	0.300	0.458	0.278	0.448
Public Assistance	0.409	0.492	0.394	0.489
Case Characteristics:				
Physical Abuse Occurred	0.432	0.495	0.452	0.498
Sexual Abuse Occurred	0.105	0.307	0.069	0.253
Perpetrator is a Prior Abuser	0.353	0.478	0.378	0.485
Official Report Source	0.706	0.455	0.741	0.438
Post 2005	0.478	0.500	0.449	0.497

Notes: Source: NCANDS, 2000 – 2010. Due to the large sample sizes all racial differences in proportions are statistically significant at 0.10 confidence level. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

Table 2.4: Descriptive Statistics of Independent Variables for Children Placed in Foster Care.

	Hispanic N=18,777		White N=21,151	
	Mean	Std. Dev.	Mean	Std. Dev.
Child Characteristics:				
Age	4.679	5.305	5.478	5.536
Female	0.513	0.500	0.500	0.500
Child Risk Factors:				
Emotionally Disturbed	0.007	0.083	0.017	0.128
Behavioral Problems	0.030	0.170	0.048	0.213
Medical Problems	0.022	0.146	0.021	0.144
Caretaker Risk Factors:				
Alcohol Abuse	0.177	0.382	0.200	0.400
Drug Abuse	0.452	0.498	0.496	0.500
Emotionally Disturbed	0.080	0.272	0.131	0.338
Medical Problems	0.045	0.208	0.065	0.246
Economic Risk Factors:				
Financial Problems	0.298	0.457	0.316	0.465
Public Assistance	0.455	0.498	0.383	0.486
Case Characteristics:				
Physical Abuse Occurred	0.430	0.495	0.419	0.493
Sexual Abuse Occurred	0.107	0.310	0.126	0.332
Perpetrator is a Prior Abuser	0.362	0.481	0.331	0.471
Official Report Source	0.731	0.444	0.661	0.473
Post 2005	0.494	0.500	0.473	0.499

Notes: Source: NCANDS, 2000 – 2010. Due to the large sample sizes all racial differences in proportions are statistically significant at 0.10 confidence level. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

## 2.5 Methods

I use a binary logit model to estimate the probability of a foster care placement. Using the full sample and a regression model with race dummy variables estimates the effect of race on the placement decision, holding all other regressors constant. The

results of this model, whose estimated marginal effects are shown in Table 2.5, column (1), show that racial differences exist in foster care placements and lend support to the hypothesis that there is statistical discrimination in placement. To capture statistical discrimination in an empirical model, I estimate separate regressions using race subsamples of the data. The results from these regressions models are shown in Table 2.5, columns (2), (3), and (4). The separate regressions by race permit a more comprehensive analysis of which factors are most influential in the foster care placement decision, and whether these influences vary for children of different races. If social workers apply stereotypes I expect the estimated marginal effects of the risk factor variables in the black regressions to be higher than the white ones. If stereotype application is the cause of different estimated marginal effects across race in the period before mandatory cultural competence training (2000 – 2005), I expect convergence in the estimates in the period following the implementation of the training (2006 – 2010).

There is a literature on the potential problems with comparing coefficients from nonlinear models across groups (see Allison, 1999; Williams, 2009; 2010). Heteroskedasticity can create bias in the estimated coefficients from nonlinear models, making group comparisons unreliable. The problem arises due to each estimated coefficient containing its own scaling effect. Heterogeneous choice (also known as location-scale) models have been developed in an attempt to solve this problem. I do not use a heterogeneous choice model in this paper for three reasons. First, without a highly accurate model for the heteroskedasticity, heterogeneous choice models tend to create more biased results than does ignoring the potential variation in the error term (Keele and Park, 2006). In the words of Keele and Park (2006, p.35): “...the heteroskedastic probit

model is too unsound for use in research applications. The estimated sampling variability and coverage rates were less than ideal even under a perfect specification. Measurement error in the variance model induced significant amounts of bias, and almost any specification error causes the estimates of both the choice and variance model to be completely unreliable.” Second, while the comparison of estimated coefficients from nonlinear models across groups can be problematic, the comparison of marginal effects is reasonable because the marginal effects implicitly take care of the scaling issue. Finally, this paper uses very large samples that facilitate accurate estimation of standard errors.

Table 2.5: Logit Marginal Effects for Foster Care Placement in Texas from 2000 – 2010.

	Full Sample (1) Marginal Effect (Std. Error)	Black Children (2) Marginal Effect (Std. Error)	Hispanic Children (3) Marginal Effect (Std. Error)	White Children (4) Marginal Effect (Std. Error)
Child Characteristics:				
Age	-0.0313*** (0.0004)	-0.0373*** (0.0010)	-0.0296*** (0.0006)	-0.0298*** (0.0007)
Female	0.0008 (0.0009)	0.0009 (0.0024)	0.0034*** (0.0012)	-0.0015 (0.0015)
Black	0.0319*** (0.0017)			
Hispanic	-0.0233*** (0.0013)			
Other Race	-0.0176*** (0.0039)			
Child Risk Factors:				
Emotionally Disturbed	0.1214*** (0.0097)	0.1410*** (0.0251)	0.1010*** (0.0178)	0.1270* (0.0734)
Behavioral Problems	0.0231*** (0.0037)	0.0219*** (0.0088)	0.0103*** (0.0057)	0.0400 (0.0421)



Medical Problems	-0.0016 (0.0041)	-0.0073 (0.0095)	0.0010 (0.0061)	0.0022 (0.0566)
Caretaker Risk Factors:				
Alcohol Abuse	0.0152*** (0.0018)	0.0338*** (0.0061)	0.0177*** (0.0026)	0.0085 (0.0213)
Drug Abuse	0.0773*** (0.0015)	0.0900*** (0.0040)	0.0676*** (0.0023)	0.0811*** (0.0175)
Emotionally Disturbed	0.0578*** (0.0027)	0.0874*** (0.0075)	0.0575*** (0.0045)	0.0496* (0.0255)
Medical Problems	0.0609*** (0.0037)	0.0967*** (0.0101)	0.0531*** (0.0059)	0.0546 (0.0353)
Economic Risk Factors:				
Financial Problems	0.0817*** (0.0019)	0.0989*** (0.0050)	0.0774*** (0.0029)	0.0769*** (0.0200)
Public Assistance	0.0111*** (0.0014)	-0.0007 (0.0034)	0.0049*** (0.0019)	0.0255 (0.0184)
Case Characteristics:				
Physical Abuse Occurred	-0.0145*** (0.0012)	-0.0410*** (0.0031)	0.0096*** (0.0018)	0.0077 (0.0166)
Sexual Abuse Occurred	-0.0384*** (0.0017)	-0.0809*** (0.0043)	0.0290*** (0.0025)	0.0316 (0.0242)
Perpetrator is a Prior Abuser	0.0962*** (0.0017)	0.1161*** (0.0041)	0.0965*** (0.0025)	0.0842*** (0.0179)
Official Report Source	0.0310*** (0.0012)	0.0153*** (0.0034)	0.0306*** (0.0018)	0.0381** (0.0167)
Sample Information and Model Diagnostics:				
Number of Observations	339,291	62,768	141,646	127,131
Pseudo-R2	0.108	0.113	0.113	0.091
Mean Predicted Prob.	0.159	0.201	0.134	0.167

% Correctly Predicted	84.50	0.808	0.870	0.835
% 0s Correctly Predicted	85.20	82.02	87.47	84.06
% 1s Correctly Predicted	56.40	57.88	56.84	54.98

Notes: Source: NCANDS, 2000 – 2010. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The marginal effects are average marginal effects. Delta method standard errors are in parentheses. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

## 2.6 Results

### 2.6.1 Using the Full Sample with Race Dummy Variables

Table 2.5, column (1) presents the estimated marginal effects from using the full sample of data and race dummy variables.<sup>24</sup> The mean predicted probability of a foster care placement is 0.159. All else equal, the probability of a black child being placed in foster care is 3.2 percentage points higher than for a white child, while the probability is 2.3 percentage points lower for a Hispanic child relative to a white child.<sup>25</sup> As noted above, the approach using race dummy variables does not help identify possible sources of these racial disparities. While the results from the full model do not identify the sources of racial disparities in foster care placement, they do indicate disparities exist even after controlling for a substantial number of risk factors. These racial disparities could be the result of statistical discrimination.

When considering all races, older children are less likely to experience a foster care placement. A one-year increase in a child's age decreases the probability of

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<sup>24</sup> All of the regression models in this paper control for year-effects. In a sensitivity analysis, age-squared was included as a regressor with no meaningful changes to the results.

<sup>25</sup> Consider 10,000 substantiated maltreatment cases involving white children and 10,000 substantiated maltreatment cases involving black children: 320 more black children would be placed in foster care simply because of race.

placement by 3.1 percentage points. There is no statistically significant difference in the probability of placement between males and females.

The estimates show the presence of child emotional and behavioral problems is associated with an increase in the probability of foster care placement. This result is similar to findings by Knott and Donovan (2010) and Bhatti-Sinclair and Sutcliffe (2012) who both use only a single year of the NCANDS and samples that include states in addition to Texas (although by far the greatest number of cases are from Texas). Using the 2005 NCANDS, Knott and Donovan (2010) estimate odds ratios of 2.2 and 1.3 for the child characteristics of having emotional and behavioral problems. Using the 2009 NCANDS, Bhatti-Sinclair and Sutcliffe (2012) estimate odds ratios for the same variables of 4.4, and 2.1.<sup>26</sup> A very small percentage of children in Texas are reported to be suffering from child risk factors. In the full sample, 3.4% of children are reported to have behavioral problems, and only 0.5% are reported to have emotional problems.<sup>27</sup> There are two non-mutually exclusive possible explanations for this finding. Either very few children in Texas involved in substantiated cases of maltreatment suffer from these problems, and/or there are very few children in Texas diagnosed with these problems. With such little variation in these characteristics, estimates should be interpreted with caution.

The signs of the effect of caretaker, economic, and case characteristics are the same as those estimated in previous research, but some of the magnitudes are quite

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<sup>26</sup> While both previous studies use samples dominated by Texas, there is substantial variation between the two in the other included states. This might be responsible for some of the differences in the results across the two papers.

<sup>27</sup> In the NCANDS, having an emotional problem (i.e. being emotionally disturbed) requires a clinical diagnosis; see appendix for further details.

different. Most notably, the presence of caretaker drug problems are estimated as having much larger, positive effects here than in previous empirical work. In Texas, the probability of being placed in foster care is 7.7 percentage points higher for a child whose caretaker suffers from drug problems relative to cases in which the caretaker does not suffer from drug problems. Knott and Donovan (2010) and Bhatti-Sinclair and Sutcliffe (2012) estimate odds ratios for caretaker drug problems of 1.46 and 1.18 respectively; here, when only Texas is considered, the odds ratio is 1.82.

The full model here is very similar to the regression models used by Knott and Donovan (2010) and Bhatti-Sinclair and Sutcliffe (2012); however, the variation across state and time in samples makes direct comparison of results difficult. These findings suggest that decision-makers in Texas are quite sensitive to caretaker drug abuse (as well as financial problems) when considering foster care placements. In the full regression model these effects are held constant across races (and all other characteristics). The next section presents results from separate regressions by race to examine whether there are racial differences in the effects of risk factors on foster care placements.

#### 2.6.2 Explaining Racial Disparities in Foster Care Placement

Columns (2), (3), and (4) of Table 2.5 show the estimated marginal effects from the regressions using samples consisting of exclusively black, Hispanic, and white children. These results help identify the potential sources of racial disparities in foster care placements by allowing the effect of each regressor to vary across race. The mean predicted probability of a foster care placement is 0.201 for black children, 0.134 for Hispanic children, and 0.167 for white children.

As shown in Figure 2.4, the factors determined to be driving the result of black children facing the highest probability of placement are caretaker risk factors, financial problems, and the perpetrator being a prior abuser. Black children are more likely to be placed in foster care than white or Hispanic children because of the drug abuse, medical, emotional, and financial problems of caretakers. These varying effects suggest that while black children don't experience these risk factors at a higher rate than do children of other races, decision-makers—social workers—associate these characteristics with a greater risk for future maltreatment when investigating cases involving black children compared to children of other races, resulting in more placements of black children, even when characteristics are identical across race.

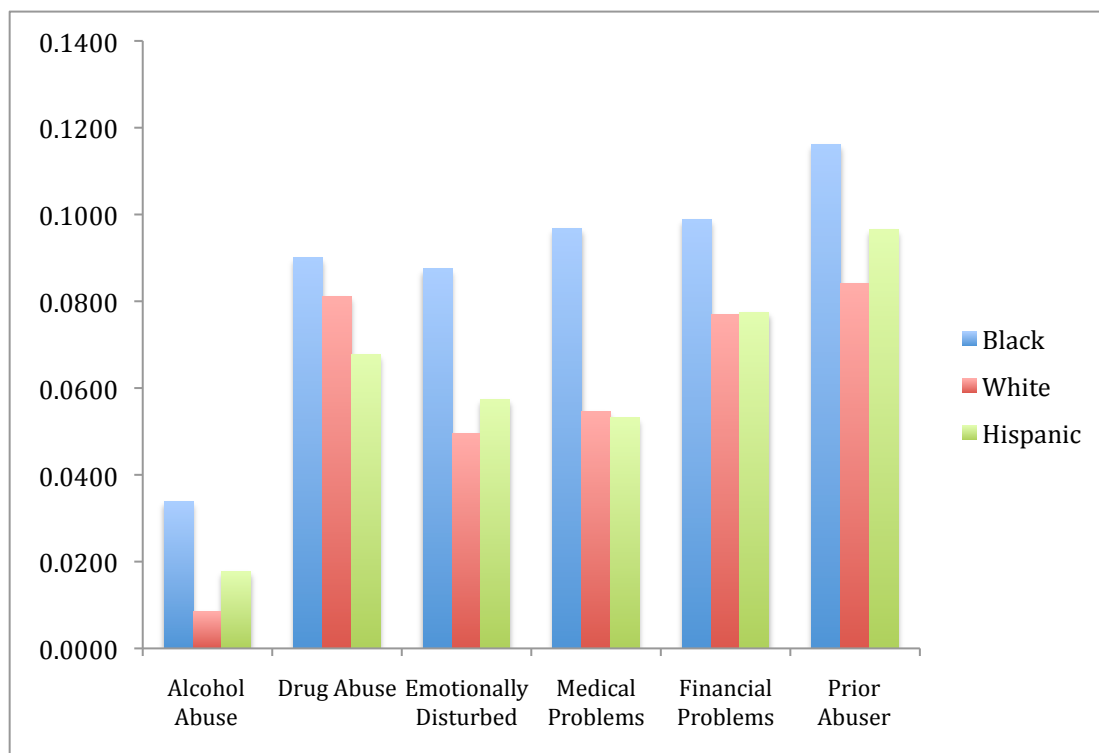


Figure 2.4: Average Marginal Effects of Caretaker Risk Factors, Financial Problems, and the Presence of a Prior Abuser.

Notes: Source: NCANDS, 2000 – 2010. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic.

### 2.6.3 Child Characteristics

The estimates show that a child having emotional or behavioral problems is associated with an increase in the probability of placement for all races; the effects are smallest for Hispanic children. The presence of child emotional problems increases the probability of placement by 10.1 percentage points for Hispanic children; the effect is 14.1 and 12.7 percentage points for black and white children, respectively. The effect of behavioral problems is largest for white children. The probability of placement increases by 4.0 percentage points for white children with behavioral problems, compared to 2.2 and 1.0 percentage points for black and Hispanic children, respectively. Overall, Hispanic children face the lowest probability of a foster care placement. This is consistent with the findings by Lu et al. (2004) and the “Hispanic Paradox” commonly found in the health literature. Despite a tendency to have low socioeconomic status, Hispanic families often have better health outcomes than do families of other races with similar SES, perhaps due to cultural and social protective factors (Drake et al., 2011).

### 2.6.4 Caretaker Characteristics

The presence of each caretaker risk factor increases the probability of placement across races. For each risk factor, the effect is greatest for black children (as seen in Figure 2.4). Black children are more likely to be placed in foster care than Hispanic or white children when their caretaker suffers from alcohol or drug abuse, is emotionally disturbed, or has medical problems. These differences in the effects of caretaker risk factors highlight an important source for racial disparities in foster care placements.

Alcohol abuse has the smallest effect on placement. When the primary caretaker suffers from alcohol problems, the probability of being placed in foster care increases by 3.4, 1.8, and 1.0 percentage point for black, Hispanic, and white children respectively.

When the caretaker of a black child suffers from drug problems, the probability of being placed in foster care increases by 9.0 percentage points. The size of the effect is 8.1 and 6.8 for Hispanic and white children, respectively. The racial disparities are even larger for the effects of caretaker emotional and medical problems. The probability of placement increases by 8.7 percentage points for black children whose caretaker is emotionally disturbed. The effect is 5.8 for Hispanic children and 5.0 for white children. Medical problems are another influential caretaker characteristic contributing to the racial disparities in foster care placements in Texas. The size of the effect for black children (9.7 percentage points) is close to double what it is for Hispanic (5.3) and white children (5.5).

#### 2.6.5 Economic Characteristics

Financial problems have the largest positive effect on the probability of foster care placement for black children. This is another variable contributing to the racial disparities in out of home placements in Texas. For the family of a black child, financial problems increase the probability of foster care placement by 9.9 percentage points. The size of the effect is 7.7 percentage points for families of Hispanic and white children. This result shows that proportionally more black children than Hispanic or white children are placed in foster care on account of financial problems. The descriptive statistics show black children do not experience financial problems at a higher rate than children of other

racess; however, the effect of financial problems is largest for black families. Statistical discrimination is a possible explanation for this finding. Social workers might believe (accurately or not) that black children living in families with financial problems are at a greater risk of future maltreatment than are children of other races. This belief will receive more weight in the social worker's placement decision in the presence of noisy information stemming from cultural differences.

#### 2.6.6 Case Characteristics

The characteristics of the cases, including the presence of physical or sexual abuse, the reporting source, and whether the perpetrator is a prior abuser, were examined for their relationship to race. Counter intuitively, the occurrence of physical or sexual abuse decreases the probability of placement for black children by 4.1 and 8.1 percentage points respectively. Previous research estimates a negative relationship between sexual abuse and foster care placement (Grogan-Kaylor, 2000; Needell et al., 2003; Bhatti-Sinclair and Sutcliffe, 2012). Both physical and sexual abuse increase the probability of placement for Hispanic and white children. The underlying reason why physical and sexual abuse decreases the probability of placement for black children and increases the probability of placement for Hispanic and white children is unclear; however, the results suggest placement decisions are being made differently for children of different races.

The results also show a case with an official report source has an increased probability of a foster care placement relative to a case reported by an unofficial source. For this variable, the effect is the largest for white children. The descriptive statistics show the proportion of cases with an official report source is the highest for black



children. Since an official report source is more common for black children, decision makers might be less sensitive to this characteristic when considering a foster care placement for a black child.

Black children are more likely than Hispanic or white children to be placed in foster care when the perpetrator is a prior abuser. For black children, the probability of placement increases 11.6 percentage points when the perpetrator is a prior abuser. The size of the effect is 9.7 and 8.4 for Hispanic and white children, respectively. A possible explanation for this finding could be that a prior abuser is more likely to be living in the household of black child, and therefore the child is at a greater risk for future maltreatment. Another reason for the disparity could stem from social workers' beliefs regarding the effectiveness of in-home services. If a social worker believes prior abusers in a black family will be less responsive to in-home services, they might be more inclined to remove the child from their home to prevent future abuse or neglect.

Results from the regression model that uses the full sample of data and race dummy variables show racial disparities in foster care placements but cannot identify sources of these disparities. The separate regressions by child's race allow the effect of each regressor to vary across race, and therefore, the results show the characteristics most responsible for the racial differences in foster care placements. As previously noted, black children experience the highest rate of foster care placement. My analysis demonstrates that the manner in which decision-makers respond to the presence of caretaker drug abuse, caretaker medical problems, financial problems, and the occurrence of prior abuse is the main contributor to black children facing the highest probability of foster care placement.

### 2.6.7 Analysis Pre and Post-2005

Reducing racial disproportionality throughout the state's child welfare system was the primary objective of the cultural competence training implemented in Texas in 2005. "In the Texas CPS system, disproportionality means a higher percentage of African-American children are removed from their homes, a lower percentage are successfully reunited with their families, and a higher percentage age out of foster care" (Texas DFPS, 2006, p.12).

Figure 2.5 shows a clear decline in the black-white disparity in foster care placements for the three years following the passing of Senate Bill 6. While these results cannot prove the training caused the decline in racial disparities, they do show a substantial decrease in disparities occurred in the time period directly following the policy's implementation.

