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## Examining Racial Disproportionality in Child Protective Services Case Decisions

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### Abstract

Using a national sample of 1,461 child protective services (CPS) investigations in the United States, we examine differences between black and white families with regard to caseworker ratings of risk and harm to the child, as well as the probability that a case is substantiated for maltreatment. We employ difference-in-difference methods to identify whether gaps in outcomes for black and white families are equivalent when black and white CPS workers conduct the investigation, and Blinder-Oaxaca decomposition methods to identify the portion of the black-white difference in outcomes that is attributable to differences in case characteristics (risk factors) versus differences in associations between these characteristics and the outcomes by race (differential treatment). We find no differences in outcomes by child race after adjusting for case characteristics. At the same time, we find that relative to white caseworkers, black caseworkers are more likely to rate black children at subjectively higher risk of harm than white children and are also more likely to substantiate black families for maltreatment. The decomposition results suggest that—even after accounting for caseworker race—differences in outcomes for black and white children are primarily explained by differences in family and case circumstances rather than differential treatment. Thus, our analyses suggest that interventions addressing maltreatment-related risk factors that disproportionately affect black families may have greater utility for reducing racial disparities in CPS involvement than current emphases on cultural competence training.

### Keywords

child protective services; race; disproportionality; case decision-making

### 1. Introduction

Over-representation of black children and families in U.S. child protective services (CPS) systems, relative to their prevalence in the U.S. population as a whole, has generated widespread concern among scholars, policymakers, and advocates in recent decades. However, despite a number of national and local studies examining racial disproportionality in CPS involvement, consensus has not been reached with regard to its nature, extent, or causes, nor whether it is warranted given potential differences in underlying rates of

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maltreatment-related risk factors between racial groups. As such, the multiple mechanisms through which such disproportionality likely occurs—as well as its potential consequences for both black and white children and families—continue to be scrutinized and debated.

This paper uses data on 1,461 CPS investigations in the United States, drawn from the second cohort of the National Survey of Child and Adolescent Well-Being (NSCAW-II), to examine differences between black and white families with regard to caseworker ratings of risk and harm to the child, as well as the probability that a case is substantiated or indicated for maltreatment. We first employ difference-in-difference methods to identify whether gaps in outcomes for black and white families are equivalent when black and white CPS workers conduct the investigation. We then use Blinder-Oaxaca decomposition methods to identify the portion of the black-white difference in each outcome that is attributable to differences in case characteristics (risk factors) versus differences in associations between case characteristics and the outcomes by race (differential treatment).

Our analyses extend prior work in several ways. First, we focus on the interactive effect of caseworker race and child race, which has received scant attention in the existing literature (for exceptions, see Detlaff & Rycraft, 2010; Rolock & Testa, 2005; Ryan, Garnier, Zyphur & Zhai, 2006), but may have important implications regarding the utility of relying on cultural competence training for caseworkers as a means of reducing racial disproportionality in CPS. Second, we utilize multiple outcome measures to identify both potential differences in caseworkers' assessments of risk and harm to a given child—based on child race, caseworker race, and the interaction thereof—as well as their determinations of whether to substantiate or indicate a family for abuse or neglect. This has implications for understanding the extent to which, all else equal, case outcomes are driven by caseworkers' perceptions of risk and harm to a child, as well as how race may play a role in CPS assessments and decisions. Third, we adjust for a number of socio-demographic, case, caseworker, and geographic factors that have rarely been concurrently controlled in prior research, thereby potentially overcoming some of the omitted variable bias which has likely plagued many prior studies. Finally, our decomposition analyses explicitly estimate how much of the black-white difference in case outcomes is due to differences in case characteristics as opposed to differential treatment of black and white families. That is, we directly estimate the extent to which racial differences in assessments and case decisions are likely to reflect differential treatment within CPS.

### 1.1 Potential Explanations for Racial Disparities (and Bias) in CPS Involvement

CPS in the United States is comprised of a variety of federal, state, and local efforts to respond to child abuse and neglect. These efforts manifest in a combination of public policies, funding mechanisms, and public and private agencies and services targeted at children and families who are at risk of child maltreatment or who have been identified as, or are suspected of, having experienced child abuse or neglect. Rather than constituting a single federal system, the form of these policies, mechanisms, agencies, and services varies considerably across states, counties, and locales. However, the multi-step process through which a family becomes involved with and moves through CPS is relatively consistent throughout the nation.

To begin with, a family must have contact someone who will potentially report suspected abuse or neglect. In about 59% of all reports to CPS this is a professional (teacher, social worker, law enforcement or health care professional), who is generally a mandated reporter obligated by law to report suspected maltreatment; the other 41% of reports are made by non-professionals, many of whom are voluntary reporters, most frequently friends, neighbors, or family members (U.S. Department of Health and Human Services, 2011). Once a report is made, a CPS intake worker, generally after gathering information by

telephone from the reporter and in consultation with a CPS supervisor, must decide whether the report includes adequate information to suggest that abuse or neglect may have occurred and that CPS will be able to identify and locate the family to engage in an assessment or investigation. If both conditions are met, the family will be “screened in” and the CPS agency will further assess or investigate it. If the investigative worker then finds evidence of maltreatment, as outlined by law, the family will likely be substantiated or indicated for maltreatment. Once the decision to substantiate or indicate a family is made, the CPS agency and, in some cases, family court judges must decide what types of services to offer the family, whether to remove a child from home and, if so, at what point the child may be able to safely return home.

Each of these decisions has considerable implications for children, families, and society as a whole. Yet, at each stage, the individual(s) charged with making these crucial decisions must often do so in a context of incomplete information. As such, there is the potential for bias in general—defined here as differential treatment of a particular group of children and families based on factors (e.g. socioeconomic status, race, ethnicity) other than child safety (as outlined by law). We focus on a specific form of bias: racial bias, which is defined here as differential treatment of a particular racial or ethnic group based on factors, other than differences in actual maltreatment, which may influence decision making throughout the CPS process. It is important to note that we do not equate disproportionality with bias. Disproportionality, or *differential rates* of involvement at various levels of CPS, may or may not be driven by bias, which connotes *differential treatment* conditional on identical information, behaviors, and presenting factors.

Racial disproportionality in CPS can be measured at many stages and by a variety of metrics. Most frequently, evidence of disproportionality has been presented by comparing a racial or ethnic group’s prevalence in the general population to its prevalence at various stages of the CPS process (Children’s Action Alliance, 2008; Drake, Lee, & Jonson-Reid, 2009; Hill, 2007; Kim, Chenot, & Ji, 2011; Miller, 2008; Morton, 1999). Whereas this strategy is useful for describing relative rates of CPS involvement, it is unlikely to inform whether particular groups may be appropriately represented in CPS based on their underlying maltreatment rates. That is, only if the prevalence of actual abuse and neglect is constant across racial groups, will this strategy shed light on whether there is likely to be differential treatment by reporters or CPS by race. However, there are reasons to suspect that underlying maltreatment rates may differ by race given evidence that the prevalence of maltreatment-related risk factors, such as poverty, births to young and unwed parents, low-birth-weight births, and adverse health and mental health conditions, differ across racial groups. Thus, more recent studies, have attempted to assess prevalence rates at various stages of the CPS process by comparing them to proxies of underlying maltreatment rates for various groups (Ards, Myers, Chung, Malkis, & Hagerty, 2003; Drake et al, 2011). These proxies have included factors such as child mortality, homicide, accidents, and SIDS rates, as well as estimates from the four waves of the National Incidence Study of Child Abuse and Neglect (which is intended to capture the underlying prevalence of child maltreatment in the U.S. population). Yet, many of these measures may systematically misestimate the underlying maltreatment rate for particular groups and/or be influenced by the same types of bias that potentially influence reporting or CPS decision making; they may also be subject to other types of error or bias. In short, just as individuals must make reporting and CPS-case decisions based on incomplete information, researchers must attempt to estimate racial disproportionality in CPS involvement with incomplete knowledge of underlying maltreatment prevalence rates and whether they differ by race.