Tables 2.6 and 2.7 show regression estimates using separate samples from the pre- and post-training periods can identify possible sources of the shrinking disparity. Caretaker risk factors, financial problems, and the presence of a prior abuser are the factors that contribute most to racial disparities in foster care placements in Texas. The estimated marginal effects for these risk factors are higher for black children than white children in both time periods.<sup>28</sup> While the presence of these characteristics (minus caretaker drug abuse) contribute to the black-white placement disparity in both time periods, Figures 2.6 and 2.7 show how these contributions changed over the two periods. The presence of caretaker alcohol abuse, drug abuse, and emotional problems contribute less to the black-white placement disparity in the post-training period compared to the

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<sup>28</sup> Note all characteristics here are for the caretaker.

pre-training period. The presence of caretaker medical problems, financial problems, and the perpetrator being a prior abuser contribute more to the black-white placement disparity in the post-training period. The decline in the black-white placement disparity in the period following the implementation of cultural competence training is associated with black children being less likely to be placed in foster care because of caretaker substance abuse.

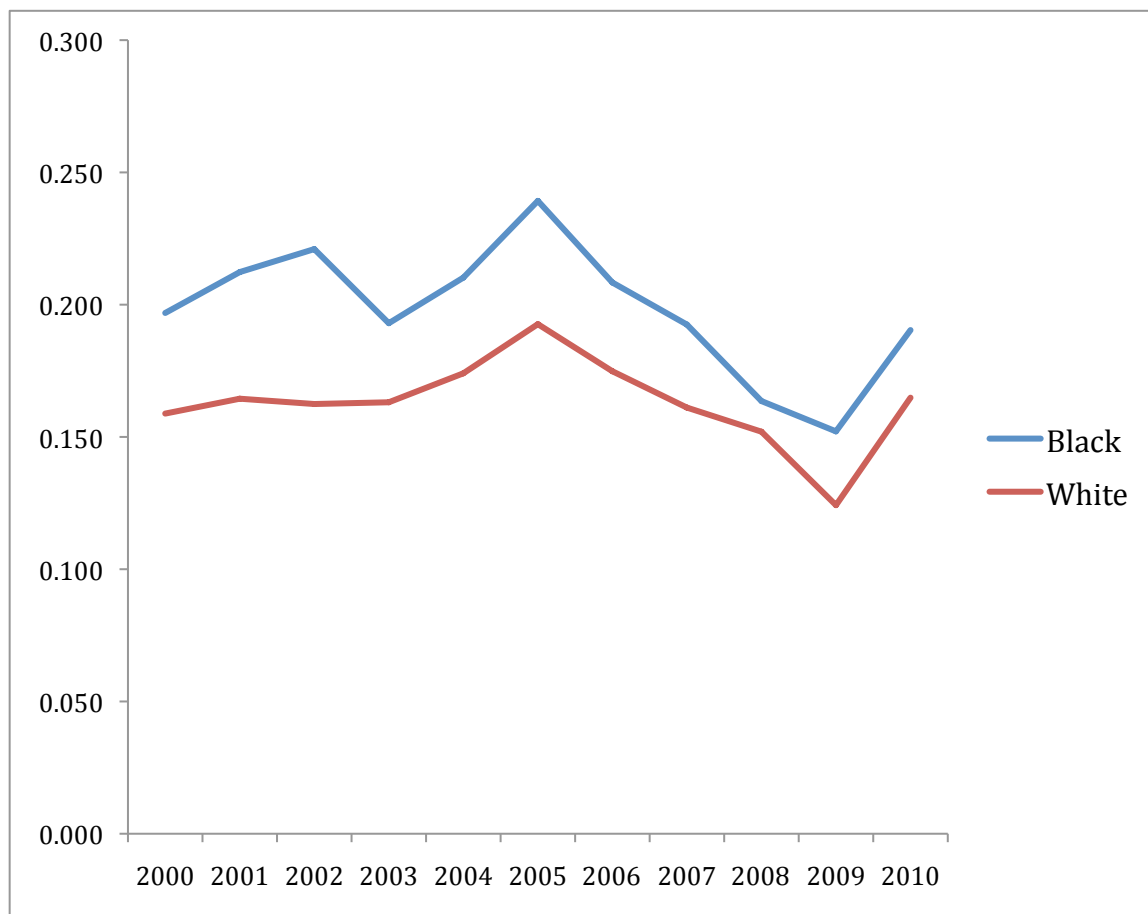


Figure 2.5: Predicted Probability of Foster Care Placement in Texas from 2000 – 2010.

Notes: Source: NCANDS, 2000 – 2010. Logit model predicted probabilities. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic.

Table 2.6: Logit Marginal Effects for Foster Care Placement in Texas Pre-cultural Competence Training (i.e. 2000 – 2005).

	Full Sample (1) Marginal Effect (Std. Error)	Black Children (2) Marginal Effect (Std. Error)	Hispanic Children (3) Marginal Effect (Std. Error)	White Children (4) Marginal Effect (Std. Error)
Child Characteristics:				
Age	-0.0345*** (0.0006)	-0.0408*** (0.0014)	-0.0317*** (0.0009)	-0.0336*** (0.0010)
Female	0.004*** (0.001)	0.006** (0.003)	0.005** (0.002)	0.001 (0.002)
Black	0.0427*** (0.0026)			
Hispanic	-0.0151*** (0.0020)			
Other Race	-0.0016 (0.0075)			
Child Risk Factors:				
Emotionally Disturbed	0.1068*** (0.0098)	0.1245*** (0.0255)	0.0820*** (0.0179)	0.1104*** (0.0134)
Behavioral Problems	0.0679*** (0.0048)	0.0782*** (0.0112)	0.0501*** (0.0079)	0.0830*** (0.0075)
Medical Problems	0.0391*** (0.0057)	0.0373*** (0.0128)	0.0393*** (0.0087)	0.0379*** (0.0094)
Caretaker Risk Factors:				
Alcohol Abuse	0.0243*** (0.0027)	0.0482*** (0.0085)	0.0208*** (0.0039)	0.0208*** (0.0039)
Drug Abuse	0.0874*** (0.0024)	0.1063*** (0.0061)	0.0792*** (0.0038)	0.0866*** (0.0037)
Emotionally Disturbed	0.0697*** (0.0041)	0.1046*** (0.0114)	0.0702*** (0.0074)	0.0583*** (0.0056)
Medical Problems	0.0680*** (0.0053)	0.0908*** (0.0141)	0.0680*** (0.0091)	0.0591*** (0.0075)

Economic Risk Factors:				
Financial Problems	0.0939*** (0.0027)	0.1047*** (0.0068)	0.0960*** (0.0042)	0.0852*** (0.0042)
Public Assistance	0.0083*** (0.0020)	0.0042 (0.0049)	0.0024 (0.0029)	0.0275*** (0.0035)
Case Characteristics:				
Physical Abuse Occurred	-0.0228*** (0.0018)	-0.0523 (0.0045)	0.0166*** (0.0028)	0.0140*** (0.0029)
Sexual Abuse Occurred	-0.0475*** (0.0024)	0.0989*** (0.0061)	0.0365*** (0.0037)	0.0370*** (0.0038)
Perpetrator is a Prior Abuser	0.0865*** (0.0024)	0.0980*** (0.0056)	0.0894*** (0.0039)	0.0772*** (0.0039)
Official Report Source	0.0323*** (0.0018)	0.0211*** (0.0048)	0.0303*** (0.0028)	0.0388*** (0.0028)
Sample Information and Model Diagnostics:				
Number of Observations	163,250	31,763	64,597	64,456
Pseudo-R2	0.119	0.127	0.118	0.108
Mean Predicted Prob.	0.170	0.215	0.143	0.177
% Correctly Predicted	83.35	79.44	85.54	83.02
% 0s Correctly Predicted	84.33	81.10	86.25	83.80
% 1s Correctly Predicted	56.50	58.01	55.57	55.39

Notes: Source: NCANDS, 2000 – 2005. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. The marginal effects are average marginal effects. Delta method standard errors are in parentheses. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

Table 2.7: Logit Marginal Effects for Foster Care Placements in Texas Post-cultural Competence Training (i.e. 2006 – 2010).

	Full Sample (1) Marginal Effect (Std. Error)	Black Children (2) Marginal Effect (Std. Error)	Hispanic Children (3) Marginal Effect (Std. Error)	White Children (4) Marginal Effect (Std. Error)
Child Characteristics:				
Age	-0.0280*** (0.0005)	-0.0328*** (0.0014)	-0.0274*** (0.0008)	-0.0255*** (0.0009)
Female	-0.0036*** (0.0015)	-0.0077* (0.0041)	0.0003 (0.0020)	-0.0060** (0.0027)
Black	0.0218*** (0.0024)			
Hispanic	-0.0309*** (0.0018)			
Other Race	-0.0260*** (0.0044)			
Child Risk Factors:				
Emotionally Disturbed	-0.0809*** (0.0272)	-0.0579 (0.0842)	-0.0250 (0.0831)	-0.1132*** (0.0315)
Behavioral Problems	-0.1043*** (0.0041)	-0.1252*** (0.0105)	-0.0849*** (0.0061)	-0.1190*** (0.0069)
Medical Problems	-0.0926*** (0.0047)	-0.1188*** (0.0113)	-0.0752*** (0.0067)	-0.1010*** (0.0083)
Caretaker Risk Factors:				
Alcohol Abuse	0.0047 (0.0025)	0.0139*** (0.0087)	0.0145*** (0.0036)	-0.0072* (0.0039)
Drug Abuse	0.0677*** (0.0020)	0.0736*** (0.0053)	0.0583*** (0.0028)	0.0747*** (0.0034)
Emotionally Disturbed	0.0492*** (0.0035)	0.0734*** (0.0098)	0.0485*** (0.0057)	0.0442*** (0.0052)
Medical Problems	0.0533*** (0.0050)	0.1001*** (0.0145)	0.0398*** (0.0077)	0.0489*** (0.0077)

Economic Risk Factors:				
Financial Problems	0.0668*** (0.0027)	0.0882*** (0.0073)	0.0588*** (0.0038)	0.0648*** (0.0045)
Public Assistance	0.0138*** (0.0019)	0.0019 (0.0047)	0.0115*** (0.0025)	0.0238*** (0.0034)
Case Characteristics:				
Physical Abuse Occurred	-0.0066*** (0.0017)	-0.0295*** (0.0042)	-0.0038* (0.0023)	-0.0003 (0.0029)
Sexual Abuse Occurred	-0.0286*** (0.0024)	-0.0596*** (0.0063)	-0.0220*** (0.0034)	-0.0242*** (0.0041)
Perpetrator is a Prior Abuser	0.1041*** (0.0023)	0.1345*** (0.0058)	0.1005*** (0.0033)	0.0906*** (0.0038)
Official Report Source	0.0295*** (0.0017)	0.0091** (0.0046)	0.0308*** (0.0023)	0.0373*** (0.0028)
Sample Information and Model Diagnostics:				
Number of Observations	176,041	31,005	77,049	62,675
Pseudo-R2	0.101	0.103	0.110	0.0800
Mean Predicted Prob.	0.145	0.184	0.123	0.1540
% Correctly Predicted	85.65	82.33	88.14	84.13
% 0s Correctly Predicted	86.13	83.18	88.50	84.46
% 1s Correctly Predicted	55.40	57.17	57.50	54.85

Notes: Source: NCANDS, 2000 – 2010. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. The marginal effects are average marginal effects. Delta method standard errors are in parentheses. Black: black non-Hispanic, White: white non-Hispanic, Hispanic: Hispanic of any race, Other Race: any race besides black, white, or Hispanic. Official report source: social services, medical, mental health, legal law-enforcement or criminal justice, and education. Being emotionally disturbed requires a clinical diagnosis.

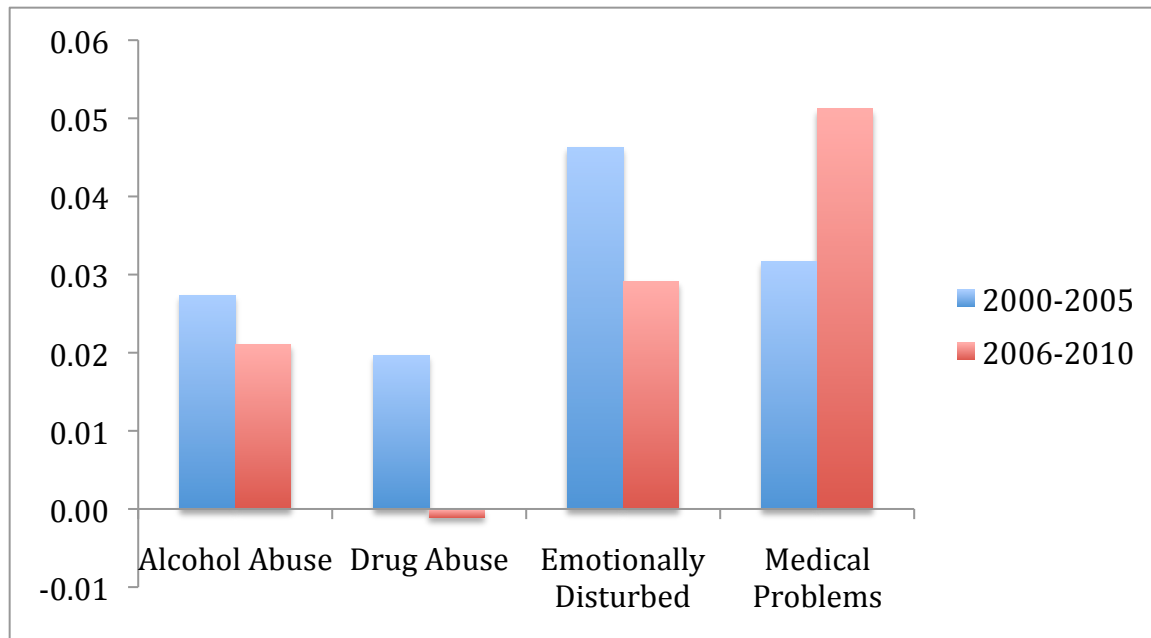


Figure 2.6: The Black-white Difference in the Marginal Effects of Caretaker Risk Factors, Pre- and Post-cultural Competence Training.

Notes: Source: NCANDS, 2000 – 2010. A positive difference occurs when the marginal effect for a black child is higher than the marginal effect for a white child. Marginal effects are average marginal effects.

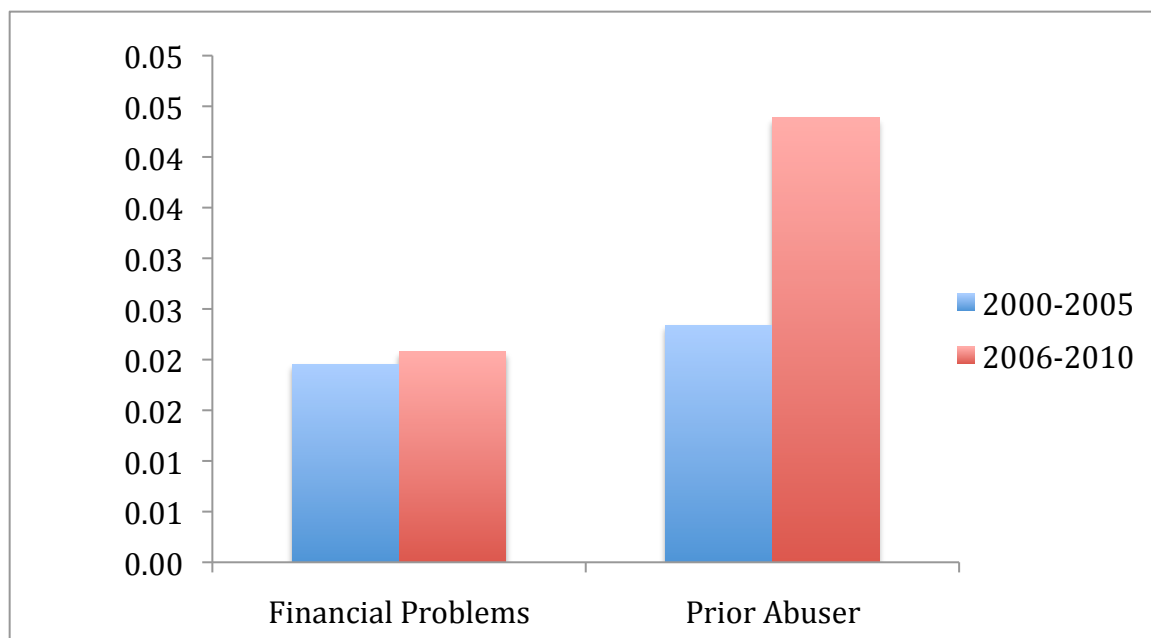


Figure 2.7: The Black-white Difference in Marginal Effects of Financial Problems and the Presence of a Prior Abuser, Pre- and Post-cultural Competence Training.

Notes: Source: NCANDS, 2000 – 2010. A positive difference occurs when the marginal effect for a black child is higher than the marginal effect for a white child. Marginal effects are average marginal effects.



#### 2.6.8 Statistical Discrimination in Foster Care Placements in Texas

This paper's results indicate racial disparities exist in foster care placements in Texas. Caretaker risk factors and financial problems have been identified as the most influential risk factors associated with these disparities. The results here show most risk factors have a varying influence on the decision to place a child in foster care. Statistical discrimination is a possible explanation for these findings. Lacking data on the race of the social worker, it is difficult to test for the presence of statistical discrimination; nonetheless, in 2011, the largest proportion of CPS staff members (41.1%) in Texas was white (DFPS 2012).<sup>29</sup>

The implementation of cultural competence training, and the emphasis placed on its importance, demonstrates that the state of Texas (and many other states) recognizes culturally-biased decision-making as a problem in child maltreatment investigations. The primary objective of cultural competence training is to reduce (and to eliminate) the racial variation in noise accompanying the signal of future maltreatment risk that a social worker discerns during an investigation. Assuming social workers are non-discriminatory, the above results combined with the prevalence of cultural competence training provide evidence that statistical discrimination exists in foster care placement decisions in Texas.

In connection with the above theoretical model, statistical discrimination can occur strictly because of racial differences in the signal/noise ratio perceived by the social worker during the investigation. Racial differences in the continuum of severities need not be present for racial disparities in foster care placements to occur. As long as there is

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<sup>29</sup> 47.7% of Texas CPS supervisors were white.

racial variation in the noise, social workers can make different foster care placement decisions for children who only differ by race. The above model shows more black children will be placed in foster care if their signal is noisier than the signal for an identical white child, and if foster care placement is thought to be beneficial on average for a child involved in a substantiated case of maltreatment. Certainly, the existence of cultural competence training indicates the recognition of that racial disproportionality in placement decisions is influenced by racially biased decision-making. This phenomenon also leads to the plausibility that statistical discrimination is occurring.

If a social worker obtains a signal of future maltreatment risk during an investigation accompanied with equal amounts of noise across races, racial disparities in foster care placements can still occur. There are two possible explanations: either black children on average truly face greater risks than white children, or the social worker believes black children face greater risks than white children. The NCANDS data show black children experience risk factors proportionally less than children of other races. This finding suggests the social worker's perception of risk varies across race, not the presence of actual risk. Unfortunately, the binary nature of the risk variables does not allow for such a distinction to be made. Although the data indicate whether or not a child faces a particular risk, there is no measurement of the level of risk. Following the logic of Drake et al. (2011), it is possible black children are placed in foster care at a higher rate than children of other races because the risks they face are more severe. The NCANDS data does not allow for an analysis of this possibility.

There can also be a combination of racial variation in the noise associated with the signal a social worker obtains during an investigation and in the social worker's

beliefs regarding the severity of the risk of future maltreatment. For example, a white social worker might obtain a noisier signal when investigating a black family relative to a white family. The noisier signal will lead to the social worker placing relatively more weight on his or her beliefs concerning the risk of future maltreatment for black children on average. The white social worker might also believe, accurately or not, that black children on average face a higher risk of future maltreatment than do white children. Racial variation in the noise alone can produce racial disparities in foster care placements. Difference across race in the continuum of expected severities will reinforce these disparities.

## 2.7 Concluding Remarks

Using 2000 to 2010 NCANDS data from Texas, this paper has shown racial disparities are present in foster care placements. Black children are more likely to be placed in foster care when compared to white and Hispanic children. Potential sources for these disparities have been identified. The presence of caretaker drug abuse and financial problems increases the probability of placement in foster care and these effects are the strongest for black children. Caretaker risk factors are responsible for creating the largest racial disparities in foster care placement.

An innovation of this paper is the connection of the theory of statistical discrimination to the decision to place a child in foster care. By estimating separate regressions by race, the results here have shown the effects of numerous characteristics vary substantially across race. This finding suggests children of different races are not being treated equally, even when they share similar characteristics; this might be due to

statistical discrimination. Cultural competence training is a methodology to ameliorate statistical discrimination and needs continued attention, especially in understanding how problems with addiction and poverty contribute to the “stereotype application.”

A weakness of this paper is that the results cannot be generalized to locations outside of Texas. Another limitation is that there is no data available to control for caseworker characteristics. At a minimum, knowing the caseworker’s race would help to identify statistical discrimination more accurately. The binary nature of the risk factor control variables also makes identifying statistical discrimination difficult. The racial disparities found in this paper could be the result of racial differences in the severity of risk factors a child faces; this cannot be determined using the NCANDS data. Future research should continue to consider the role of statistical discrimination and the efficacy of cultural competence training in the foster care placement decision.

## CHAPTER 3

### A MULTIDIMENSIONAL COMPOSITE PROBLEM INDEX FOR FAMILIES WHO ADOPT FROM FOSTER CARE

#### 3.1 Introduction

The previous chapter shows racial disparities in foster care placements; black children are more likely than white or Hispanic children to be placed in foster care. In this essay I follow children who were placed in foster care, and after long stays and termination of parental rights, were adopted. As discussed in the opening chapter, children adopted from foster care often experience more problems than children adopted from other sources (Barth and Miller, 2000; Barth et al., 2001; Houston and Kramer, 2008; Vandivere et al., 2009). The differences within the population of children adopted from foster care have not been adequately explored. This essay uses the 2007 National Survey of Adoptive Parents (NSAP) to calculate a multidimensional composite problem index for the families who adopted a child from foster care. The index allows a deeper analysis of the problems facing families who have adopted from foster care and helps identify families who are likely to benefit from post-adoption services. I also analyze the problem indices separately by race to examine racial disparities in the problems families face post-adoption from foster care. Although racial disparities have been found throughout the child welfare system, they have not been analyzed in the post-adoption setting.

The index contains four separate domains of well-being: physical health, socio-emotional well-being, cognitive ability, and economic resources. Each domain contains

numerous binary problem indicators. Results show black children adopted from foster care have higher average problem scores than do white children adopted from foster care. This difference is associated with black children having fewer economic resources; when economic resources are excluded from the problem index, white children have a higher average score. Hispanic children are not included in this analysis as small sample sizes lead to unreliable data analysis.

As the samples of black and white children include families who adopt transracially, I also calculate a separate index for families who adopt children of the same race. The results show the average index score is higher when using the sample of black children in same-race adoptions compared to the sample that includes all black children. This finding shows that when white parents adopt black children from foster care, they adopt children with below average problem scores; this result is not solely determined by differences in the economic domain. This paper demonstrates that black families of same-race adoptions from foster care are more likely to experience economic problems and less likely to experience direct child-level problems than white families of same-race adoptions. This implies post-adoption services should be tailored to a family's specific needs to ensure adoption stability.

### 3.2 Background

Because many important outcomes cannot be defined by a single variable, there is a rich history of researchers calculating a composite index to obtain a quantitative measure of a complex phenomenon. This approach is most common in the development literature (e.g. Booysen (2002)) but is also used in research on child-well being (e.g.

O'Hare (2012)). Most composite indices are calculated using aggregate measures at a national level. Moore et al. (2008) provide an example of research that creates a composite child well-being index using micro-level data. The multidimensional nature and flexibility (in weighting and specification) are the most attractive features of a composite index approach (Booyesen, 2002). The primary drawbacks to this approach are the difficulty in interpreting quantitative differences in the index scores, applications across time and space, and the ad hoc nature in choosing variables and their respective weights (Booyesen, 2002).

20% of the children who exited foster care in 2011 were adopted (US DHHS, 2012). Families who adopt from foster care are more likely to experience problems, as compared to families who adopt internationally or from private domestic agencies (Vandivere et al., 2009). Because negative adoption outcomes, such as adoption dissolution, can be reduced through the use of effective post-adoption services (Fahlberg, 1997; Barth et al., 2000; Dhami et al., 2007), the problem index used in this paper can be a useful tool to identify the families with the greatest need for post-adoption services and facilitate the provision of necessary supports.

### 3.3 Data

To increase our understanding of the problems facing families who have adopted children from foster care, I use the 2007 NSAP to calculate a multi-dimensional composite problem index. The 2007 NSAP was a follow-up interview emanating from the 2007 National Survey of Children's Health (NSCH). The 2007 NSAP is the only dataset to provide extensive information regarding the health, well-being, and pre and

post-adoption experiences of families in the United States; all data is self-reported. NSAP respondents include 2,089 parents who adopted children through domestic private adoption, international adoption, and from foster care between 1990 and 2008. The focus in this paper is on the subsample of 763 foster care adoptions. Hereafter, the terms adoption and family will strictly refer to foster care adoption and a family who adopted from foster care. The variables used for calculating the composite index scores are discussed in detail below.

### 3.4 Problem Index

The problem index is derived from the summation of the problems from four separate domains. The domains are physical health, socio-emotional health, cognitive status, and economic characteristics of the household. The problems from each domain are derived from the summation of binary problem indicators within each domain. The baseline specification uses 17 binary problem indicators. If the index score equals 100, it means that a child exhibits a problem on every measure. A score of zero indicates no problems are present.

The baseline specification places equal weight on each domain. For example, if there are four domains, the maximum sum for each domain is 25. Using this approach, there is a negative relationship between the weight of each indicator and the number of indicators in a domain. In a sensitivity analysis, equal weight is placed on each indicator instead of on each domain; there is very little change to the results.

The economic characteristics of the household are not direct characteristics of the child; however, this dimension is initially included in the derivation of the problem index



given the objective of identifying families in need of services. Including family-level characteristics incorporates the idea that solving child-level problems almost always requires family participation. I also recalculate the problem index scores excluding the economic domain, with quite different results.

The physical health domain consists of the following indicators: whether a child has special health care needs<sup>30</sup>; received any medical care in the preceding 12 months; has likely prenatal exposure to drugs or alcohol; and/or has a drug or alcohol problem.

The indicators in the socio-emotional domain include the following: whether the relationship between the parent and child is described as not close (the same indicator is included for the survey respondent's partner conditional on a partner being present in the household); whether the child has been diagnosed with post-traumatic stress disorder; if the child is likely to have experienced neglect prior to adoption; if the child is likely to have experienced any abuse<sup>31</sup> prior to adoption; whether the child has used mental health services; whether the child has skipped school multiple times in the last year; and if the child has ever been pregnant or has impregnated someone.

The cognitive domain consists of an indicator for poor performance in reading and an indicator for poor performance in math.

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<sup>30</sup> "Special health care needs" is derived from the 2007 National Survey of Children's Health (NSCH). The variable indicates whether a child has any of five health care consequences resulting from a medical, behavioral, or other health condition that has lasted or is expected to last at least 12 months (Bramlett et al., 2010).

<sup>31</sup> Abuse includes sexual, physical, and emotional trauma.

The indicators in the economic characteristics domain include the following: whether the household income is at or below 200% of the federal poverty level; whether a subsidy was ever requested due to inability to afford a service; and whether the respondent was unemployed in the previous week.

Many of these indicators depend on the child's age. Certain indicators, including the entire cognitive domain, are removed conditional on the child's age. Thus, in the youngest case (i.e. ages 0 to 5 years old), the index includes neither the cognitive domain nor the indicators for using mental health services, skipping school, pregnancy, and having a drug or alcohol problem. The cognitive domain and indicator for mental health services is included for ages 5 and older. The indicator for skipping school is included for ages 10 and older. The indicator for drug or alcohol problems and the pregnancy-related indicator are included for ages 13 and older. In a sensitivity analysis, I calculate an index score using only indicators that are relevant regardless of age; there is very little change to the results.

### 3.5 Results

#### 3.5.1 Domains and Indicators

Tables 3.1 – 3.3 summarize the binary problem indicators and their domains. Table 3.1 shows the most common problems among children adopted from foster care are being likely to have experienced prior neglect (60% of the sample), being likely to have experienced prior abuse (55%), and having special health care needs (54%). The least common problems include having been or gotten someone pregnant (1.7%), the adoptive parent being unemployed (1.9%), and the child not having a close relationship with the

adoptive parent (3.1%).

Black children represent 25.34% of the sample, compared to 48.64% for white children. Table 3.2 shows racial differences among the problem indicators: for black children the most common problem is having a household income below 200% of the poverty level (58.4%); for white children the most common problem is having likely experienced prior neglect (66.1%).

In the physical health domain, the data show a smaller proportion of black children (42.3%) have special health care needs relative to white children (58.6%), and a greater proportion of black children (27.5%) did not use medical services in the prior year compared to white children (19.2%). There appears to be no relationship between the less frequent use of medical services by black children and the smaller proportion of black children who had special health care needs. Among only those children with special needs, 25.4% of black children did not use medical services in the prior year, compared to 13.6% of white children.

Aside from the indicator for skipping school, white children experience every indicator in the socio-emotional domain proportionally more than black children.

In the cognitive domain, children of all races are more likely to fare poorly in math (33.1) than in reading (28%). The rate of poor performance in reading for both black (27.4%) and white children (28.5%) is similar to the sample average (28%). Poor math performance, however, is more common among black children (37.9%) relative to white children (30.1%). Using the 2007 NSAP, Knapp et al. (2013) show that poor educational outcomes are common among adopted children, especially those adopted from foster care. The findings here indicate particular attention should be paid to

improving the mathematics competency of adoptive black children.

In the economic domain, living in a household with income at or below 200% of the federal poverty level is much more common for black children (58.4%) than for white children (31.1%). Yet adoptive parents of white children (12.9%) are more likely than adoptive parents of black children (10.1%) to request a subsidy for services. For black children, there is a negative correlation ( $r = -0.04$ ) between the low household income indicator and the indicator for requesting a subsidy due to inability to afford services. For white children, this correlation is positive ( $r = 0.02$ ). While the correlations are not strong, these opposing findings are interesting. With lower incomes, adoptive parents of black children are less likely to demand subsidies. For white children, higher household incomes are positively associated with requesting a subsidy.

Although an indicator for transracial adoptions is available in the public-use version of the 2007 NSAP, the race of the adoptive parent is only available in a restricted-use version of the database. In the sample I use to calculate the problem index scores, data show white children very rarely experience a transracial adoption (3.51%<sup>32</sup>), while the phenomenon was eight times as common for black children (29.05%<sup>33</sup>). The majority of transracial adoptions of black children from foster care are by a white parent. This suggests differences in the data between characteristics of all black children and black children in same-race adoptions stem from differences in the characteristics of black children adopted by white parents.

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<sup>32</sup> 3.51% of the 285 observations for white children used when calculating the problem index.

<sup>33</sup> 29.05% of the 148 observations for black children used when calculating the problem index.

Table 3.1: Means of Indicators and Domains of the Multidimensional Problem Index.

Foster Care Sample (N=588)	
Physical Domain:	Mean of Indicator
Child Has Special Health Care Needs	0.537
No Medical Care in Prior Year	0.207
Child has a Drug or Alcohol Problem	0.046
Mean of Domain (all indicators):	1.68 (n=241)
Mean of Domain (excluding Drug-Alcohol):	1.503
Socio-emotional Domain:	Mean of Indicator
Relationship with Parent not Close	0.031
Relationship with Partner not close	0.056 (n=372)
Likely Prior Abuse	0.546
Likely Prior Neglect	0.595
Diagnosed with PTSD	0.131
Skipped School Multiple Times in Last Year	0.13
Has used mental health services	0.508
Has been or gotten someone pregnant	0.017
Mean of Domain (all indicators):	2.888 (n=241)
Mean of Domain (excluding pregnant):	2.742 (n=345)
Mean of Domain (excluding skipped school, and pregnant):	2.476 (n=504)
Mean of Domain (excluding mental health, skipped school, and pregnant):	1.85
Cognitive Domain:	Mean of Indicator
Poor Performance in Reading	0.28
Poor Performance in Math	0.331
Mean of Domain	0.611 (n=504)
Economic Domain:	Mean of Indicator
Household Income at or below 200% poverty level	0.41
Requested Subsidy b/c couldn't afford needed services	0.124
Adoptive parent was unemployed last week	0.019
Mean of Domain	0.553

Notes: Source: 2007 NSAP. Different numbers of observations occur because some indicators are only relevant for children of certain ages. All data is self-reported by a parent who adopted a child from foster care between 1990 and 2008. 'Special health care needs' is based on NSCH variables K2Q10 through K2Q23 and indicates whether the child had any of five health care consequences resulting from a medical, behavioral, or other health condition that had lasted or was expected to last at least 12 months (Bramlett et al., 2007). PTSD: post-traumatic stress disorder.

Table 3.2: Means of Indicators and Domains of the Multidimensional Problem Index by Child's Race.

	Black Children (N=149 )	White Children (N=286 )
Physical Domain:	Mean of Indicator	Mean of Indicator
Child Has Special Health Care Needs	0.423	0.586
No Medical Care in Prior Year	0.275	0.192
Child has a Drug or Alcohol Problem	0.044	0.025
Mean of Domain (all indicators):	1.529 (n=68)	1.59 (n=119)
Mean of Domain (excluding Drug-Alcohol):	1.416	1.5
Socio-emotional Domain:	Mean of Indicator	Mean of Indicator
Relationship with Parent not Close	0.027	0.028
Relationship with Partner not close	.033 (n=61)	0.059 (N=205)
Likely Prior Abuse	0.436	0.598
Likely Prior Neglect	0.503	0.661
Diagnosed with PTSD	0.087	0.14
Skipped School Multiple Times in Last Year	0.146	0.097
Has used mental health services	0.468	0.514
Has been or gotten someone pregnant	0.015	0.025
Mean of Domain (all indicators):	2.51 (n=68)	3.24 (n=119)
Mean of Domain (excluding pregnant):	2.47 (n=89)	2.97 (n=176)
Mean of Domain (excluding skipped school, and pregnant):	2.08 (n=124)	2.71 (n=249)
Mean of Domain (excluding mental health, skipped school, and pregnant):	1.416	2.08
Cognitive Domain:	Mean of Indicator	Mean of Indicator
Poor Performance in Reading	0.274	0.285
Poor Performance in Math	0.379	0.301
Mean of Domain	0.653 (n=124)	0.586 (n=249)
Economic Domain:	Mean of Indicator	Mean of Indicator
Household Income at or below 200% poverty level	0.584	0.311
Requested Subsidy b/c couldn't afford needed services	0.101	0.129
Adoptive parent was unemployed last week	0.027	0.017
Mean of Domain	0.711	0.458

Notes: Source: 2007 NSAP. Different numbers of observations occur because some indicators are only relevant for children of certain ages. All data is self-reported by a parent who adopted a child from foster care between 1990 and 2008. 'Special health care needs' is based on NSCH variables K2Q10 through K2Q23 and indicates whether the child had any of five health care consequences resulting from a medical, behavioral, or other health condition that had lasted or was expected to last at least 12 months (Bramlett et al., 2007). PTSD: post-traumatic stress disorder.

Table 3.3: Means of Indicators and Domains of the Multidimensional Problem Index for Black and White Same-race Adoptions.

	Black same-race adoptions (N=105)	White same-race adoptions (N=275)
Physical Domain:	Mean of Indicator	Mean of Indicator
Child Has Special Health Care Needs	0.41	0.56
No Medical Care in Prior Year	0.324	0.189
Child has a Drug or Alcohol Problem	0.056	0.018
Mean of Domain (all indicators):	1.5 (n=54)	1.57 (n=113)
Mean of Domain (excluding Drug-Alcohol):	1.44	1.49
Socio-emotional Domain:	Mean of Indicator	Mean of Indicator
Relationship with Parent not Close	0.029	0.025
Relationship with Partner not close	0.031 (N=32)	0.06 (N=199)
Likely Prior Abuse	0.505	0.589
Likely Prior Neglect	0.514	0.651
Diagnosed with PTSD	0.105	0.135
Skipped School Multiple Times in Last Year	0.136	0.089
Has used mental health services	0.451	0.513
Has been or gotten someone pregnant	0.019	0.018
Mean of Domain (all indicators):	2.61 (n=54)	3.18 (n=113)
Mean of Domain (excluding pregnant):	2.58 (n=66)	2.92 (n=169)
Mean of Domain (excluding skipped school, and pregnant):	2.18 (n=91)	2.67 (n=240)
Mean of Domain (excluding mental health, skipped school, and pregnant):	1.58	2.05
Cognitive Domain:	Mean of Indicator	Mean of Indicator
Poor Performance in Reading	0.264	0.288
Poor Performance in Math	0.407	0.308
Mean of Domain	0.67 (n=91)	0.596 (n=240)
Economic Domain:	Mean of Indicator	Mean of Indicator
Household Income at or below 200% poverty level	0.705	0.316
Requested Subsidy b/c couldn't afford needed services	0.095	0.131
Adoptive parent was unemployed last week	0.029	0.015
Mean of Domain	0.829	0.462

Notes: Source: 2007 NSAP. Black: black non-Hispanic, White: white non-Hispanic. Different numbers of observations occur because some indicators are only relevant for children of certain ages. All data is self-reported by a parent who adopted a child from foster care between 1990 and 2008. 'Special health care needs' is based on NSCH variables K2Q10 through K2Q23 and indicates whether the child had any of five health care consequences resulting from a medical, behavioral, or other health condition that had lasted or was expected to last at least 12 months (Bramlett et al., 2007). PTSD: post-traumatic stress disorder.

Tables 3.2 and 3.3 show racial disparities in the low household income indicator increase when comparing black and white same-race adoptions. The problem of low household income is present for 31.11% of white children and 31.16% of white same-race adoptions, compared to 58.4% and 70.5% for black children and black same-race adoptions respectively. This shows the families of black children from transracial adoptions (mostly by white parents) have higher household incomes than black families of same-race adoptions. The means for all domains, and most problem indicators are higher in the sample of black same-race adoptions compared to the sample of all black children. This finding suggests black children in transracial adoptions from foster care tend to have fewer problems than black children in non-transracial adoptions.

The domains and individual indicators show families of different races experience different types of problems. In white families of same-race adoptions, child problems are more likely to be present. In black families of same-race adoptions, economic (income) problems occur more frequently.

### 3.5.2 Composite Problem Index

The descriptive statistics discussed above show white children are more likely to experience socio-emotional problems than black children, and black children are more likely to live in households with low household income than white children. The problems families face are complex and cannot be sufficiently explained using a single variable; the composite problem index can help capture the multidimensional nature of these problems.



Table 3.4 shows the mean problem index score is highest for the sample of black same-race adoptions, followed by all white children, white same-race adoptions, and all black children. This holds true whether domains or indicators are equally weighted. Based on the descriptive statistics of the indicators, these findings for the problem index are likely driven by economic problems for black same-race adoptions, and by child socio-emotional problems in white same-race adoptions. The mean problem index score being highest for black same-race adoptions and lowest for black children provides further evidence that white parents who adopt black children from foster care adopt children with fewer problems, relative to black children in same race adoptions.

Figures 3.1 – 3.3 show kernel density estimates for the problem index across race, calculated placing equal weight on domains. The figures indicate a higher proportion of black children have a high problem index score relative to white children; the same is true for black same-race adoptions relative to white same-race adoptions. The difference between the estimates in Figure 3.3 helps distinguish the problems for black children in transracial adoptions versus black children in same-race adoptions. When transracial adoptions are included in the overall sample of black children, the distribution for the problem index shifts to the left (decreases), as white parents adopt black children with lower than average problem scores. Economic circumstances are an important factor that contributes to this racial disparity.

Table 3.4 also shows descriptive statistics for a problem index calculated without an economic domain. This approach produces a problem index that is only comprised of direct child-level indicators. The ordering of the index changes such that white children have the highest index score, followed by white same-race adoptions, black same-race

adoptions, and black children. Excluding the economic domain gives a better description of the children being adopted. The ordering of the index without an economic domain continues to support the finding that white children have more child-level problems than black children. Black children in transracial adoptions have fewer problems than white children and black children in same-race adoptions. This result again demonstrates white parents who adopt black children adopt black children with below average problem scores.

Figures 3.4 – 3.6 provide further details for the index that excludes the economic domain. Figure 3.4 shows a larger proportion of white children with a high problem index score relative to black children when the economic domain is excluded. Figure 3.5 suggests this difference decreases when considering black versus white same-race adoptions. The problem index including an economic domain suggests white parents tend to adopt black children with below average problem scores. The results for the problem index without an economic domain produce a similar finding. Figure 3.6 shows household economic conditions do play a role, but even when economic problem indicators are not included, white parents still tend to adopt black children with lower than average problem scores.

Table 3.4: Descriptive Statistics of the Multidimensional Problem Index.

	All foster care	Black children	White children	Black same- race adoptions	White same- race adoptions
	Mean Median SD	Mean Median SD	Mean Median SD	Mean Median SD	Mean Median SD
Equally Weighted Domains:	29.27 28.73 16.6	28.5 27.91 16.83	28.76 28.13 16.8	30.17 29.46 16.44	28.69 28.13 16.86
Equally Weighted Indicators:	28.35 27.76 15.6	27.07 26.67 15.24	28.21 27.78 15.91	28.87 28.57 14.92	28 27.78 15.96
Number of Observations:	588	149	286	105	275
Equally Weighted Domains (No Econ):	32.98 33.33 20.49	31.05 28.89 20.36	33.17 33.33 20.88	31.96 29.76 20.35	32.98 33.33 20.89
Equally Weighted Indicators (No Econ):	31.47 30.77 18.84	28.9 28.57 17.77	32.17 33.33 19.43	29.97 28.57 17.9	31.84 32.05 19.38
Number of Observations:	692	169	339	119	328
No Age Dependent Indicators	31.48 32.77 16.1	30.29 28.89 16.32	31.7 32.78 16.14	31.99 30.56 16.14	31.47 32.78 16.22
Number of Observations:	615	153	301	105	290

Notes: Source: 2007 NSAP. Black: black non-Hispanic, White: white non-Hispanic.