Several hypotheses have been proffered to explain racial disproportionality in CPS involvement, some of which suggest racial bias in reporting or within CPS, and some of

which are linked to particular stages of the CPS process (see Berger, McDaniel, & Paxson, 2005). Because our work focuses on differences in CPS assessments and case outcomes between black and white families, we frame our discussion as such. However, these hypotheses are broadly applicable when considering disproportionality vis-à-vis other racial and ethnic groups.

A first hypothesis regarding the disproportionate prevalence of black families in CPS, relative to their prevalence in the general population, suggests that the disparity is the result of systemic institutional racism. This hypothesis posits that the overall social structure and context in which children and families, as well as potential reporters and CPS workers, function has a differential impact on social status and treatment in society by race and potentially, thereby, on family functioning as well. This tenet suggests that black and white families experience differential treatment in society, such that policies or procedures that guide (mandated and voluntary) reporters, as well as CPS workers and family court judges, may have differential impacts by race (Ards, Myers, Malkis, Sugrue, & Zhou, 2003; Hill, 2004). It may also imply that black and white populations are likely to have different underlying rates of maltreatment given historical differences in social and economic experiences. The systemic institutional racism hypothesis is thus applicable at all stages of the CPS process. At the same time, however, it is generally untestable and cannot specifically be applied to the CPS process separately from the broader social structure.

A second hypothesis is that black families have higher rates of CPS involvement than white families because they have a higher underlying prevalence of abuse and neglect, potentially as a result of greater exposure to maltreatment-related risk factors (Hill, 2004). In this instance, disproportionality in CPS is attributed to the consequences of current and historical conditions in society, which have systematically led to disadvantage among black families (Bartholet, Wulczyn, Barth, & Lederman, 2011). Note that this hypothesis does not rule out the role of institutional racism in influencing differences in maltreatment rates, it simply assumes that black families face greater disadvantage than white families and that such disadvantage may manifest in a higher prevalence of abuse or neglect. Indeed, some scholars have specifically attributed disproportionality in CPS involvement to economic disadvantage such that impoverished families are more likely to come to the attention of CPS because of the risk factors associated with poverty and, in turn, black families are therefore disproportionately likely to be involved with CPS because they disproportionately likely to be poor (Jonson-Reid, Drake, & Kohl, 2009). If this explanation holds, then black-white differences in CPS involvement should be completely accounted for by differences in income and should therefore be statistically equivalent to zero in empirical models once economic factors are controlled. More generally, if differences in CPS involvement are fully driven by differences in maltreatment-related risk factors then, whereas we might observe racial differences in the overall prevalence of CPS involvement between race groups, we would expect no such differences conditional on the full set of such risk factors. This hypothesis has clear implications for differential reporting: if black families are at higher risk of maltreatment or engage in maltreatment at higher levels due to such risk, then we would expect them to be disproportionately likely to be reported. It may also have implications for CPS-case decisions following a report to the extent that the risk factors are also associated with chronicity and/or severity of maltreatment.<sup>1</sup>

A final hypothesis is that racial disparities in CPS involvement reflect racial bias—or differential treatment by race—at the individual (practice) level (Chand, 2000; Webb, Maddocks, & Bongilli, 2002). Racial bias may occur throughout the CPS process to the extent that individuals make reporting, assessment, or case decisions that differ by family race in otherwise identical situations. There are several reasons that racial bias may occur given that CPS-related decisions are made in a context of incomplete information. To begin

with, potential reporters or CPS workers may draw inferences about whether maltreatment has taken place based on their pre-existing beliefs about the ways in which parents of a particular race tend to behave toward their children, either in general or relative to parents of another race. In such instances, racial bias may occur either as a result of racial stereotypes that bear little resemblance to reality or as a result of statistical discrimination in which assumptions applied to a specific situation stem from true differences in the distribution of a given set of behaviors across racial groups. Furthermore, the exchange of information between families and potential reporters or CPS workers may vary with the degree to which they share similar background characteristics (race, SES). That is, greater dissimilarity between potential reporters or CPS workers and families may result in less complete information on which reporters and workers may base their decisions. This may, in turn, increase opportunities for racial bias to influence decision making.