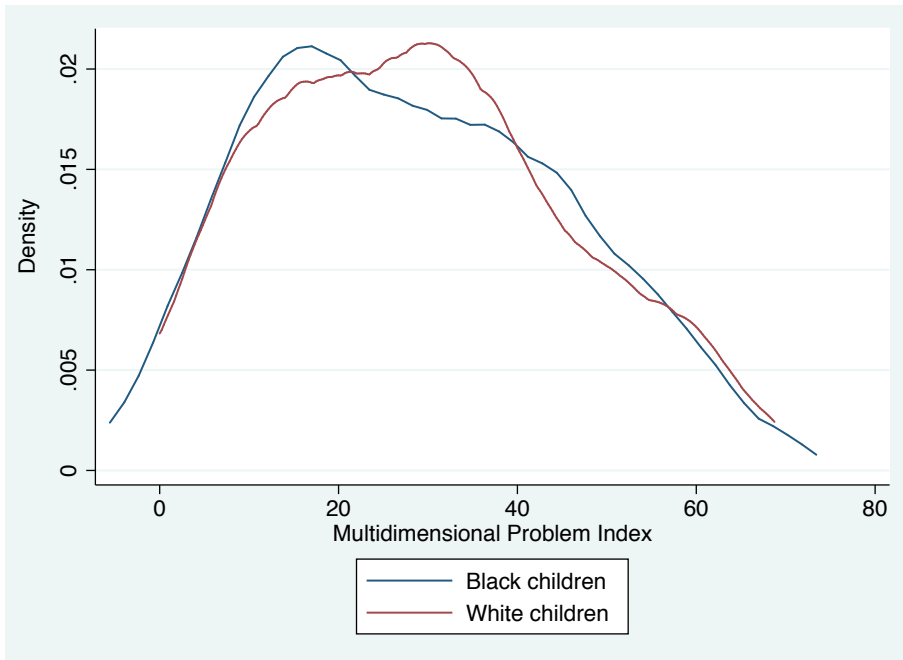


Figure 3.1: Kernel Density Estimates of the Multidimensional Problem Index by Child's Race.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 5.5667

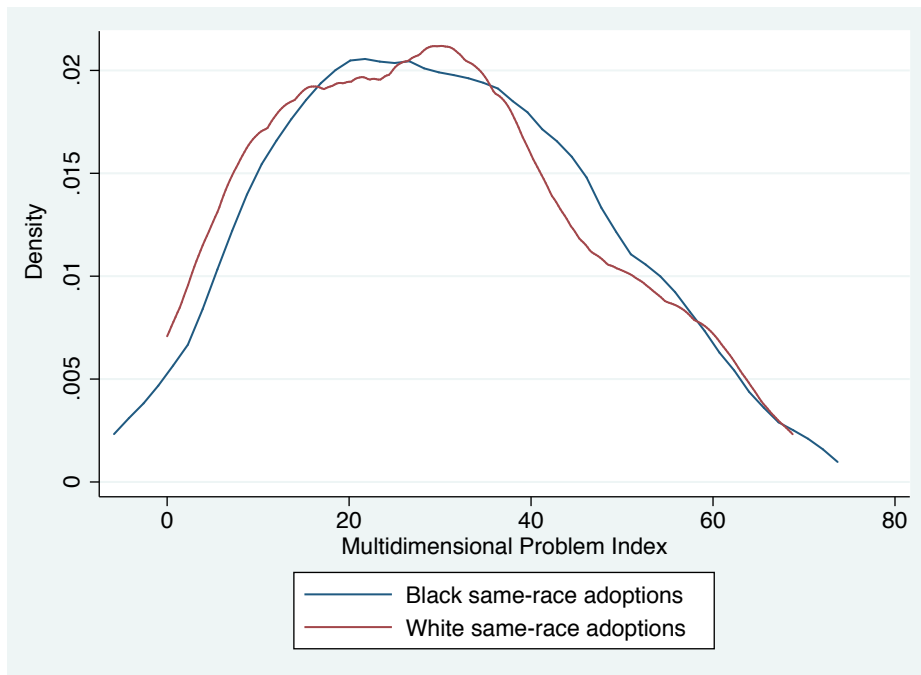


Figure 3.2: Kernel Density Estimates of the Multidimensional Problem Index for Same-race Adoptions by Race.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 5.8343

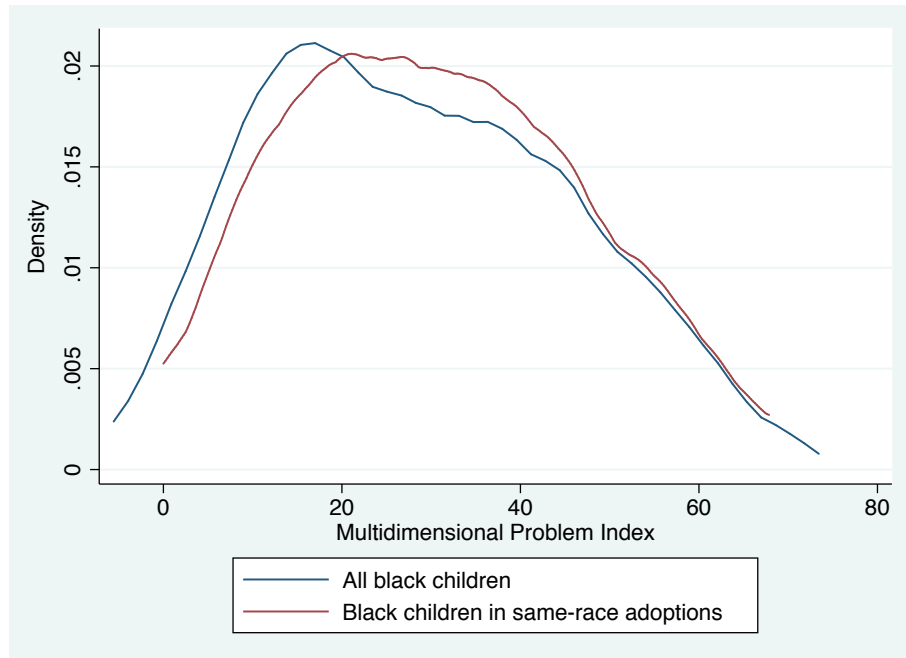


Figure 3.3: Kernel Density Estimates of the Multidimensional Problem Index for all Black Children and Black Children in Same Race Adoptions.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 5.5667

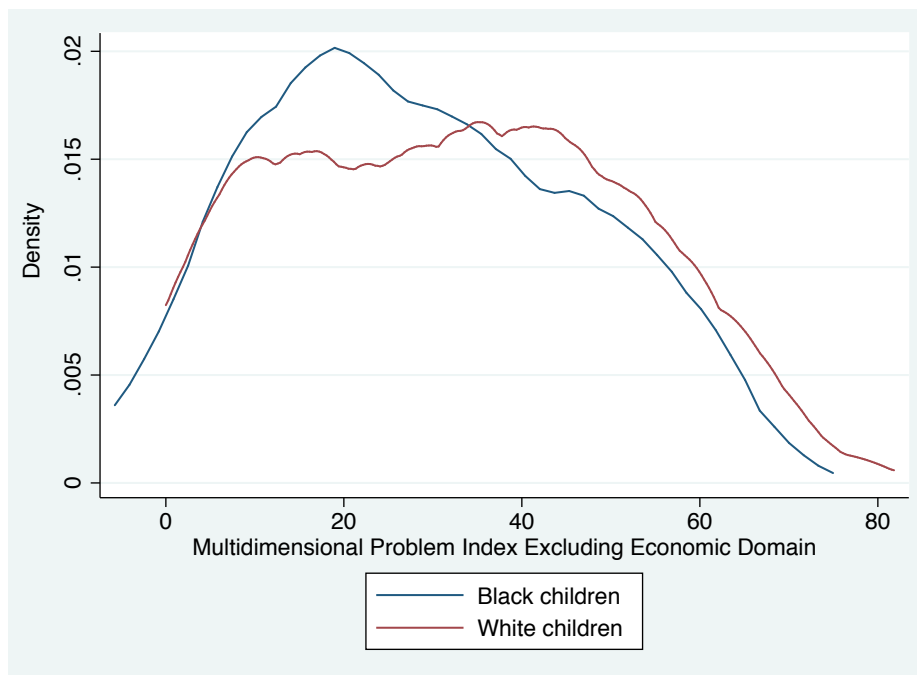


Figure 3.4: Kernel Density Estimates for the Multidimensional Problem Index Excluding the Economic Domain by Child's Race.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 5.7334

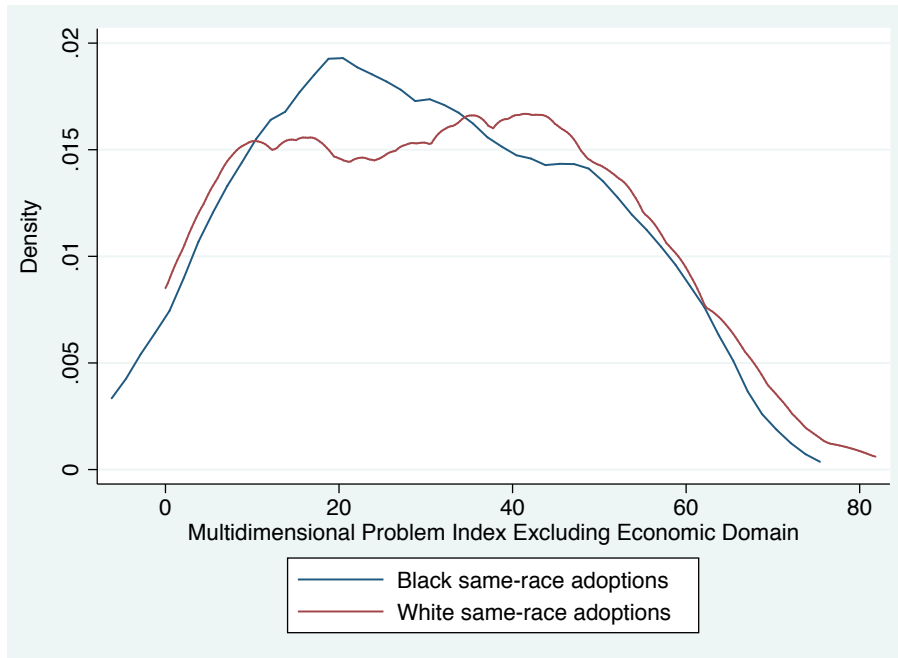


Figure 3.5: Kernel Density Estimates of the Multidimensional Problem Index Excluding the Economic Domain for Same-race Adoptions by Race.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 6.1939

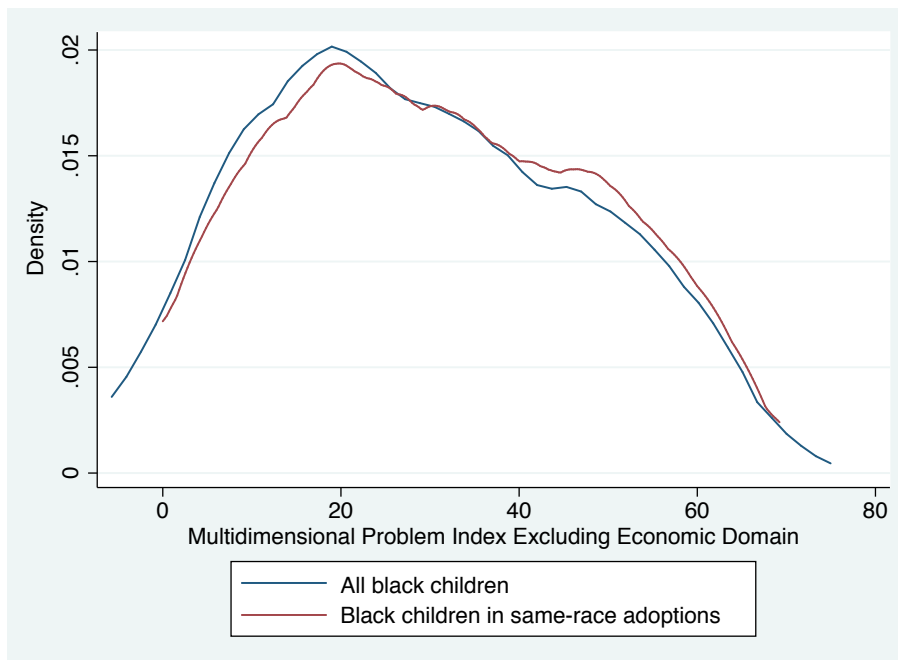


Figure 3.6: Kernel Density Estimates of the Multidimensional Problem Index Excluding the Economic Domain for all Black Children and those in Same-race Adoptions.

Notes: Source: 2007 NSAP. kernel = Epanechnikov, bandwidth = 5.7334

### 3.6 Concluding Remarks

Previous research and the national statistics above show racial disparities throughout the child welfare system. Approximately 50,000 children a year are adopted from foster care (US DHHS, 2012); these children are more likely to have problems than children adopted from other sources. The multidimensional problem index calculated in this paper shows there are racial disparities in the problems families face post-adoption from foster care. Black families of same-race adoptions experience economic problems at higher rate than white families of same-race adoptions. Child-level problems, especially socio-emotional issues are more common among white children relative to black children. On average, the black children in transracial adoptions have fewer problems than white children, or black children in same-race adoptions.

Services and policies should be tailored to individual families needs. Child problems, household income, educational backgrounds, and accessibility are only some of the many dynamics to consider when addressing the needs of families. The problem index calculated here can help inform policy makers which families have the greatest need for certain post-adoption services.

## CHAPTER 4

### MEASURING RACIAL DISPARITIES IN MENTORING, TUTORING, AND RESPITE SERVICES PROVIDED AFTER ADOPTION FROM FOSTER CARE

#### 4.1 Introduction

Of the 408,500 children currently in foster care, as many as 107,000 may never be able to return to their birth families (US DHHS, 2011). For these children, the benefits of adoption are greater than the benefits of “graduating” from foster care, and the costs of adoption are less (Hansen, 2008). As discussed in chapter 1, for more than thirty years the federal government has been promoting policies to increase adoptions from foster care. The Adoption Assistance and Child Welfare Act of 1980 (P.L. 96-272) created the first federally funded program to provide financial assistance to families who adopt “special needs” children from foster care. Since 1980, numerous policies have been enacted to promote foster care adoptions. These policies include the Adoption and Safe Families Act of 1997 (P.L. 105-89), the 2001 amendments to the Promoting Safe and Stable Families program (P.L. 107-133), the Adoption Promotion Act of 2003 (P.L. 108-145), and the Fostering Connections to Success and Increasing Adoptions Act of 2008 (P.L. 110-351). Since 1995, approximately 750,000 children have been adopted from foster care (US DHHS, 2007; US DHHS, 2011)<sup>34</sup>.

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<sup>34</sup> Author’s calculation obtained from public-use AFCARS reports.



Although foster care adoption is a topic that has received considerable attention,<sup>35</sup> much less is known about the experiences of families post-adoption. As mentioned in chapter 1, while adoptions from foster care are generally stable and successful, families and children may encounter difficulties, disruptions, and dissolutions (Barth and Miller, 2000).<sup>36</sup> Some difficulties may derive from the “special needs” of many children adopted from foster care (the definition of special needs varies by state).<sup>37</sup> In general, the term refers to a child with any characteristic(s) that may make adoption less likely. Post-adoption services are thought to mitigate the risk of difficulties post-adoption (Barth and Miller, 2000).

Some states regard minority race as a special need because minority children are less likely to be adopted than white children. The passing of the Multiethnic Placement Act of 1994 (P.L. 103-82) was a result of Congress recognizing how many African American children wait in foster care for a permanent home but never find one (Brooks et al, 1999). Black children are overrepresented in the foster care population because they are more likely to enter and less likely to exit foster care than similar white children (Brooks et al., 1999; Hansen and Pollack, 2007). While racial disparities are documented

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<sup>35</sup> See Brooks and James, 2003; Barth, Wulczyn, and Crea, 2004; Mitchell et al., 2005; Barth et al., 2006; Hansen and Hansen 2006; Hansen 2007; Duncan and Argys, 2007; and Hansen, 2008.

<sup>36</sup> Adoption disruption is when an adoption process is not finalized after the adoptive parents have been identified; the child may or may not have already been placed in the home. Adoption dissolution is the termination of an adoption after the adoption has been legally finalized.

<sup>37</sup> The child welfare information gateway (a service of the Children’s Bureau, Administration for Children and Families, US DHHS) describes a special needs child or youth as having a factor or condition related to any of the following: ethnic or minority background, age, membership in a sibling group, disability (medical, physical, or emotional), risk of developing a disability based on birth family history, any condition that makes finding an adoptive family more difficult (US DHHS, 2010).

throughout the entire child welfare system, little is known about whether they persist post-adoption from foster care.

Research on post-adoption services has been limited by weak data. This paper uses the 2007 National Survey of Adoptive Parents (NSAP). The 2007 NSAP is the only nationally representative data set containing information on the characteristics, well-being, and service utilization of adopted children and their families (Bramlett and Radcliff, 2010). This paper is the first to investigate whether any racial disparities exist in post-adoption service use. Additionally, this paper is the first to investigate whether disparities exist in unmet demand for services. This analysis is possible because the 2007 NSAP makes a distinction between service demand and service use (i.e. not everyone who wants a service receives one).

Mental health services have been the primary focus in previous research on services for children living in and adopted from foster care (e.g. Garland et al., 2003; Burns et al., 2004; Hurlburt et al., 2004; Leslie et al., 2004; McMillen et al., 2004). The NSAP data show most families who adopt a child from foster care do receive the mental health services they demand. Table 4.1 shows only 3.6% of these families have experienced unmet demand for mental health services in the full foster care sample. Meanwhile, 14.1%, 12.2%, and 14.6% of families report unmet demand for mentoring, tutoring, and respite services, respectively. Population estimates in section (3) of Table 4.1 reinforce the finding that unmet demand is greatest for mentoring, tutoring, and respite care. 72,758 families of families with a child adopted from foster care experienced unmet demand for tutoring; 82,268 families had unmet demand for mentoring and 89,401 had unmet demand for respite care. Figure 4.1 graphically depicts

the population estimates in Table 4.1. Unmet demand is greatest for mentoring, tutoring, and respite services. Given this substantial unmet demand, this paper's empirical analysis focuses on these three services.

Identifying the factors associated with unmet demand for post-adoption services will help policymakers design policies to address these specific needs. By estimating the demand and use of mentoring, tutoring, and respite services, this research will assist state child welfare agencies make more informed decisions with regard to the allocation of federal funding for post-adoption services.

While the 2007 NSAP contains the best data available for this investigation, it does have weaknesses. In particular (as is common in child welfare research) it has a limited sample size and is dominated by discrete variables. I use a generalized maximum entropy (GME) estimator to alleviate these problems while estimating the effects of important child, parent, and adoption characteristics on service demand and use.

Table 4.1: Unmet Demand for Post-Adoption Services.

(1) All Foster Care Adoptions:

	Proportion of Unmet Demand
Mental Health (n=427)	0.033
Crisis Counseling (n=498)	0.046
Family Counseling (n=500)	0.076
Informational (n=494)	0.097
Mentoring (n=425)	0.141
Tutoring (n=428)	0.143
Respite Care (n=500)	0.154

(2) Foster Care Adoptions, Demanders Only:

	Proportion of Unmet Demand
Mental Health (n=235)	0.060
Informational (n=259)	0.185
Family Counseling (n=178)	0.213

Tutoring (n=208)	0.293
Crisis Counseling (n=54)	0.426
Mentoring (n=135)	0.444
Respite Care (n=133)	0.579

(3) Population Estimates for the Number of Families with Unmet Demand:

	Number of Families (N)
Mental Health	21,492
Crisis Counseling	24,874
Family Counseling	56,619
Informational	56,651
Tutoring	72,758
Mentoring	82,268
Respite Care	89,401

Notes: Source: 2007 NSAP.

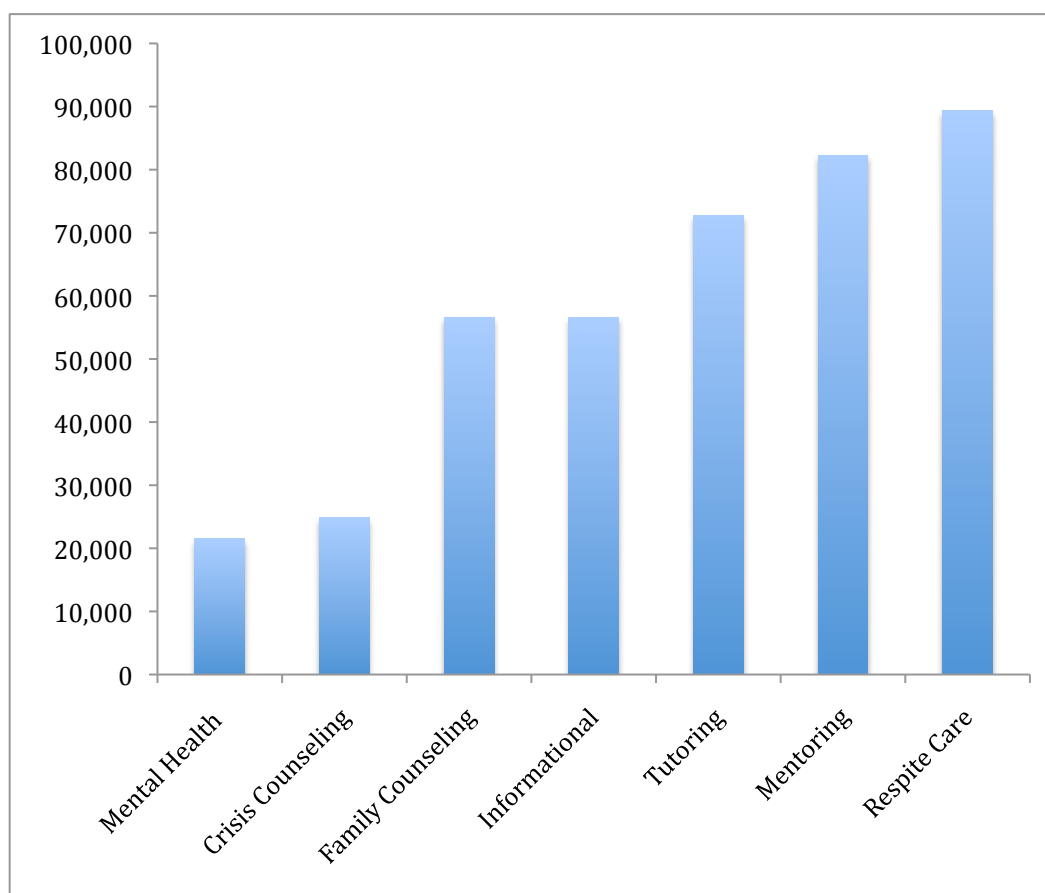


Figure 4.1: Population Estimates of the Number of Families with Unmet Demand for Post-adoption Services.

Notes: Source: 2007 NSAP.

## 4.2 Background

### 4.2.1 Adoption Promotion Policy

The Adoption Assistance and Child Welfare Act of 1980 (AACWA) sought to reduce the amount of time children spent in foster care. AACWA amended Title IV-E of the Social Security Act to authorize monthly subsidies to families adopting a special needs child from foster care. The amount of the subsidy is left to the discretion of the state.<sup>38</sup> Although AACWA created adoption subsidies, the law emphasized family reunification as the ideal way for a child to exit foster care. AACWA's focus on family reunification led to some placement decisions that were not in the best interest of a child's safety and well-being. Furthermore, the policy seemed to have little effect on the amount of time children in foster care were waiting for a permanent home (O'Neill Murray and Gesiriech, 2004).

To ameliorate these problems, the Adoption and Safe Families Act of 1997 (ASFA) was passed. ASFA aimed to improve child safety, provide services to families in crisis, and further promote the adoption of children in need of a permanent home. The law reauthorized the adoption subsidies established under AACWA and made Medicaid available to all adopted children with special needs. ASFA also created the Adoption Incentive Payment Program, which for the first time provided states with a financial incentive for increasing adoptions from foster care. Not only did ASFA seek to increase adoptions from foster care by encouraging states to do so, but the law also reduced the time frame to hold permanency hearings, and facilitated the termination of parental rights. ASFA pushed state child welfare systems to emphasize permanency when family reunification was not possible. Although many children in foster care remain in need of

permanent homes, ASFA is generally viewed as being successful in achieving its goals (Hansen, 2007; Golden and Macomber, 2008).

Along with the directives above, ASFA renewed funding for the Family Preservation and Family Support Services Program; the program was redubbed the Promoting Safe and Stable Families program (PSSF). PSSF enables each state to provide a coordinated program of family preservation and support services, time-limited reunification services, and adoption promotion and support services. The 2001 amendments to the PSSF program reauthorized the federal funding allocated to states to achieve the program's goals.<sup>37</sup> An important aspect of PSSF is the dedication of funds to post-adoption services; however, a 2006 study by the Government Accountability Office found that only 11 percent of PSSF funds were allocated towards post-adoption services (GAO, 2006). Although funds are specifically allocated toward adoption services, a substantial gap remains between service demand and use (Rycus et al., 2006). The importance of services being available for families following an adoption from foster care has recently gained increasing recognition.<sup>38</sup> Many of the children adopted from foster care have special needs and continue to experience physical, emotional, or behavioral problems (Barth et al., 2002).

As discussed in chapter 1, the initiatives of ASFA and PSSF operate in a context that is governed by the goals of the Multiethnic Placement Act of 1994 and the Interethnic Adoption Provisions of 1996 (MEPA-IEP). Race matters in the child welfare

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<sup>37</sup> The 2001 amendments also created two new federally-funded services: the mentoring of children with incarcerated parents, and the provision of education and training vouchers for children who age out of foster care.

<sup>38</sup> See Fahlberg, 1997; Barth and Miller, 2000; Barth, Gibbs, and Siebenaler, 2001; Wind, Brooks, and Barth, 2007; Dhami, Mandel, and Sothmann, 2007; Vandivere and McKlindon, 2010.

system (Hill, 2004). Little is know about whether race continues to matter post-adoption from foster care.

#### 4.2.2 Racial Disparities

Racial disproportionality in the flow of children through the child welfare system, from investigation through permanency, has been extensively studied.<sup>39</sup> More recently, many studies have found significant racial disparities in service utilization in the foster care setting, especially for black children, and especially in utilization of mental health services.<sup>40</sup> Although the size of the racial gaps in service use tends to be negatively correlated with service need, the disparities did not disappear when needs are accounted for (Leslie et al., 2004).

A strand of this literature focuses on racial differences in the use of psychotropic medication among the youths involved in the child welfare system. Leslie et al. (2003) find that black and Hispanic youths served by public service sectors are less likely than white children to have caregivers report the use of psychotropic medication. Zito et al. (2005) estimate white youths in foster care are 2.2 times more likely than black youths to use psychotropic medication, after controlling for age and gender. The National Survey of Child and Adolescent Well-being (NSCAW) shows 18.2 percent of white children involved in the child welfare system used psychotropic medications from 2001 to 2002,

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<sup>39</sup> See van Ryn and Fu (2003), Fluke et al. (2003), and Ards et al. (2003) for papers on racial disparities in child maltreatment. See Garland et al. (2003), Burns et al. (2004), and Hurlburt et al. (2004) for papers on racial disparities among children living in foster care. See Brooks et al. (1999) and Hansen and Pollack (2007) for papers on racial disparities in adoptions from foster care.

<sup>40</sup> See Garland and Besinger, 1997; dosReis et al., 2001; Farmer et al., 2001; Garland, Landsverk, and Lau, 2003; Burns et al., 2004; Hurlburt et al., 2004; McMillen et al., 2004; Leslie et al., 2004; Stahmer et al., 2005.

compared to 9.2 percent and 7.4 percent of black and Hispanic children, respectively (Raghavan et al., 2005). It is not known whether these differences in use are the result of differences in demand by parents.

The objective of public policy in child welfare is to reduce inequality by giving children without safe and stable families the families and services they need to overcome past abuse or neglect. The spirit of MEPA is to provide these services in a way that is race-neutral. Racial disparities that occur within institutions or systems in a society are likely to spread. Hurlburt et al. (2004) emphasize that addressing the mental health needs of the child welfare population, which is disproportionately comprised of black children, could help reduce racial disparities in other aspects of life.

#### 4.2.3 Adoption

Children involved in the child welfare system have been shown to experience negative long-term outcomes (Paxson and Waldfogel, 2002). Jonson-Reid and Barth (2000) and Grogan-Kaylor et al. (2008) find children involved in the child welfare system are more likely to become juvenile offenders. Jee et al. (2006) discover chronic health problems among children who live in foster care for at least one year. Paxson and Waldfogel (2002) propose youth who spend time in the child welfare system are more likely to suffer from substance abuse than those who do not spend time in the system. Doyle (2007; 2008; 2013) shows children on the margin of placement<sup>41</sup> do better regarding delinquency, teen motherhood, and employment outcomes when they remain at home as opposed to being placed in foster care. However, some children cannot remain

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<sup>41</sup> Doyle (2007; 2008; 2013) uses the placement tendencies of caseworkers as an instrumental variable (IV) to identify casual factors associated with placement into foster care. The IV technique focuses on the variation in cases where there might be disagreement about removal (i.e. marginal cases).



safely at home, regardless of the supports provided. Adoption is a way to provide a permanent home for these children who cannot return to live with their families of origin.

As discussed in the introductory chapter, researcher shows adoption to have greater benefits than long-term foster care, and lower costs (Barth et al., 2006; Hansen, 2008). Despite the benefits of adoption, children adopted from foster care often experience more problems than children adopted from other sources (Barth and Miller, 2000; Barth et al., 2001; Houston and Kramer, 2008; Vandivere et al., 2009). Effective post-adoption services can reduce negative adoption outcomes (Fahlberg, 1997; Barth et al., 2000; Dhimi et al., 2007). Approximately half of the children adopted from foster care use mental health services; they also are more likely to have a mentor or use crisis counseling (Vandivere et al., 2009). A recent alarming finding from the 2007 NSAP is that while children adopted from foster care are more likely to require post-adoption services, parents of a child adopted from foster care are more likely to report unmet demand than are parents who adopt from other sources (Vandivere et al., 2009).

It is important to note that post-adoption services, especially for children adopted from foster care, are obtained from the same system that has been the subject of numerous findings of racial disparities in service utilization within the foster care setting. Until recently, the lack of data has not allowed a thorough investigation into whether racial disparities in service use exist post-adoption from foster care.

### 4.3 The Demand for Services Post-Adoption from Foster Care

A parent's decision to seek post-adoption services for an adoptive child is modeled as a discrete choice within a random utility framework. A parent demands a

service if the utility of demanding the service is greater than the utility of not demanding the service. The underlying utilities are not observed; the researcher only knows the choice that was made. Suppose each parent  $i$  faces an exhaustive choice set consisting of only two options, “demand a post-adoption service” or “do not demand a post-adoption service” denoted  $A$  and  $B$ , with the former corresponding to  $y_i=1$  and the latter corresponding to  $y_i=0$  in the data. Adoptive parent  $i$  has utility from choosing option  $A$  expressed as,

$$U_{iA} = \alpha_A + \beta_{kA} + \varepsilon_{iA} \quad (4)$$

and utility from choosing option  $B$  expressed as,

$$U_{iB} = \alpha_B + \beta_{kB} + \varepsilon_{iB} \quad (5)$$

$X$  is a matrix of child, parent, and adoption characteristics, and  $\varepsilon$  is an error term capturing unmeasured characteristics that affect the utility of each choice. Parent  $i$  chooses to seek a post-adoption service for their child if  $U_A > U_B$ , which is true if

$$\alpha_A + \beta_{kA} X_{ik} + \varepsilon_{iA} > \alpha_B + \beta_{kB} X_{ik} + \varepsilon_{iB} \quad (6)$$

or

$$U_{iA} - U_{iB} > \varepsilon_{iB} - \varepsilon_{iA} \quad (7)$$

The probability that parent  $i$  demands a post adoption service is equal to

$$\Pr(y_i = 1 | x_i) = \Pr(\varepsilon_{iB} - \varepsilon_{iA} \leq U_{iA} - U_{iB}) \quad (8)$$

Assumptions about the distribution of the difference in error terms drives the choice of empirical model. Frequently the errors are assumed to be distributed normally, and the probit model is used. If there is little support for any distributional assumption, for example, when samples are small, a GME framework allows for unbiased and efficient estimation of the influence on demand of the characteristics in the matrix  $X$ .

Different families have different service needs that vary with child, parent, and household characteristics (Rosenthal et al., 1996). Important child characteristics include race, age at adoption, and history of abuse or neglect. A child's age at adoption has a strong correlation with adoption difficulties; older adopted children are more likely to have experienced long stays in foster care as well as previous placements (Barth and Miller, 2000). Prior abuse or neglect increases a child's risk for problems post-adoption, and will therefore influence a family's need for services (Palacios and Brodzinsky, 2010).

Some studies focus on the relationship between a parent's race and help-seeking for children. Cultural and racial differences might influence how best to manage a problem (Cauce et al, 2002). McMiller and Weisz (1996) estimate black and Latino parents are approximately 0.37 times as likely as white parents to seek mental health services for their children. Richardson (2001) finds black parents have significantly lower expectations regarding many aspects of mental health services for their children than do white parents; these aspects include family/social stigma, trust of service provider, and perceived benefit for the child.

Financial constraints and accessibility will also impact a parent's decision to seek post-adoption services. Household income, adoption subsidies, the presence of Medicaid, and living in a Metropolitan Statistical Area (MSA) are important characteristics included in *X*. Most children adopted from foster care receive Medicaid and adoption subsidies; however, many families find Medicaid and subsidies to be inadequate for obtaining the services they need (North American Council on Adoptable Children, 2007). Financial constraints and accessibility influence service demand and use.

Once a parent decides to seek help for a child, it is not a guarantee a service will be delivered. There is great variation in the availability of post-adoption services across and within states (Hansen, 2006; US DHHS, 2012b). Some public adoption agencies have specialized post-adoption workers, some receive help from private agencies, and some offer very little in terms of post-adoption supports. Differences by race in service access will contribute to racial disparities in service utilization. Disparities can arise from the availability of post-adoption supports being correlated with the racial composition of a geographic area; previous research has finds children in some racial groups disproportionately live in locations that lack appropriate resources (Wells et al., 2009). Another variable associated with service access that often varies by race is household income. Racial disparities in income will contribute to racial disparities in the demand and use of post-adoption services.

As noted above, of particular interest in the literature is the influence of the race of the parent and child. Most of the studies that identify racial disparities have used the limited approach of including race dummy variables on the right hand side of a regression equation. However, disparities in the need for services and in the access to services across races can contribute to racial disparities in service use (Wells et al., 2009). I therefore estimate a separate model for each race to allow for identification of the factors that are the most influential for each race in determining service demand after adoption.

#### 4.4 Data

The 2007 NSCH and the 2007 NSAP were designed to gather information on the health and well-being of families in the United States; a merged restricted-use version of

these data are used for the empirical analysis in this paper. See the section 3 of chapter 3 for additional details on these data.

This paper utilizes the subsample of children in the 2007 NSAP identified as being adopted from foster care. The merged 2007 NSCH-NSAP data are well suited for answering the relevant research questions: there are many variables describing parental, child, and household characteristics; there is information on post-adoption service demand and use; and these two outcomes can be separately identified in the data. The survey collected data on many types of services including informational services<sup>42</sup>, mental health services, family counseling, crisis counseling, mentoring, tutoring, and respite care. As discussed above (and seen in Table 4.1 and Figure 4.1), the greatest number of families experience unmet demand for mentoring, tutoring, and respite services; these three services are the focus of this paper's empirical analysis. Understanding why those demanding services do not obtain them may help to ensure that services are available for all families in need and target the appropriate expansion of services.

Figures 4.2 – 4.4 describe the dependent categorical variable for mentoring, tutoring, and respite services for the full sample of children adopted from foster care and by parent's race. First, there is substantial unmet demand for all three services. 14.1%, 14.3%, and 15.4% of families experience unmet demand for mentoring, tutoring, and respite services, respectively. Tutoring is the most demanded service (48.6%), followed by mentoring (31.7%), and respite care (26.6%). The samples for tutoring and mentoring services are restricted to school age children. Since tutoring services are the most

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<sup>42</sup> Informational services refer to families meeting with someone prior to the adoption to discuss the availability of post-adoption services.

frequently demanded, it is unsurprising that tutoring has the highest unmet demand. A better measure of the problem of unmet demand is to consider only those families who demand a service (see section (2) of Table 4.1). In this case, 29.3% of the demand for tutoring is unmet, compared to 44.4% and 57.9% for mentoring and respite services, respectively. Families who demand respite care are more likely not to receive the service than to receive it.

Figures 4.2 – 4.4 also show racial disparities across all three services. Black parents are more likely to demand mentoring (48.1%) and tutoring services (64.1%) than are white parents (28.9% mentoring, 43.7% tutoring). A greater proportion of white parents demand respite care (28%), relative to black parents (21.8%). These comparisons holds true for unmet demand, too. Racial disparities are most evident when only considering those families who demand services. For mentoring services, unmet demand is experienced by 51.4% of black parents compared to 43.3% of white parents. For tutoring services, 34% of black parents have unmet demand, relative to 28.4% of white parents. For the families who demand respite care, 68.3% of black parents don't receive the demanded service compared to 54.5% of white parents. Although white parents demand respite care proportionally more than black parents, black parents are more likely to encounter unmet demand. In fact, unmet demand is greater for black parents for all three services.

Previous literature shows black parents are less likely to seek physical and mental health services for their children than are white parents (McMiller and Weisz, 1996; Flores et al, 1999; Richardson, 2001). This is not true for mentoring or tutoring services for the parents who adopt children from foster care; and only a small difference is evident

with respect to respite care. A better understanding of the factors contributing to families not receiving the services they seek is necessary to develop effective policies that eliminate this unmet demand.

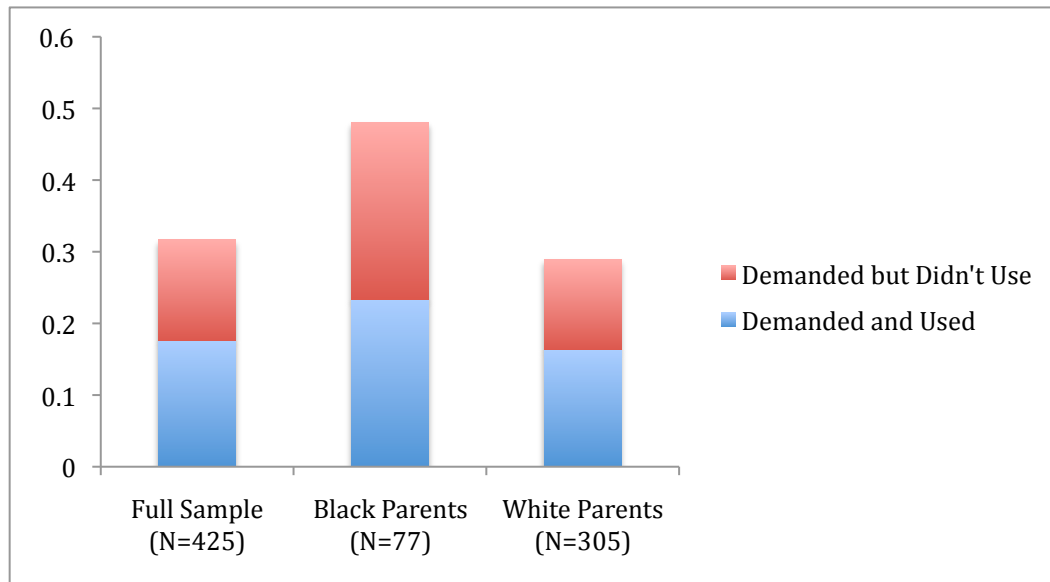


Figure 4.2: Demand and Use of Mentoring Services.

Notes: Source: 2007 NSAP.

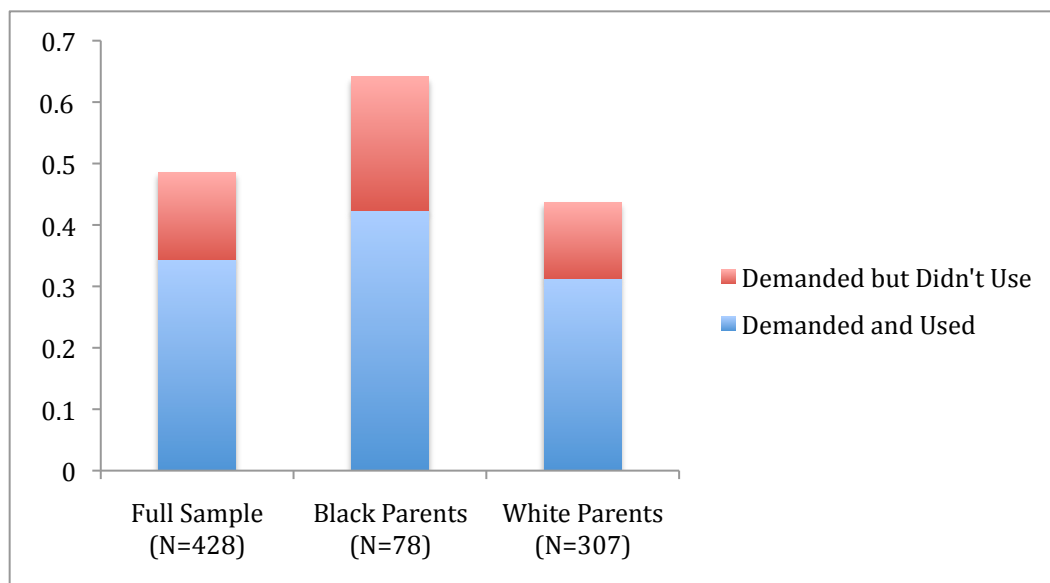


Figure 4.3: Demand and Use of Tutoring Services.