Our empirical work specifically tests whether observed differences in family and case characteristics or racial bias plays a larger role in explaining differences in CPS assessments and case outcomes by race. In addition, although we cannot empirically disentangle the reasons for which racial bias may occur (as a result of statistical discrimination or stereotyping), our analyses explicitly test whether there are differences in CPS caseworker assessments and case decisions with regard to whether a child is of the same race as the worker or of a different race. In our analyses of CPS caseworker assessments of maltreatment risk to the child, we are also able to test whether judgments vis-à-vis risk-related items that are relatively more subjective in nature are more likely to be racially biased than those regarding risk-related items that are relatively more objective in nature. Our empirical work is particularly policy relevant given that the assumption that racial bias is a leading explanation for racial disproportionality in CPS involvement has been construed to imply that changes in staff training and recruitment are the appropriate means of redress. Specifically, efforts targeting cultural competence among caseworkers and attempts to recruit racially diverse staff have garnered support, under the assumption that caseworkers lack adequate skills and perspective for working with black families (Child Welfare Information Gateway, 2011; Bowman, Hofer, Rourke, & Read, 2009; James, Green, Rodriguez, & Fong, 2008), and that racial bias arises because there is a cultural mismatch between white caseworkers and black families.<sup>2</sup>

## 1.2 Evidence of Racial Disparities (and Bias) in CPS Involvement

In this section, we review the existing empirical literature related to racial disparities at each stage of the CPS process. At the initial point of system contact, studies have consistently found that black children are more likely to be the subject of CPS reports than white

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<sup>1</sup>A related concern, which may partially account for differences in report rates, but should not affect subsequent CPS case decisions is the possibility of exposure bias which suggests that contact with potential (mandatory or voluntary) reporters varies by race. Here, for example, black families may be more likely to come into contact with mandatory reporters because they are more likely to be involved in programs that serve low-income populations. Indeed, current evidence suggests that child maltreatment reports, substantiations, and removals are higher in areas of concentrated poverty (Drake & Pandey, 1996; Coulton, Korbin, Su, & Chow, 1995; Roberts, 2002) than in more affluent areas. This may reflect exposure bias or that actual maltreatment risk is higher in lower-income neighborhoods for a variety of reasons, including that concentrated poverty is linked to the amount and quality of services and resources available to families. Moreover, some neighborhoods may reflect generational impacts of racism, poverty, and oppression which are associated with diminished community cohesion and support (Chibnall et al, 2003). In either case, black children are more likely to live in areas of concentrated poverty (Hines, Lemon, Wyatt, & Merdinger, 2004), which is associated with CPS involvement.

<sup>2</sup>Race matching between caseworkers and families is common, primarily unintentionally, as a function of community homogeneity, but, in some instances, race-matching is done intentionally based on beliefs that assigning families to caseworkers of the same race is beneficial (Perry & Limb, 2004). Most existing evidence, however, suggests that outcomes for black children in the child welfare system are not explained or mitigated by the race of the caseworker (Ryan, et al, 2006). However, black and white caseworkers may hold different beliefs about what constitutes maltreatment, and view caregiving processes differently (Chand, 2000; Chibnall et al, 2003; Surbeck, 2003). In addition, the interactions between white caseworkers and black families during the course of an investigation, which determine caseworkers' assessments of risk, safety, and need, may be negatively impacted by the historical distrust black caregivers have toward CPS (Detlaff & Rycraft, 2010; Kriz & Skivenes, 2011).

children (Ards et al, 2003b; Miller, 2008). There are conflicting findings, however, as to whether this disparity disappears once poverty is controlled. For example, some studies find racial disparities in reports to persist even after adjusting for socioeconomic factors (Miller, 2008; Schuck, 2005), whereas others do not (Drake et al, 2009; Drake et al, 2011). In addition, some have found a moderating effect of poverty, wherein no significant reporting differences exist among low-income black and white families but reporting disparities exist between non-poor blacks and whites (Ards et al, 2003a; Putman-Hornstein & Needell, 2011). It is notable, however, that the studies indicating that disproportionate reports of black families were not explained by poverty tended to use state or municipal, rather than national, samples. For the purposes of our work, it is important to recognize that any bias in reporting reflects the actions of the community professionals and laypersons making reports rather than the oft-cited “bias” among CPS workers. Given that the focus of our study is on racial disproportionality *within* the CPS system itself, we do not address potential differences in reporting which occur prior to system entry.