Notes: Source: 2007 NSAP.

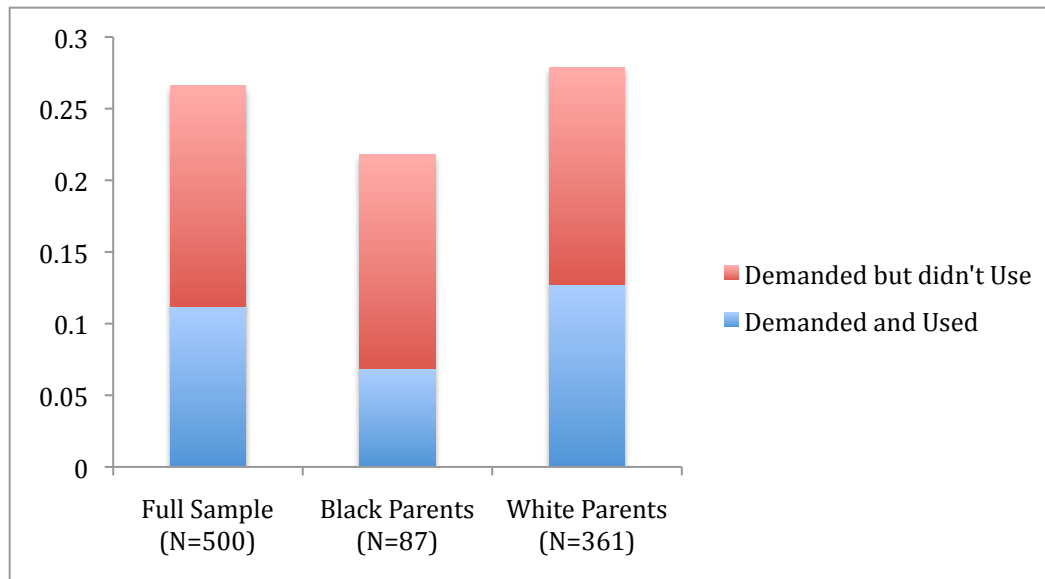


Figure 4.4: Demand and Use of Respite Services.

Notes: Source: 2007 NSAP.

Table 4.2 summarizes the explanatory variables used in the regression model for mentoring services.<sup>43</sup> Across all samples, approximately half of the children adopted from foster care were female, with an average age at adoption of 5 years old, who have been adopted for just under 60% of their lives (percent of life adopted controls for the amount of time a family has had to demand a post-adoption service). White parents (31.5%) are three times more likely than black parents to adopt a child of a different race (10.4%). The data show it is less common for a black parent (57.1%) than for a white parent (65.2%) to report likely prior neglect for their adopted child; also, kinship adoptions are more common by black parents (31.2%) than by white parents (17.4%).

<sup>43</sup> Tables 4.3 and 4.4 provide descriptive statistics for the samples used in the regression models for tutoring, and respite services respectively. The descriptive statistics are very similar across samples; therefore, the discussion in the data section is restricted to the sample used in the regression models for mentoring services.



Black parents (33.8%) are less likely than white parents (40%) to previously have been an adopted child's foster parent. There are two main reasons to control for being a relative or previous foster parent. First, a relative or previous foster parent is likely to be more familiar with a child and better understand his or her needs than someone with no prior relationship. Second, previous experience with the child welfare system might enhance a parent's ability to locate needed services, or to influence their decision to demand services. For example, if a foster parent was unsuccessful in obtaining a certain service, they may be less inclined to demand the service again post-adoption from foster care. Harris and Skyles (2008) point to the prevalence of kinship care among black families as a source for disparities in service use. There is a strong correlation between this disparity and racial differences in income (Harris and Skyles, 2008). Hill (2006) argues kinship adoptions provide numerous benefits such as lower re-abuse rates, more contact with birth parents and siblings, and greater placement stability.

Black parents are more likely (80.5%) than white parents (68.5%) to receive an adoption subsidy; the average monetary value of the subsidy black parents receive (\$428.86 per month) is higher than the amount received by white parents (\$371.73 per month).<sup>44</sup> Differences across states in adoption policy are an important variable influencing this finding. Decisions about adoption subsidies are made at the state level; however, the states with the highest percentage of black residents typically do not give above average adoption subsidies (NACAC, 2007; US Census, 2008). While this is true, many of the states with more generous subsidies are states with big cities with large black populations (e.g. New York City, Philadelphia, Baltimore, Washington, D.C.). The data

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<sup>44</sup> The averages reported here are for those families who receive an adoption subsidy.

show black parents (89.6%) are much more likely than white parents (66.9%) to live in an MSA.

Household income is another variable influencing the amount of the adoption subsidy a family receives (NACAC, 2012). Although household income may influence the amount of an adoption subsidy, it should not influence subsidy eligibility (NACAC, 2012). There are large racial disparities in the data, with 48.1% of black parents reporting household income at or below 200% of the poverty level, relative to 26.6% of white parents. These disparities in income are important to consider when analyzing unmet demand for services.

Table 4.2: Descriptive Statistics of the Samples Used for the Regressions of Mentoring Services.

	Full Sample N=425 % Sample	Black Parents N=77 % Sample	White Parents N=305 % Sample
Y=0: demanded and used mentoring services	0.176	0.234	0.164
Y=1: unmet demand for mentoring services	0.141	0.247	0.125
Y=2: did not demand mentoring services	0.682	0.519	0.711
	Mean Std Dev.	Mean Std Dev.	Mean Std Dev.
Female	0.508 0.501	0.584 0.496	0.492 0.5
Age at Adoption	4.87 3.55	5 3.38	4.8 3.59
Percent of Life Adopted	0.562 0.288	0.57 0.281	0.57 0.288
African-American Parent	0.181 0.386		
Transracial Adoption	0.271 0.445	0.104 0.307	0.315 0.465

Likely Neglect Prior to Adoption	0.628 0.484	0.571 0.498	0.652 0.477
Likely Sexual Abuse Prior to Adoption	0.254 0.436	0.247 0.434	0.252 0.435
Likely Emot. or Phy. Abuse Prior to Adoption	0.595 0.491	0.597 0.494	0.593 0.492
Likely Prenatal Exposure to Drugs or Alcohol	0.781 0.414	0.792 0.408	0.774 0.419
Foster Parent Prior to Adoption	0.384 0.487	0.338 0.476	0.4 0.491
Related Prior to (Kinship) Adoption	0.216 0.412	0.312 0.466	0.174 0.38
Foster Parent and Related Prior to Adoption	0.122 0.328	0.182 0.388	0.105 0.307
Currently Receive a Monthly Subsidy	0.708 0.455	0.805 0.399	0.685 0.465
Subsidy Amount	383.91 358.99	428.86 331.12	371.73 365.6
Household Income 200% Poverty Level or Below	0.313 0.464	0.481 0.503	0.266 0.442
Household Income above 400% Poverty Level	0.311 0.463	0.195 0.399	0.351 0.478
Medicaid or State Subsidized Health Insurance	0.741 0.439	0.844 0.365	0.711 0.454
Family Lives in MSA	0.696 0.46	0.896 0.307	0.669 0.471

Notes: Source: 2007 NSAP. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.3: Descriptive Statistics of the Samples Used for the Regressions of Tutoring Services.

	Full Sample N=428 % Sample	Black Parents N=78 % Sample	White Parents N=307 % Sample
Y=0: demanded and used tutoring services	0.343	0.423	0.313
Y=1: unmet demand for tutoring services	0.143	0.218	0.124
Y=2: did not demand tutoring services	0.514	0.359	0.563
	Mean Std Dev.	Mean Std Dev.	Mean Std Dev.
Female	0.507 0.501	0.577 0.497	0.492 0.5
Age at Adoption	4.87 3.53	5 3.35	4.81 3.58
Percent of Life Adopted	0.562 0.287	0.567 0.279	0.569 0.287
African-American Parent	0.182 0.386		
Transracial Adoption	0.269 0.444	0.103 0.305	0.312 0.464
Likely Neglect Prior to Adoption	0.631 0.483	0.577 0.497	0.655 0.476
Likely Sexual Abuse Prior to Adoption	0.257 0.437	0.256 0.439	0.254 0.436
Likely Emot or Phy Abuse Prior to Adoption	0.598 0.491	0.602 0.432	0.596 0.491
Likely Prenatal Exposure to Drugs or Alcohol	0.783 0.413	0.795 0.406	0.775 0.418
Foster Parent Prior to Adoption	0.383 0.487	0.333 0.474	0.401 0.491
Related Prior to (Kinship) Adoption	0.217 0.413	0.308 0.465	0.176 0.381
Foster Parent and Related Prior to Adoption	0.124 0.33	0.179 0.386	0.107 0.31

Currently Receive a Monthly Subsidy	0.71 0.454	0.808 0.397	0.687 0.464
Subsidy Amount	384.27 357.89	429.51 329.01	372 364.58
Household Income 200% Poverty Level or Below	0.311 0.463	0.474 0.503	0.264 0.441
Household Income above 400% Poverty Level	0.311 0.463	0.193 0.397	0.352 0.478
Medicaid or State Subsidized Health Insurance	0.743 0.437	0.846 0.363	0.713 0.453
Family Lives in MSA	0.696 0.46	0.897 0.305	0.668 0.472

Notes: Source: 2007 NSAP. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.4: Descriptive Statistics of the Samples Used for the Regressions of Respite Services.

	Full Sample N=500 % Sample	Black Parents N=87 % Sample	White Parents N=361 % Sample
Y=0: demanded and used respite services	0.112	0.069	0.127
Y=1: unmet demand for respite services	0.154	0.149	0.152
Y=2: did not demand respite services	0.734	0.782	0.72
	Mean	Mean	Mean
Regressors:	Std Dev.	Std Dev.	Std Dev.
Female	0.502 0.5	0.575 0.497	0.485 0.5
Age at Adoption	4.43 3.46	4.64 3.35	4.37 3.48
Percent of Life Adopted	0.532 0.299	0.535 0.298	0.536 0.299
African-American Parent	0.174 0.379		

Transracial Adoption	0.276 0.447	0.092 0.291	0.321 0.468
Likely Neglect Prior to Adoption	0.606 0.489	0.552 0.5	0.637 0.481
Likely Sexual Abuse Prior to Adoption	0.226 0.419	0.23 0.423	0.224 0.418
Likely Emot or Phy Abuse Prior to Adoption	0.562 0.497	0.552 0.5	0.573 0.495
Likely Prenatal Exposure to Drugs or Alcohol	0.772 0.42	0.77 0.423	0.77 0.421
Foster Parent Prior to Adoption	0.38 0.486	0.31 0.465	0.399 0.49
Related Prior to (Kinship) Adoption	0.212 0.409	0.298 0.46	0.175 0.38
Foster Parent and Related Prior to Adoption	0.122 0.328	0.172 0.38	0.108 0.311
Currently Receive a Monthly Subsidy	0.7 0.459	0.805 0.399	0.676 0.469
Subsidy Amount	377.31 352.3	430.4 326.77	363.3 358.52
Household Income 200% Poverty Level or Below	0.292 0.455	0.448 0.5	0.244 0.43
Household Income above 400% Poverty Level	0.324 0.468	0.23 0.423	0.355 0.479
Medicaid or State Subsidized Health Insurance	0.738 0.44	0.862 0.347	0.706 0.456
Family Lives in MSA	0.696 0.46	0.897 0.306	0.665 0.473

Notes: Source: 2007 NSAP. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. ‘Subsidy amount’ is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

## 4.5 Methodology

Although the NSAP permits new and useful empirical work, it has weaknesses: subgroups are small and many regressors are dummy variables with limited variation. Classical estimation techniques do not produce unbiased and efficient estimators in these circumstances. Instead, I use a generalized maximum entropy (GME) estimation technique. Generalized maximum entropy is a reformulation of the classical maximum entropy (ME) estimator; these techniques optimize information-theoretic measures (i.e. entropic measures) subject to the known moments of the data. In a GME approach, moment conditions are treated as being stochastic; they are therefore not required to hold perfectly, as they are in the classical ME technique.

A major motivation behind the development of GME was the desire to have an estimator that can produce stable estimates for discrete choice models when data is small, highly collinear, and/or there is a very low occurrence of the outcome of interest. In such situations, a traditional maximum likelihood technique cannot produce reliable estimates, or sometimes, any estimates at all. Moreover, if it is not possible or desirable for the researcher to specifying a likelihood function, all problems become underdetermined. An underdetermined problem has an infinite number of solutions. ME techniques pick the solution with maximum entropy. The estimates obtained from a GME technique are the most conservative out of all possible estimates (i.e. the estimates closest to the uniform distribution) (Golan, 2008).

### 4.5.1 Model

The GME estimator discussed below directly follows the model first proposed by Golan et al. (1996). Courchane, Golan, and Nickerson (2002) apply the GME estimator

to an analysis of racial differences in the denial of home loans; the same approach is used here for analyzing racial disparities in post-adoption service demand and use. Consider an experiment consisting of  $T$  trials. In the experiment, a binary random variable  $y_{ij} \dots y_{Tj}$  is observed, where  $y_{ij} (i = 1, 2, \dots, T)$  takes on one of the  $J$  unordered categories  $j = (1, 2, \dots, J)$ . In each of the  $i$  trials, one of the  $j = (1, 2, \dots, J)$  categories is observed via the binary random variable  $y_{ij}$  that takes the value of unity if category  $j$  is observed, and zero otherwise. Let the probability of alternative  $j$  on trial  $i$  be  $p_{ij} = \Pr(y_{ij} = 1)$  and let  $p_{ij}$  be related to a set of explanatory variables,  $X$ , via a nonlinear model:

$$p_{ij} \equiv \Pr(y_{ij} = 1 | x_i, \beta_j) = F(x_i' \beta_j) > 0 \quad (9)$$

$F(x_i' \beta_j)$  is a function that links the probabilities,  $p_{ij}$ , to the covariates,  $x_i' \beta_j$ , such that  $\sum_j F(x_i' \beta_j) = 1$ . A traditional approach, such as the maximum likelihood logit model, would proceed by specifying the distributional form for  $F(x_i' \beta_j)$  (e.g. the logistic distribution). The GME approach used in this paper does not require this strong distributional assumption.

Rather than specifying the distributional form of  $F(x_i' \beta_j)$ , a GME estimator views the data as noisy. The constraints do not hold exactly and the model is reformulated as

$$y_{ij} = F(x_i' \beta_j) = p_{ij} + e_{ij} \quad (10)$$

where  $p_{ij}$  are the unknown multinomial probabilities, and  $e_{ij}$  are the natural noise components for each observation contained in the  $[-1, 1]$  interval for each observation. From the above, it is obvious that the characteristics  $(x_i' \beta_j)$  associated with each observation do not appear in the reformulated model unless a specific distributional



assumption is made regarding the likelihood. The characteristics within the matrix  $X$  are incorporated via the cross-moments,

$$\sum_i y_{ij} x_{ik} = \sum_i x_{ik} p_{ij} + \sum_i x_{ik} e_{ij} \quad (11)$$

where there are  $(T * (J - 1))$  unknown probabilities but only  $(K * J)$  data points; therefore, this problem is inherently underdetermined because there are an infinite number of sets  $P$  that satisfy equation (11). Using an entropy criterion is one way a researcher can decide which of the infinitely many solutions to choose. One such entropy measure is

$$H(\mathbf{p}) = - \sum_{ij} p_{ij} \ln p_{ij} \quad (12)$$

where  $H(\mathbf{p})$  is a continuous measure between 0 (a state of complete knowledge) and  $K \ln(J)$  (a state of complete ignorance). The solution with a maximum value of  $H(\mathbf{p})$  will produce the most conservative estimates (the ones closest to the uniform distribution).

$H(\mathbf{p})$  is defined over all of the proper probability distributions  $(p_{ij})$  in equation (9). In order for  $H(\mathbf{p})$  to also be defined over the error term  $(e_{ij})$ , a reformulation must be made. This reformulation represents each error term as a discrete and finite random variable with  $2 \leq D < \infty$  possible outcomes. The errors are represented by a  $D$ -dimensional support space  $\mathbf{v}$  and a  $D$ -dimensional vector of weights  $\mathbf{w}$ . Each error term is represented as

$$e_{ij} \equiv \sum_d v_d w_{ijd} \quad (13)$$

with

$$\sum_d w_{ijd} = 1 \quad (14)$$

where the support  $v = (-1/\sqrt{T}, 0, 1/\sqrt{T})$  for each error term. The  $D$ -dimensional vector of weights are proper probabilities that are used to convert the error terms from the natural  $[-1,1]$  interval into a set of  $(T * D)$  proper probability distributions. The entropy measure in equation (12) can be modified to include  $\mathbf{w}$ ,

$$H(\mathbf{p}, \mathbf{w}) = -\sum_{ij} p_{ij} \ln p_{ij} - \sum_{ijd} w_{ijd} \ln w_{ijd} \quad (15)$$

Once  $\mathbf{p}$  and  $\mathbf{w}$  are estimated, the model's regression coefficients ( $\beta$ s) can be recovered.  $\mathbf{p}$  and  $\mathbf{w}$  are estimated via the following well-defined optimization problem,

$$\underset{\mathbf{p}, \mathbf{w}}{\text{Max}} \{H(\mathbf{p}, \mathbf{w}) = -\sum_{ij} p_{ij} \ln p_{ij} - \sum_{ijd} w_{ijd} \ln w_{ijd}\} \quad (16)$$

subject to the  $(K * J)$  data points

$$\sum_i y_{ij} x_{ik} = \sum_i x_{ik} p_{ij} + \sum_i x_{ik} e_{ij} \quad (17)$$

and the proper probability requirements for  $\mathbf{p}$  and  $\mathbf{w}$ .

$$\sum_i p_{ij} = 1 \quad (18)$$

and

$$\sum_i w_{ijd} = 1 \quad (19)$$

The constrained optimization problem above is solved using the method of Lagrange multipliers. The resulting estimates for  $\mathbf{p}$  and  $\mathbf{w}$  are

$$\hat{p}_{ij} = \frac{\exp(-\sum_k \hat{\lambda}_{kj} x_{ik})}{1 + \sum_{j=2}^J \exp(\hat{\lambda}_{kj} x_{ik})} \equiv \frac{\exp(-\sum_k \hat{\lambda}_{kj} x_{ik})}{\Omega_i} \quad (20)$$

and

$$\hat{w}_{ijd} = \frac{\exp(-\sum_k x_{ik} \hat{\lambda}_{kj} v_d)}{\sum_d \exp(-\sum_k x_{ik} \hat{\lambda}_{kj} v_d)} \equiv \frac{\exp(-\sum_k x_{ik} \hat{\lambda}_{kj} v_d)}{\Psi_{ij}(\hat{\lambda})} \quad (21)$$

Given the model in its primal form, it is possible to reformulate the problem as a dual unconstrained optimization. Substituting equations (20) and (21) into the Lagrangean formed by the constrained optimization above yields the following unconstrained model<sup>45</sup>

$$L(\lambda) = -\sum_{ijk} y_{ij} x_{ik} \lambda_{kj} + \sum_i \ln \Omega_i + \sum_{ij} \ln \Psi_{ij} \quad (22)$$

The first order condition for  $\lambda$  is used to find  $\hat{\lambda}$ , which is then substituted into equation (20) to find  $\hat{p}_{ij}$ . The dual model is computationally much more efficient than the primal model. Also, the dual model allows for a direct comparison between the GME estimator and other traditional ML approaches; the first two components of equation (22) are equivalent to the likelihood for a standard ML-logit model with its coefficients equal to  $-\lambda$ . As the number of observations ( $T$ ) approaches infinity, the GME and ML-logit become equivalent. Given that most data in the social sciences is finite, and sometimes quite small, the two estimators will produce different results.

GME is more stable than ML and will therefore produce estimates with lower variances. Also, GME does not require the assumption of knowledge of the underlying data generating process (i.e. functional form of the likelihood). Furthermore, prior theoretical knowledge can be incorporated via the GME model's constraints (Golan,

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<sup>45</sup> Note that while constructing the Lagrangean, the last term can be ignored because equations (13) and (14) already satisfy the proper probability requirement.