Once a CPS report is received, CPS workers determine whether a family requires further investigation or assessment. The preponderance of current evidence suggests that allegations concerning black children are more likely to be assigned for investigation than those concerning white children (Harris & Hackett, 2008; Fluke, Yuan, Hedderson, & Curtis, 2003; Hill, 2007), although the extent to which this may be driven by differences by race in risk factors is unclear. Investigation decisions clearly take place within the context of the CPS system. Unfortunately, however, our data are limited to cases that have been investigated or assessed. As such, we are unable to examine disproportionality in screen-in decisions or to explore a possible transfer effect, where racial bias in screen-in decisions is implicitly carried through to other stages of the CPS process. We instead focus on case assessments and substantiation decisions that occur during and after the investigation or assessment process.

At the point of investigation or assessment, CPS workers engage in a variety of techniques to assess a family’s risk for abuse or neglect, as well as to determine the level of harm a child may have suffered. Several existing studies have examined racial differences in assessments of risk and harm to children. Concerns about risk assessment tools range from claims that they are too subjective, and hence easily influenced by racial or other bias, to worries that the inclusion of objective risk-related factors, many of which are disproportionately common among black families (poverty, single-parenthood) will mechanically produce higher risk ratings for black families (Harris & Hackett, 2008; Baird, Erath, & Wagner, 1999).<sup>3</sup> A handful of studies have specifically focused on racial disproportionality in association with either objective or subjective risk assessment measures. Studies generally indicate that risk assessments are not inherently racially biased (Baird et al, 1999), but they can be subject to two types of misuse. First, the functional relationship between risk level and case decision-making can differ for families of minority races (Detlaff et al, 2011; Riveaux et al, 2008), or second, the risk assessment process can be unduly influenced by workers’ orientations toward CPS intervention (Arad-Davidson & Benbenishty, 2008). The implication of such discrepancy, while not directly tied to race, suggests that the subjectivity of risk assessments allows for disparate findings. Though, the assessment of risk and prediction of human behavior cannot be without variation or error,

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<sup>3</sup>In practice, states and municipalities may use either subjective or objective risk indices, or some combination thereof. They may also use risk assessment measures to make case decisions at a single decision point or multiple points (intake, substantiation, removal, case closure, reunification). Furthermore, they may base decisions solely on risk assessment scores, use the assessment as one of many factors when making case decisions, or use risk assessment to document a decision that had already been made (D’Andrade, Austin, & Benton, 2005; White & Walsh, 2006). Consequently, assessing differential effects of risk assessment across racial groups or differential scoring by caseworkers is complicated by variation in risk assessment measures and processes. In this study, all caseworkers completed the identical risk assessment items based on their initial investigation.

regardless of the instrument used, it is important to identify if and under what circumstances variation in professional judgment is systematically prejudicial toward a segment of the population. In this study we examine racial disparities in both subjective and objective measures of maltreatment-related risk.

If a CPS investigation leads to a confirmed maltreatment (a substantiation or indication) decision, a child and his or her family will likely be involved with the child welfare system for a substantial period of time. Data on whether substantiation rates differ by child's race are contradictory. As early as 1975, data identified higher rates of substantiated maltreatment among black families (Lauderdale, Valiunus, & Anderson, 1980). In contrast, data from the first cohort of the National Survey of Child and Adolescent Well-Being suggested that there were no significant differences in the substantiation rates of black and white children (NSCAW Research Brief, 2007). Yet, because poverty is a strong predictor of child welfare involvement, and black children are more likely to live in poverty (DeNavas, Proctor, & Smith, 2011), we would expect to find higher rates of black children in the system in models which fail to account for family poverty. Studies using other national data have concluded that black families are disproportionately represented in substantiation rates (Hill, 2007). Additionally, data from a number of state and municipal child welfare agencies have found differences in the rates of substantiation by race without adjusting for poverty or related risk factors, using a substantiation report ratio (Ards et al, 2003b; Children's Action Alliance, 2008), substantiation-to-investigation ratio (Fluke et al, 2003), and substantiation-to-population ratio (Fluke et al, 2003; Hill, 2007; Kim et al 2011). Also, a study comparing maltreatment estimates from the National Incidence Study to CPS administrative data, found that racial disproportionality was primarily attributable to differences in substantiation rates rather than report or allegation rates (Ards et al, 2003a). Yet, it remains unclear the extent to which differences are accounted for by other factors, including economic, regional, demographic, and behavioral characteristics. For example, a Minnesota study found that demographic and geographical factors did not account for much of the variation in the substantiation-to-report ratio between white and black children, though economic factors were not controlled (Ards et al, 2003b). Using administrative data from Texas, Detlaff and colleagues (2011) found a significant effect of race when controlling for income and risk assessment status. Overall, few studies of disproportionality have controlled for geographic, case, or family differences, and no study of which we are aware has controlled for all three. Among the studies that have included some such controls, results have not achieved a clear consensus as to whether disproportionality is explained by differences in risk factors. We explicitly assess racial disparities in substantiation or indication decisions. Furthermore, we do so both in models that do and those that do not adjust for caseworker assessments or risk and harm, in order to assess the extent to which such assessments may influence substantiation decisions by race.

Finally, much of the public discourse has centered on children's placement in foster care, as well as reunification and adoption decisions. While black children constitute less than 20 percent of the child population, they account for 40 percent of the foster care population (Roberts, 2002). Available evidence also suggests that black children are more likely to be removed from home rather than to receive in-home services, that they are less likely to be reunified with their family after being removed, and that they are subject to longer stays in foster care, on average, than are white children (Lu et al, 2004; Miller, 2008). Again, however, the extent to which such differences may be driven by differences in maltreatment related-risk factors is unclear. In addition, it is unclear whether disproportionality in service provision, child removal, and reunification is driven by disproportionality at earlier stages in the CPS process (risk assessment, substantiation) compared to differential decision making by race at these specific decision points. Unfortunately, the NSCAW data that we use in our study were collected only about the family that a child was residing with at the time of the

wave 1 interview, whether or not this was the child's family of origin. That is, for children who were placed in foster care at the time of the first interview, family income, structure, and other potential risk or protective factors were collected about the foster family not the child's family of origin. Because we do not have such data on their family of origin, we are unable to include these children in our study. As such, we do not assess differences in child removal.

## 2. Materials and Methods

### 2.1. Data

We used data from Wave 1 of the second cohort of the National Survey of Child and Adolescent Well-Being (NSCAW-II). NSCAW-II comprises a nationally representative, sample of over 5,000 CPS investigations from 83 counties in the United States (Dolan, Smith, Casanueva & Ringeisen, 2011).<sup>4</sup> Interviews for the first wave were conducted between 2008 and 2009, and data were collected from a number of sources, including caregivers, caseworkers, children, teachers, and agency directors; county-level data are also included for each county (NSCAW Research Group, 2011). We utilized information obtained through interviews with caregivers and caseworkers, along with county-level demographic characteristics.