2008).<sup>46</sup> Many of the samples of data used for this paper's empirical analysis possess characteristics associated with situations where a GME estimator can be very beneficial.

## 4.6 Results

I estimate equation (22) using GME and the subsample of children in the 2007 NSAP who were adopted from foster care. Service demand is a function of parent, child, and adoption characteristics.  $y_{ij}$  is a nominal variable consisting of three categories: demanding and using a service; demanding and not using a service; and not demanding a service; therefore,  $j = 3$ .  $x'_i$  contains the regressors listed in Table 4.2.<sup>47</sup> I also estimate regression models using the subsamples of black and white parents (see Tables 4.8 – 4.13). The race subsamples allow for an analysis of interaction effects between each independent variable and parent's race. This section focuses on the estimated marginal effects presented in Tables 4.5 – 4.7. All marginal effects are at the means of the explanatory variables.

### 4.6.1 Full Foster Care Sample

#### Mentoring:

The probability for demanding mentoring is 15.7 percentage points higher for a black parent relative to a white parent. The majority of this difference in demand is from unmet demand for mentoring (10.7 percentage points). When black parents demand

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<sup>46</sup> For more information on GME, see Golan, Judge, and Miller (1996), and Golan (2008).

<sup>47</sup>  $x'_i$  also contains the following control variables: whether the child's or parent's race is described as "other", at least one parent having at least a high school degree, living in an MSA, being a single parent household, having siblings in the household, and length of time since the adoption.

mentoring for their child, approximately two-thirds<sup>48</sup> of them will not receive the service. Table 4.5 also shows the child's gender has a statistically significant effect on the demand for mentoring; the probability of demanding mentoring is 0.10 higher for families who adopt boys relative to girls. At the mean, a one-year increase in a child's age at adoption is associated with an increase in the probability of demanding mentoring (4.2 percentage points); this additional demand for mentoring is unmet 31% of the time.<sup>49</sup> There is also a positive relationship between demanding mentoring and the percent of a child's life being adopted. Controlling for age at adoption, the longer a child has been adopted, the more time a family has to demand a post-adoption service. None of the indicators for a child's abuse or neglect history have statistically significant marginal effects. The estimated effects of household income and amount of adoption subsidy also lack statistical significance. Living in an MSA increases the probability of demanding mentoring by 11.7 percentage points. The additional demand associated with living in an MSA is unmet 72.6% of the time.<sup>50</sup> It is important to note that the statistically significant effect of MSAs is in large part the result of most sample respondents living in MSAs. With so few respondents living outside of MSAs, demand and unmet demand can easily be zero.

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<sup>48</sup>  $(10.7 / 15.7) = 0.682$

<sup>49</sup>  $(0.013 / 0.042) = 0.31$

<sup>50</sup>  $(0.085 / 0.117) = 0.726$

Table 4.5: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Mentoring Services (Y=2).

	Y=0	Full Sample Y=1	Y=2
Female	-0.052 (0.037)	-0.049 (0.032)	0.101** (0.047)
Age at Adoption	0.029*** (0.009)	0.013 (0.009)	-0.042*** (0.013)
Percent of Life Adopted	0.0025** (0.0013)	0.0019 (0.0012)	-0.004*** (0.0016)
African-American Parent	0.050 (0.047)	0.107*** (0.040)	-0.157** (0.062)
Transracial Adoption	-0.044 (0.042)	0.028 (0.037)	0.016 (0.054)
Likely Neglect Prior to Adoption	-0.0004 (0.035)	0.082 (0.050)	-0.082 (0.072)
Likely Sexual Abuse Prior to Adoption	0.039 (0.045)	-0.015 (0.042)	-0.024 (0.061)
Likely Emotional or Physical Abuse Prior	0.044 (0.061)	0.016 (0.049)	-0.060 (0.075)
Likely Prenatal Exposure to Drugs or Alcohol	-0.027 (0.048)	-0.014 (0.043)	0.040 (0.061)
Foster Parent Prior to Adoption	-0.079* (0.046)	0.086** (0.039)	-0.007 (0.059)
Related Prior to (Kinship) Adoption	-0.180** (0.083)	0.041 (0.057)	0.140 (0.094)
Foster Parent and Related Prior to Adoption	0.203* (0.104)	-0.091 (0.077)	-0.112 (0.122)
Currently Receive a Monthly Subsidy	0.075 (0.074)	0.063 (0.064)	-0.138 (0.093)
Subsidy Amount	0.00002 (0.00003)	0.00002 (0.00006)	0.00001 (0.00008)

Household Income 200% Poverty Level or Below	0.016 (0.044)	0.001 (0.050)	-0.016 (0.057)
Household Income above 400% Poverty Level	-0.054 (0.045)	-0.019 (0.039)	0.073 (0.056)
Medicaid or State Subsidized Health Insurance	-0.044 (0.065)	-0.080 (0.054)	0.124 (0.082)
Family lives in MSA	0.032 (0.042)	0.085** (0.040)	-0.117** (0.054)
Sample Information and Model Diagnostics:			
Number of Observations	N=425		
Condition Number	28.89		
Pseudo R-squared	0.311		
% Correctly Predicted	69.65		
Mean Predicted Probabilities:			
Y=0	0.178		
Y=1	0.142		
Y=2	0.68		

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

### Tutoring:

The racial disparity in demand for tutoring is even greater than it is for mentoring.

At the mean, the probability of demanding tutoring is 24.6 percentage points higher for black parents relative to white. Unlike mentoring services, the majority of the racial difference in demand for tutoring comes from service use (16.7 percentage points).

Unmet demand accounts for approximately one-third of the racial gap in the demand for tutoring (8.0 percentage points). Table 4.6 shows the probability of using tutoring is 0.10 higher for boys relative to girls. Increases in the age at adoption have a significant and positive effect on tutoring demand. At the mean, a one-year increase in age is associated

with a 0.046 increase in the probability of using tutoring services. The estimates show increases in the age at adoption is not significantly related to unmet demand. As seen with mentoring services, none of the indicators for a child's abuse or neglect history, or subsidy amounts have statistically significant marginal effects. There is greater demand for tutoring by household with incomes 400% above the poverty level relative to households with income in between 200% and 400% of the poverty level. As expected, the results show the additional demand for tutoring associated with families with higher incomes is satisfied. The marginal effect of living in an MSA on demanding and using tutoring (0.104) is statistically significant; as noted above, this result should be interpreted with caution.

Table 4.6: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Tutoring Services (Y=2).

	Y=0	Full Sample Y=1	Y=2
Female	-0.101** (0.050)	0.022 (0.035)	0.079 (0.054)
Age at Adoption	0.046*** (0.014)	0.008 (0.010)	-0.054*** (0.015)
Percent of Life Adopted	0.005*** (0.002)	0.001 (0.001)	-0.006*** (0.002)
African-American Parent	0.167** (0.068)	0.080* (0.044)	-0.246*** (0.076)
Transracial Adoption	0.077 (0.057)	0.055 (0.039)	-0.132** (0.062)
Likely Neglect Prior to Adoption	0.048 (0.076)	0.036 (0.055)	-0.084 (0.081)
Likely Sexual Abuse Prior to Adoption	0.106 (0.067)	-0.002 (0.046)	-0.104 (0.074)



Likely Emotional or Physical Abuse Prior	-0.003 (0.075)	0.066 (0.057)	-0.063 (0.084)
Likely Prenatal Exposure to Drugs or Alcohol	0.044 (0.065)	0.034 (0.048)	-0.078 (0.069)
Foster Parent Prior to Adoption	0.006 (0.064)	-0.041 (0.046)	0.034 (0.068)
Related Prior to (Kinship) Adoption	-0.060 (0.091)	-0.050 (0.069)	0.111 (0.098)
Foster Parent and Related Prior to Adoption	0.055 (0.126)	0.118 (0.090)	-0.174 (0.135)
Currently Receive a Monthly Subsidy	0.020 (0.093)	0.058 (0.069)	-0.078 (0.103)
Subsidy Amount	-0.00009 (0.0001)	-0.00004 (0.00007)	0.00013 (0.00011)
Household Income 200% Poverty Level or Below	0.012 (0.064)	-0.007 (0.042)	-0.005 (0.070)
Household Income above 400% Poverty Level	0.101* (0.057)	-0.017 (0.042)	-0.084 (0.063)
Medicaid or State Subsidized Health Insurance	-0.080 (0.083)	-0.069 (0.058)	0.149* (0.090)
Family lives in MSA	0.104* (0.057)	0.043 (0.041)	-0.147** (0.060)
Sample Information and Model Diagnostics:			
Number of Observations	N=428		
Condition Number	29.01		
Pseudo R-squared	0.176		
% Correctly Predicted	59.58		
Mean Predicted Probabilities:			
Y=0	0.343		
Y=1	0.144		
Y=2	0.513		

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household

income category. ‘Subsidy amount’ is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

### Respite Care:

The probability of demanding respite care is 8.3 percentage points lower for black parents relative to white. The results show the additional demand for respite care by white relative to black parents is unmet just over a quarter of the time. The additional demand for respite care by white parents is unmet at a lower rate than the additional demand for mentoring and tutoring services by black parents relative to white parents. Table 4.7 shows the probability of using respite care is 0.044 higher for families who adopt boys relative to girls. The estimates show a decrease in the probability of demanding respite care (0.086) for families who adopt transracially relative to families who adopt children of the same race. For respite care, the indicators for likely pre-adoption physical or emotional abuse, and likely prenatal drug or alcohol exposure have statistically significant effects on the probability of unmet demand for respite care, 0.116 and 0.079, respectively. Unlike for mentoring and tutoring, the marginal effect of living in an MSA is not significant.

Table 4.7: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Respite Services (Y=2).

	Y=0	Full Sample Y=1	Y=2
Female	-0.044* (0.023)	0.018 (0.032)	0.026 (0.039)
Age at Adoption	-0.0002 (0.006)	0.007 (0.006)	-0.007 (0.008)
Percent of Life Adopted	0.001** (0.0006)	0.001 (0.0008)	-0.002 (0.0010)

African-American Parent	-0.060* (0.035)	-0.023 (0.045)	0.083 (0.055)
Transracial Adoption	-0.061** (0.028)	-0.025 (0.037)	0.086* (0.045)
Likely Neglect Prior to Adoption	0.023 (0.035)	0.017 (0.051)	-0.041 (0.059)
Likely Sexual Abuse Prior to Adoption	0.009 (0.028)	0.045 (0.040)	-0.054 (0.049)
Likely Emotional or Physical Abuse Prior	0.051 (0.036)	0.116** (0.053)	-0.168*** (0.061)
Likely Prenatal Exposure to Drugs or Alcohol	0.001 (0.026)	0.079* (0.047)	-0.080 (0.054)
Foster Parent Prior to Adoption	0.005 (0.025)	0.013 (0.038)	-0.017 (0.046)
Related Prior to (Kinship) Adoption	-0.002 (0.039)	-0.040 (0.062)	0.042 (0.073)
Foster Parent and Related Prior to Adoption	-0.027 (0.058)	0.025 (0.078)	0.002 (0.076)
Currently Receive a Monthly Subsidy	0.014 (0.046)	-0.042 (0.059)	0.028 (0.073)
Subsidy Amount	0.0001*** (0.00004)	0.00005 (0.00006)	-0.0001* (0.00008)
Household Income 200% Poverty Level or Below	-0.035 (0.027)	0.058 (0.039)	-0.023 (0.046)
Household Income above 400% Poverty Level	-0.049* (0.027)	0.022 (0.039)	0.026 (0.046)
Medicaid or State Subsidized Health Insurance	0.071 (0.045)	-0.039 (0.053)	-0.032 (0.066)

Family lives in MSA	-0.013 (0.024)	0.029 (0.035)	-0.015 (0.042)
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#### Sample Information and Model Diagnostics

Number of Observations	N=500
Condition Number	19.38
Pseudo R-squared	0.39
% Correctly Predicted	73.6
Mean Predicted Probabilities:	
Y=0	0.116
Y=1	0.153
Y=2	0.731

Notes: Source: 2007 NSAP. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effects are marginal effects at the mean. The marginal effect of ‘Percent of Life Adopted’ is for a one-percentage point increase. The marginal effect of ‘Subsidy Amount’ is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. ‘Subsidy amount’ is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

#### 4.6.2 Subsamples by Race

In Tables 4.5 – 4.7, the marginal effects are calculated holding all regressors at their mean value. This calculates the difference in service demand between white and black parents with equivalent values for all other variables. A more comprehensive analysis of racial disparities allows for each regressor to have a separate effect across race. The results in Tables 4.8 – 4.13 show the GME estimates from the regression models using subsamples of black and white parents.

As seen in the descriptive statistics, the mean predicted probabilities show black parents are more likely to demand mentoring and tutoring services, and less likely to demand respite services, than are white parents. Black parents are more likely to experience unmet demand for all three services. The estimated marginal effects can help understand the factors contributing to these racial disparities.<sup>51</sup>

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<sup>51</sup> The small sample size of black parents leads to few statistically significant marginal effects for this subgroup.

For black parents, living in an MSA is the most influential factor contributing to the demand for mentoring and tutoring services. The probability of demanding mentoring is 38.7 percentage points higher for a black parent living in a MSA relative to a black parent not living in an MSA; the effect is 39.8 percentage points for tutoring. The effect on demand is positive but much smaller for white parents at 8.5 and 16.9 percentage points for mentoring and tutoring, respectively. The results show a large portion of the additional demand for mentoring and tutoring associated with living in a MSA is largely unsatisfied for black parents. For white parents, this is only true for mentoring services. While both white and black parents living in MSAs demand more tutoring than parents not living in MSAs, it is primarily white parents whose demand is satisfied.<sup>52</sup>

For black parents, when an adopted child has a likely history of sexual abuse, the probability of demanding respite care is 21.9 percentage points higher relative to when the child has no history; almost all of this difference represents unmet demand (20.8 percentage points). This effect of a child's history of sexual abuse is not present for white parents. For white parents, adopting a child with a history of physical or emotional abuse increases the probability of demanding respite care 23.3 percentage points from its mean; 13.1 percentage points of this difference represents unmet demand. This effect of emotional or physical abuse is not present for black parents. It is difficult to explain why a history of sexual abuse only has a significant affect on demand for black parents, and why a history of physical or emotional abuse only has a significant affect on demand for white parents. The results show correlation, not necessarily causation. While it cannot

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<sup>52</sup> As previously noted, despite the conservative nature of GME estimates, when using the sample of black parents, the marginal effects for the MSA indicator are likely sensitive to changes in the very small number of observations of black families living in non-rural areas.

be inferred whether a likely history of abuse is what causes parents to demand respite care, it is clear that when they do, black parents more frequently encounter unmet demand than white parents.

The effect of receiving an adoption subsidy is only significant for the demand for respite care by black parents. The results show the probability of demanding respite care is 32.5 percentage points lower for black parents receiving an adoption subsidy relative to those not receiving a subsidy. Estimates show the magnitude of the effect of the monetary value of an adoption subsidy is never meaningful. The effect of having a low household income is never statistically significant. These findings highlight that for the post-adoption services of mentoring, tutoring, and respite care, it is access and availability, not cost and income, that are more likely to prohibit demand from being satisfied.

Table 4.8: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Mentoring Services (Y=2) for Black Parents Only.

	Black Parents		
	Y=0	Y=1	Y=2
Female	-0.193 (0.125)	0.225* (0.118)	-0.032 (0.151)
Age at Adoption	0.059* (0.034)	-0.038 (0.029)	-0.020 (0.040)
Percent of Life Adopted	0.005 (0.0042)	-0.0032 (0.0032)	-0.0018 (0.0046)
Transracial Adoption	-0.237 (0.208)	0.285 (0.177)	-0.047 (0.236)
Likely Neglect Prior to Adoption	0.013 (0.188)	0.075 (0.159)	-0.088 (0.215)

Likely Sexual Abuse Prior to Adoption	-0.026 (0.139)	-0.133 (0.143)	0.159 (0.175)
Likely Emotional or Physical Abuse Prior	0.160 (0.171)	-0.236 (0.177)	0.076 (0.222)
Likely Prenatal Exposure to Drugs or Alcohol	-0.082 (0.175)	0.048 (0.155)	0.034 (0.228)
Foster Parent Prior to Adoption	-0.217 (0.161)	0.223 (0.149)	-0.007 (0.220)
Related Prior to (Kinship) Adoption	-0.200 (0.185)	-0.192 (0.181)	0.392* (0.228)
Foster Parent and Related Prior to Adoption	0.265 (0.267)	0.012 (0.247)	-0.277 (0.322)
Currently Receive a Monthly Subsidy	0.021 (0.230)	0.287 (0.211)	0.000 (0.290)
Subsidy Amount	0.00009 (0.00021)	0.00001 (0.0003)	-0.0001 (0.0003)
Household Income 200% Poverty Level or Below	0.063 (0.124)	-0.024 (0.114)	-0.039 (0.156)
Household Income above 400% Poverty Level	-0.009 (0.158)	-0.213 (0.164)	0.223 (0.212)
Medicaid or State Subsidized Health Insurance	-0.028 (0.188)	-0.260 (0.163)	0.288 (0.244)
Family lives in MSA	-0.082 (0.168)	0.469* (0.281)	-0.387 (0.269)
Sample Information and Model Diagnostics:			
Number of Observations	N=77		
Condition Number	31.08		
Pseudo R-squared	0.26		
% Correctly Predicted	70.13		
Mean Predicted Probabilities:			
Y=0	0.242		
Y=1	0.248		
Y=2	0.51		

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race

category. Household income between 200% and 400% above the poverty level is the omitted household income category. ‘Subsidy amount’ is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.9: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Mentoring Services (Y=2) for White Parents Only.

	Y=0	White Parents Y=1	Y=2
Female	-0.024 (0.044)	-0.096*** (0.034)	0.120** (0.054)
Age at Adoption	0.028** (0.011)	0.015 (0.009)	-0.044*** (0.015)
Percent of Life Adopted	0.0026* (0.0016)	0.0022* (0.0013)	-0.0048** (0.002)
Transracial Adoption	-0.004 (0.045)	0.013 (0.035)	-0.009 (0.058)
Likely Neglect Prior to Adoption	0.022 (0.070)	0.069 (0.055)	-0.091 (0.084)
Likely Sexual Abuse Prior to Adoption	0.048 (0.057)	0.030 (0.041)	-0.078 (0.070)
Likely Emotional or Physical Abuse Prior	0.020 (0.071)	0.035 (0.053)	-0.055 (0.085)
Likely Prenatal Exposure to Drugs or Alcohol	-0.049 (0.054)	0.011 (0.047)	0.038 (0.068)
Foster Parent Prior to Adoption	-0.071 (0.053)	0.074* (0.038)	-0.002 (0.057)
Related Prior to (Kinship) Adoption	-0.103 (0.101)	0.049 (0.061)	0.054 (0.114)
Foster Parent and Related Prior to Adoption	0.130 (0.128)	-0.091 (0.086)	-0.039 (0.152)
Currently Receive a Monthly Subsidy	0.095 (0.086)	0.026 (0.064)	-0.120 (0.104)



Subsidy Amount	0.00002 (0.00008)	0.00003 (0.00005)	0.00001 (0.0001)
Household Income 200% Poverty Level or Below	-0.004 (0.055)	-0.006 (0.041)	0.010 (0.067)
Household Income above 400% Poverty Level	-0.054 (0.050)	-0.011 (0.038)	0.065 (0.060)
Medicaid or State Subsidized Health Insurance	-0.050 (0.078)	-0.075 (0.060)	0.124 (0.096)
Family lives in MSA	0.026 (0.047)	0.059 (0.038)	-0.085 (0.057)
Sample Information and Model Diagnostics:			
Number of Observations	N=305		
Condition Number	29.85		
Pseudo R-squared	0.343		
% Correctly Predicted	71.15		
Mean Predicted Probabilities:			
Y=0	0.166		
Y=1	0.126		
Y=2	0.708		

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.10: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Tutoring Services (Y=2) for Black Parents Only.