### 2.2. Sample

Our analysis sample included only those children who were living with their parent(s) or permanent caregiver(s) (including legal guardians and adoptive parents) at the time of the initial caregiver interview. This inclusion criteria was imposed because, for children who had already been placed out-of-home, the caregiver interview was conducted with the surrogate caregiver (most frequently a foster parent). Thus, from the initial NSCAW-II sample of 5,872 children, we excluded 2,237 children who were placed out-of-home prior to the initial caregiver interview and an additional 43 cases where the caregiver interview was conducted with someone other than the parent or permanent caregiver. This resulted in a potential analysis sample of 3,592 children. Additionally, we further limited the sample to cases in which both the child and the caseworker were identified as either non-Hispanic white or non-Hispanic black (meaning people who identified their ethnicity as Hispanic, irrespective of their racial identification, were excluded). This limitation was imposed for several reasons. First, having two distinct racial groups facilitates our difference-in-difference analysis (described below). Second, evidence tends to suggest that other racial or ethnic minority groups, such as Hispanic and Asian Americans, are under, rather than overrepresented in child welfare (Lu et al, 2004). Lastly, while there are indications of disproportionate involvement in CPS for Native Americans (Hines et al, 2004), there is not a sufficient sample size of Native American children to allow for a robust analysis, and the unique status of Native American children in CPS cases as a result of the federal Indian Child Welfare Act make inferential analyses difficult. This resulted in the exclusion of an additional 1,758 cases, reducing our potential analysis sample to 1,834. Finally, we excluded 318 cases in which the caseworker interview was not conducted with the caseworker who investigated the initial maltreatment complaint (performed the initial risk and harm assessments and participated in the initial substantiation decision), and 55 cases that had missing data on one or more of the outcome measures.<sup>5</sup> These exclusions resulted in a final analysis sample of 1,461 non-Hispanic black and white children who were the subject of a CPS investigation conducted by a non-Hispanic black or white caseworker.

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<sup>4</sup>Cases involving infants were purposely oversampled, however, unlike the sampling strategy for the initial NSCAW cohort, NSCAW-II did not target cases on the basis of case allegations. (NSCAW Research Group, 2011). Case substantiation was not a factor in sampling.



## 2.3. Measures

**2.3.1. CPS assessments and case outcomes**—Our analyses focused on four specific CPS assessments and case outcomes: objective risk assessment items, subjective risk assessment items, high level of harm to the child and case substantiation. The NSCAW data include a set of 33 caseworker-reported dichotomous items that are known correlates or predictors of child abuse and neglect and are commonly used in CPS risk assessments. These items range from relatively objective (caregiver has a prior substantiated CPS case, child has special needs, caregiver involvement in non-CPS services) to highly subjective (caregiver is motivated to change, caregiver has poor parenting skills, reasonable level of caregiver cooperation) in nature. We divided these items into separate measures of *subjective* (12 items) and *objective* risk assessment items (21 items) from the full scale.<sup>6</sup> In each case, a family's score was represented by a count (sum) of the number of risk factors identified by the caseworker because the cumulative impact of such factors is thought to increase the likelihood of substantiation (Child Welfare Information Gateway, 2003). *High level of harm to the child* was measured by the caseworker's assessment of the degree of harm suffered by the alleged child victim. This item was initially reported on a 4-point scale, with 1 indicating no harm and 4 indicating extensive harm; however, we dichotomized it such that a code of 1 (3 or 4 on the original scale) indicated a high level of harm and a code of 0 (1 or 2 on the original scale) indicated little or no harm. Finally, *substantiation* consisted of a dichotomous measure (1 = yes) indicating that the caseworker determined that the preponderance of evidence indicated child maltreatment had occurred and the case therefore resulted in a maltreatment finding.

**2.2.2. Child and caseworker race**—Child race and caseworker race were measured by dichotomous variables indicating (1 = yes) that the child or caseworker was non-Hispanic black, as opposed to non-Hispanic white (hereafter “black” and “white”).<sup>7</sup> In many models, we used a set of indicators that constituted a full interaction of each combination of child race and caseworker race: black child, black caseworker; black child, white caseworker; white child, black caseworker; and white child, white caseworker (which is the reference group in the models).