	Y=0	Black Parents Y=1	Y=2
Female	-0.244 (0.169)	0.074 (0.115)	0.170 (0.162)
Age at Adoption	0.169*** (0.050)	-0.074** (0.032)	-0.094** (0.046)
Percent of Life Adopted	0.016*** (0.0058)	-0.008** (0.0037)	-0.007 (0.0049)
Transracial Adoption	-0.324 (0.245)	0.165 (0.174)	0.159 (0.230)
Likely Neglect Prior to Adoption	0.199 (0.232)	0.016 (0.172)	-0.215 (0.215)
Likely Sexual Abuse Prior to Adoption	-0.220 (0.198)	0.011 (0.124)	0.208 (0.198)
Likely Emotional or Physical Abuse Prior	0.210 (0.223)	0.111 (0.192)	-0.321 (0.218)
Likely Prenatal Exposure to Drugs or Alcohol	-0.032 (0.228)	0.271 (0.180)	-0.239 (0.218)
Foster Parent Prior to Adoption	0.173 (0.231)	0.104 (0.157)	-0.277 (0.247)
Related Prior to (Kinship) Adoption	-0.384 (0.263)	0.282* (0.171)	0.102 (0.226)
Foster Parent and Related Prior to Adoption	0.248 (0.382)	-0.355 (0.252)	0.106 (0.367)
Currently Receive a Monthly Subsidy	-0.428 (0.299)	0.032 (0.203)	0.395 (0.304)
Subsidy Amount	-0.0003 (0.0003)	0.0003 (0.0002)	0.00002 (0.0004)

Household Income 200% Poverty Level or Below	-0.037 (0.170)	-0.037 (0.117)	0.075 (0.166)
Household Income above 400% Poverty Level	0.426* (0.222)	-0.167 (0.172)	-0.259 (0.229)
Medicaid or State Subsidized Health Insurance	0.386 (0.264)	-0.382** (0.180)	-0.003 (0.320)
Family lives in MSA	-0.167 (0.246)	0.565** (0.286)	-0.398* (0.233)
Sample Information and Model Diagnostics			
Number of Observations	N=78		
Condition Number	31.27		
Pseudo R-squared	0.269		
% Correctly Predicted	64.1		
Mean Predicted Probabilities:			
Y=0	0.415		
Y=1	0.225		
Y=2	0.36		

Notes: Source: 2007 NSAP. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.11: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Tutoring Services (Y=2) for White parents Only.

	White Parents		
	Y=0	Y=1	Y=2
Female	-0.092 (0.057)	0.024 (0.039)	0.068 (0.063)
Age at Adoption	0.037** (0.017)	0.021* (0.011)	-0.058*** (0.018)
Percent of Life Adopted	0.004** (0.002)	0.003** (0.0015)	-0.007*** (0.0024)
Transracial Adoption	0.077 (0.061)	0.059 (0.040)	-0.136** (0.068)

Likely Neglect Prior to Adoption	0.020 (0.090)	0.041 (0.063)	-0.061 (0.096)
Likely Sexual Abuse Prior to Adoption	0.107 (0.079)	0.016 (0.053)	-0.123 (0.088)
Likely Emotional or Physical Abuse Prior	0.020 (0.088)	0.030 (0.061)	-0.051 (0.098)
Likely Prenatal Exposure to Drugs or Alcohol	0.055 (0.074)	-0.008 (0.052)	-0.047 (0.081)
Foster Parent Prior to Adoption	-0.002 (0.080)	-0.033 (0.047)	0.035 (0.077)
Related Prior to (Kinship) Adoption	0.001 (0.141)	-0.115 (0.106)	0.113 (0.135)
Foster Parent and Related Prior to Adoption	0.017 (0.152)	0.145 (0.126)	-0.161 (0.175)
Currently Receive a Monthly Subsidy	0.111 (0.112)	0.033 (0.075)	-0.144 (0.123)
Subsidy Amount	-0.00016 (0.00013)	-0.00004 (0.00008)	0.0002 (0.0001)
Household Income 200% Poverty Level or Below	-0.029 (0.076)	-0.007 (0.050)	0.036 (0.081)
Household Income above 400% Poverty Level	0.093 (0.063)	-0.003 (0.042)	-0.090 (0.071)
Medicaid or State Subsidized Health Insurance	-0.148 (0.098)	-0.011 (0.067)	0.159 (0.110)
Family lives in MSA	0.163** (0.064)	0.006 (0.041)	-0.169** (0.068)
Sample Information and Model Diagnostics:			
Number of Observations	N=307		
Condition Number	29.96		
Pseudo R-squared	0.21		
% Correctly Predicted	58.96		

Mean Predicted Probabilities:

Y=0	0.312
Y=1	0.126
Y=2	0.562

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.12: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Respite Services (Y=2) for Black parents Only.

	Black Parents		
	Y=0	Y=1	Y=2
Female	-0.053 (0.043)	0.075 (0.082)	-0.022 (0.093)
Age at Adoption	0.010 (0.011)	-0.008 (0.015)	-0.002 (0.018)
Percent of Life Adopted	0.001 (0.0012)	-0.001 (0.0016)	0.0002 (0.0021)
Transracial Adoption	-0.041 (0.085)	0.025 (0.101)	0.015 (0.140)
Likely Neglect Prior to Adoption	0.057 (0.059)	0.022 (0.100)	-0.079 (0.116)
Likely Sexual Abuse Prior to Adoption	0.006 (0.049)	0.213** (0.096)	-0.219** (0.110)
Likely Emotional or Physical Abuse Prior	-0.041 (0.061)	-0.061 (0.130)	0.102 (0.146)
Likely Prenatal Exposure to Drugs or Alcohol	0.032 (0.064)	0.146 (0.111)	-0.178 (0.129)
Foster Parent Prior to Adoption	-0.061 (0.063)	-0.016 (0.112)	0.077 (0.133)

Related Prior to (Kinship) Adoption	-0.060 (0.075)	-0.111 (0.120)	0.171 (0.144)
Foster Parent and Related Prior to Adoption	0.079 (0.110)	0.177 (0.179)	-0.256 (0.213)
Currently Receive a Monthly Subsidy	-0.040 (0.084)	-0.285** (0.130)	0.325** (0.162)
Subsidy Amount	0.00012 (0.00009)	0.00022 (0.0002)	-0.0003* (0.00019)
Household Income 200% Poverty Level or Below	-0.042 (0.046)	0.067 (0.085)	-0.025 (0.097)
Household Income above 400% Poverty Level	-0.070 (0.064)	0.001 (0.066)	0.070 (0.118)
Medicaid or State Subsidized Health Insurance	0.036 (0.081)	-0.041 (0.132)	0.005 (0.172)
Family lives in MSA	0.042 (0.079)	-0.032 (0.100)	-0.010 (0.121)
Sample Information and Model Diagnostics:			
Number of Observations	N=87		
Condition Number	22.9		
Pseudo R-squared	0.50		
% Correctly Predicted	83.91		
Mean Predicted Probabilities:			
Y=0	0.096		
Y=1	0.144		
Y=2	0.76		

Notes: Source: 2007 NSAP. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

Table 4.13: GME Marginal Effects of X on the Probability of Using (Y=0), Having Unmet Demand (Y=1), and not Demanding Respite Services (Y=2) for White Parents Only.

	Y=0	White Parents Y=1	Y=2
Female	-0.029 (0.030)	0.014 (0.037)	0.015 (0.047)
Age at Adoption	-0.004 (0.007)	0.007 (0.008)	-0.003 (0.010)
Percent of Life Adopted	0.002** (0.0008)	0.001 (0.001)	-0.003 (0.0012)
Transracial Adoption	-0.048 (0.034)	-0.022 (0.041)	0.070 (0.052)
Likely Neglect Prior to Adoption	-0.005 (0.046)	0.007 (0.061)	-0.001 (0.064)
Likely Sexual Abuse Prior to Adoption	0.021 (0.037)	0.041 (0.048)	-0.062 (0.061)
Likely Emotional or Physical Abuse Prior	0.102** (0.047)	0.131** (0.062)	-0.233*** (0.075)
Likely Prenatal Exposure to Drugs or Alcohol	-0.007 (0.039)	0.096* (0.055)	-0.089 (0.066)
Foster Parent Prior to Adoption	0.015 (0.033)	0.013 (0.043)	-0.028 (0.054)
Related Prior to (Kinship) Adoption	-0.022 (0.066)	-0.053 (0.081)	0.074 (0.101)
Foster Parent and Related Prior to Adoption	-0.016 (0.086)	0.053 (0.102)	-0.037 (0.127)
Currently Receive a Monthly Subsidy	0.059 (0.063)	0.031 (0.072)	-0.090 (0.093)
Subsidy Amount	0.0001** (0.00005)	0.00004 (0.00007)	-0.00014 (0.00010)

Household Income 200% Poverty Level or Below	-0.053 (0.037)	0.025 (0.046)	0.028 (0.059)
Household Income above 400% Poverty Level	-0.041 (0.034)	0.023 (0.042)	0.018 (0.054)
Medicaid or State Subsidized Health Insurance	0.051 (0.060)	-0.065 (0.063)	0.014 (0.083)
Family lives in MSA	-0.014 (0.031)	0.062 (0.040)	-0.049 (0.050)

Sample Information and Model Diagnostics:

Number of Observations	N=361
Condition Number	19.05
Pseudo R-squared	0.37
% Correctly Predicted	72.02
Mean Predicted Probabilities:	
Y=0	0.132
Y=1	0.152
Y=2	0.716

Notes: Source: 2007 NSAP. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effects are marginal effects at the mean. The marginal effect of 'Percent of Life Adopted' is for a one-percentage point increase. The marginal effect of 'Subsidy Amount' is for a one-dollar increase. White parents are the omitted race category. Household income between 200% and 400% above the poverty level is the omitted household income category. 'Subsidy amount' is an interaction term between the continuous monetary value of the subsidy and a dummy variable for subsidy receipt.

#### 4.6.3 Racial Disparities in Mentoring, Tutoring, and Respite Care

Table 4.14 describes the racial disparities in the post-adoption demand for mentoring, tutoring, and respite care. The results show the predicted probability of demanding mentoring and tutoring services is higher for black parents relative to white. The predicted probability of unmet demand for mentoring and tutoring is also higher for black parents relative to white. For respite care, the predicted probability of demand and unmet demand is higher for white parents relative to black; however, the proportion of demand that is unmet is highest for black parents for all three services. Once a service is



demand, black parents are always more likely than white parents face unmet demand. Small samples, and a lack of statistical significance make it difficult to identify the sources of these racial disparities. Most demand comes from black and white parents living in MSAs. Black parents are more likely to experience unmet demand, and household income and subsidy amounts do not contribute to this unmet demand. The results suggest unmet demand being more common among black families relative to white is likely related to accessibility and informational constraints.

Table 4.14: GME Predicted Probabilities of Demand and Use of Post-adoption Services by Race.

	All Parents	Black Parents	White Parents
Unmet Demand for Mentoring	0.142	0.248	0.126
Unmet Demand for Tutoring	0.144	0.225	0.126
Unmet Demand for Respite Care	0.153	0.144	0.152
	All Parents	Black Parents	White Parents
Use of Mentoring	0.178	0.242	0.166
Use of Tutoring	0.343	0.415	0.312
Use of Respite	0.116	0.096	0.132
	All Parents	Black Parents	White Parents
Proportion Mentoring Demand that is Unmet	0.444	0.506	0.432
Proportion Tutoring Demand that is Unmet	0.296	0.352	0.288
Proportion Respite Demand that is Unmet	0.569	0.600	0.535

Notes: Source: 2007 NSAP.

#### 4.6.4 The Multidimensional Problem Index<sup>53</sup>

I replace all regressors besides the parent race dummies in the regression models above with the multidimensional problem index from chapter 3. This approach provides

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<sup>53</sup> From the public use 2007 NSAP.

a more direct and comprehensive analysis of the relationships between service demand and need. In the preceding empirical analysis, many of the indicators within the multidimensional problem index appeared as regressors. The estimated marginal effects for the individual problem indicators, however, do not account for the multidimensional nature of the problems families face. Using the index as a regressor provides estimates for how changes in overall service need influences service demand and use. The results show that families demand more mentoring, tutoring, and respite services when they have a greater need (i.e. a higher problem index score); yet the additional demand associated with greater need is not always satisfied. It also the case that the unmet demand is more likely to occur for black parents relative to white parents.

Tables 4.15 – 4.17 show the GME estimates of problem index's marginal effects at the mean. As expected, an increase in the problem index is associated with an increase in the probability of demanding all three services; this is true for black and white parents. For mentoring and tutoring services, the marginal effect of the problem index is greater for service use than for unmet demand. With respect to mentoring, the marginal effects for service use and unmet demand are 0.0045 and 0.0038. For tutoring the respective marginal effects are 0.0071 and 0.0031. In other words, as service need increases, families are more likely to demand mentoring and tutoring, and this demand is more likely to be met. This is not true when considering only black parents. The results show black parents are more likely to demand mentoring (0.0104) and tutoring (0.0094), but that this demand is most likely to be unmet (0.0065 and 0.0049, respectively). For respite care, when service need increases, families demand more services (0.0094), yet this demand is most likely to be unmet (0.0053). This finding also holds when considering

only black parents. The results show black and white parents demand more services when families experience more problems. This increase in demand is more likely to be satisfied for white parents relative to black parents.

Given that families who adopt from foster care are more likely to face problems post-adoption, and given the results above indicating that such families are more likely to demand services, useful policies would facilitate access to critical services for these families. It is also important to remember that unmet demand is always more common among black parents relative to white parents; therefore, policy makers pay attention to these racial disparities.

Table 4.15: GME Marginal Effects of the Multidimensional Problem Index on the Demand for Mentoring Services.

	Y=Service Use	Y=Unmet Demand
Full Sample (N=497):		
Problem Index	0.0045*** (0.0011)	0.0038*** (0.0008)
Black Parent	0.0115 (0.0443)	0.1173*** (0.0298)
Pseudo R-squared:	0.290	
% Correctly Predicted:	66.28	
Mean Predicted Probabilities:		
Y=Service Use	0.196	
Y=Unmet Demand	0.127	
Black same-race Adoptions (N=87):		
Problem Index	0.0049* (0.0028)	0.0065*** (0.0029)
Pseudo R-squared:	0.123	
% Correctly Predicted:	56.32	
Mean Predicted Probabilities:		
Y=Service Use	0.225	
Y=Unmet Demand	0.252	

White same-race Adoptions (N=239):

Problem Index	0.0050*** (0.0016)	0.0030*** (0.0007)
Pseudo R-squared:	0.353	
% Correctly Predicted:	70.71	
Mean Predicted Probabilities:		
Y=Service Use	0.2169	
Y=Unmet Demand	0.0752	

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. White parents are the omitted race category. The dependent variable in the regressions above has three outcomes. The outcome for did not demand is not shown in the results above. The marginal effect for the outcome of did not demand is equal to the negative of the sum of the marginal effect for service use and the marginal effect for unmet demand.

Table 4.16: GME Marginal Effects of the Multidimensional Problem Index on the Demand for Tutoring Services.

	Y=Service Use	Y=Unmet Demand
Full Sample (N=503)		
Problem Index	0.0071*** (0.0013)	0.0031*** (0.0009)
Black Parent	0.0971* (0.0536)	0.0885*** (0.0353)
Pseudo R-squared:	0.169	
% Correctly Predicted:	58.05	
Mean Predicted Probabilities:		
Y=Service Use	0.3393	
Y=Unmet Demand	0.1385	
Black same-race Adoptions (N=90)		
Problem Index	0.0045 (0.0033)	0.0049* (0.0026)
Pseudo R-squared:	0.077	
% Correctly Predicted:	46.67	
Mean Predicted Probabilities:		
Y=Service Use	0.3840	
Y=Unmet Demand	0.2051	
White same-race Adoption (N=241)		
Problem Index	0.0065*** (0.0017)	0.0012 (0.0011)

Pseudo R-squared:	0.225
% Correctly Predicted:	62.24
Mean Predicted Probabilities:	
Y=Service Use	0.2978
Y=Unmet Demand	0.0943

Notes: Source: 2007 NSAP. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Marginal effects are marginal effects at the mean. White parents are the omitted race category. The dependent variable in the regressions above has three outcomes. The outcome for did not demand is not shown in the results above. The marginal effect for the outcome of did not demand is equal to the negative of the sum of the marginal effect for service use and the marginal effect for unmet demand.

Table 4.17: GME Marginal Effects of the Multidimensional Problem Index on the Demand for Respite Services.

	Y=Service Use	Y=Unmet Demand
Full Sample (N=586)		
Problem Index	0.0041*** (0.0006)	0.0053*** (0.0009)
Black Parent	-0.0565* (0.0283)	-0.0143 (0.0366)
Pseudo R-squared:	0.372	
% Correctly Predicted:	73.55	
Mean Predicted Probabilities:		
Y=Service Use	0.1106	
Y=Unmet Demand	0.1581	
Black same-race Families (N=104)		
Problem Index	0.0030*** (0.0012)	0.0042** (0.0020)
Pseudo R-squared:	0.421	
% Correctly Predicted:	78.84	
Mean Predicted Probabilities:		
Y=Service Use	0.0791	
Y=Unmet Demand	0.1486	
White same-race Families (N=276)		
Problem Index	0.0051*** (0.0011)	0.0040*** (0.0012)
Pseudo R-squared:	0.316	
% Correctly Predicted:	70.29	

Mean Predicted Probabilities:

Y=Service Use	0.1492
Y=Unmet Demand	0.1448

Notes: Source: 2007 NSAP. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effects are marginal effects at the mean. White parents are the omitted race category. The dependent variable in the regressions above has three outcomes. The outcome for did not demand is not shown in the results above. The marginal effect for the outcome of did not demand is equal to the negative of the sum of the marginal effect for service use and the marginal effect for unmet demand.

## 4.7 Concluding Remarks

After the traditional dummy variable approach, this paper provides a more detailed analysis of possible racial disparities in service outcomes. GME is used to estimate separate regressions for different racial groups. This approach allows the effects of regressors to vary by race. Overall, the probabilities of demand for mentoring and tutoring are highest for black parents, and the demand for respite care is highest for white parents. Black parents are more likely than white parents to experience unmet demand for all three services.

Because there are many unobservable cultural, social, and historical factors that might influence racial differences in the demand for a service (Richardson, 2001; Cauce et al., 2002), it is more feasible to design policies that eliminate racial disparities in unmet demand as opposed to demand alone. The factors associated with unmet demand (after the service has been demanded) can be identified more accurately. This points to one of the limitations in previous literature on racial disparities in service use. The distinction between demand and use can be critical when analyzing racial disparities.

The results do not provide a clear indication of the source of the disparities in unmet demand. Families living in MSAs are more likely to demand services than families living in rural areas; however, even within MSAs there appears to be limited

access to services, especially mentoring and tutoring. Adoption subsidies and low household income do not influence unmet demand for tutoring, mentoring, or respite care. Access, not financial constraints, is prohibiting these services from being consumed at the quantity parents demand. The role of subsidies should not be dismissed. The impact of subsidies might vary depending on the specific post-adoption service being considered. Future research should examine the effect of subsidies on different post-adoption service outcomes.

The multidimensional problem index developed in chapter 3 is used as a regressor to estimate the relationships between overall service demand and need. As expected, there is a positive correlation between service demand and need, and the results demonstrate that unmet demand is always more common among black parents relative to white parents.

This study, of course, has limitations. Although a GME approach is ideal for situations with very limited and noisy data, the small samples make it less likely to detect statistical significance. The most severe limitation to the empirical analysis (due to data restrictions) is the absence of controls for variation among states. Child welfare policy varies dramatically across states and time, and families may have moved between the time of adoption and the time of the survey.

This paper provides the first empirical analysis on racial disparities in mentoring, tutoring, and respite services post-adoption from foster care. When the effects of important explanatory variables are allowed to vary by race, they do. When families face more problems, they demand more services; this demand is often unmet, especially for black parents. It is critical to understand how certain characteristics might influence

service outcomes to ensure post-adoption services are successfully delivered to all families in need.



## APPENDIX

Official report sources are: social services personnel; medical personnel; mental health personnel; legal, law enforcement, or criminal justice; and education personnel. Unofficial report sources are: child day care provider; substitute care provider; alleged victim; parent; other relative; friends/neighbor; alleged perpetrator; anonymous reporter; and other source.

Being emotionally disturbed is defined as: “A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree: an inability to build or maintain satisfactory interpersonal relationships; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal problems. The term includes persons who are schizophrenic or autistic. The term does not include persons who are socially maladjusted, unless it is determined that they are also seriously emotionally disturbed. This condition must be clinically diagnosed. The diagnosis is based on the Diagnostic and Statistical Manual of Mental Disorders (the most recent edition of DSM).” (NCANDS, 2010 p. 27)

Child behavioral problems are defined as: “Behavior in the school and/or community that adversely affects socialization, learning, growth, and moral development. These may include adjudicated or non-adjudicated child behavior problems. This would include the child's running away from home or a placement.” (NCANDS, 2010 p.28)

Child medical problems are defined as: “A medical condition other than mental retardation, visual or hearing impairment, physical disability, or being emotionally disturbed, that significantly affects the functioning or development of the child or

requires special medical care such as chronic illnesses. Included are children diagnosed as HIV positive or with AIDS.” (NCANDS, 2010 p. 28)

Caretaker medical problems are defined as: “A medical condition other than mental retardation, visual or hearing impairment, physical disability, or being emotionally disturbed, that significantly affects the functioning or development of the primary caretaker(s) and their ability to provide a suitable child care environment.” (NCANDS, 2010, p. 30)

Financial problems are defined as: “...the family's inability to provide sufficient financial resources to meet minimum needs.” (NCANDS, p. 31)

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