**2.2.3. Geographic factors**—CPS reports and outcomes have been shown to vary by locality (Drake & Pandey, 1996; Coulton, Korbin, Su, & Chow, 1995; Roberts, 2002). Distributions of both caseworker race and child race also vary by locality. As such, we controlled for several geographical factors. At the county level, we controlled for the unemployment rate, the poverty rate, the total population (logged), and the proportion of residents who are black. At the neighborhood level we controlled for measures of neighborhood quality and neighborhood problems. The neighborhood quality measure was constructed by averaging four caregiver-reported items (0 to 2 points, ranging from worse to better) in which caregivers were asked to rate their neighborhood compared to others in the areas of safety, neighborly assistance, caregiver involvement, and whether it is a better place

<sup>5</sup>Missing data on all other variables was replaced with either the sample mean (for continuous variables) or zero (for dichotomous variables). Only household income had a high frequency of missing data (19%). All other covariates had missing data of less than 5%. Consequently, we chose to use simple mean imputation to replace missing values for the covariates. We included missing value indicators in all of our models; however, because most covariates had little missing data, the indicators were constructed such that a value of 1 indicated a missing value on any variable in a given block (geographic factors, caseworker characteristics, case characteristics, and sociodemographic characteristics) for each observation, and a value of 0 indicated complete information on that variable block for the observation. To test whether the utilization of simple mean imputation to retain the full sample influenced the results of our analyses, we did a complete case analysis as well. The results were not distinctly different for any of the outcomes with regard to direction, magnitude, or significance.

<sup>6</sup>See the appendix for a list of the 33 risk assessment items and whether we defined each as objective or subjective in nature.

<sup>7</sup>As noted above, our analysis sample is limited to cases in which both the child and caseworker are reported to be either non-Hispanic black or non-Hispanic white.

to live than other areas. Neighborhood problems was operationalized by the sum of 5 ordinal items that the caregiver reported as being not at all, somewhat, or highly problematic in the neighborhood: assaults/muggings, delinquents/drug gangs, open drug use/dealing, unsupervised children, or groups of teens hanging out.

**2.2.4. Caseworker characteristics**—Caseworker characteristics other than race may also influence case assessments and decisions and/or vary by race. Thus, we controlled for the caseworkers' age, gender, experience (number of years employed in CPS), and education. Caseworker education was represented by two dummy variables; one indicating that the worker had a bachelor's of social work (BSW) degree and the other indicating that he or she had a bachelor's degree in another field (BA). The reference group consisted of caseworkers with advanced (graduate) degrees, as well as a negligible number of caseworkers who had no degree ( $N = 15$ ).

**2.2.5. Case characteristics**—The nature of maltreatment allegations reported may both vary by race and also affect the assessment and substantiation processes. We therefore included in our models a series of indicators (1 = yes) that the initial allegation included: sexual abuse, physical abuse, emotional abuse, child neglect, or some "other" category of alleged maltreatment. These categories are not mutually exclusive as a single complaint can contain multiple allegations. Indeed, 18.4 percent of our analysis sample was reported to have two or more categories of alleged maltreatment. We also included in our models an indicator (1 = yes) that the case was the subject of a law enforcement investigation for potential criminal charges. CPS allegations which are concurrently investigated by law enforcement are more likely to be substantiated (English, Brummel, Graham & Coghlan, 2002); they may also contain more severe allegations, which may affect the perceived level of harm to the child, as well as the risk assessment. It is also possible that law enforcement investigation decisions may vary by race and/or be differentially associated by race with CPS assessments or outcomes.

**2.2.6. Sociodemographic characteristics**—We include as covariates in our models a number of sociodemographic factors which are correlated with child maltreatment or CPS involvement (Drake et al, 2009; Jonson-Reid et al, 2009; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001; Schuck, 2005; Stith et al, 2009; Taplin & Mattick, 2011); many of these factors may also vary by race or have differential associations by race with CPS assessments and outcomes. These include caregiver age, caregiver sex, caregiver education (indicators for greater than a high school degree and less than a high school degree, with high school degree as the reference category), family structure (indicators for single parent, social parent, and a relative caregiver, with both biological parents as the reference group), number of children in the household, number of adults in the household, whether the caregiver is employed, household income, whether the family is receiving TANF (time-limited cash assistance for poor families with children), whether the family is receiving SNAP (a means-tested food assistance program, previously known as food stamps), child age, and child sex.

### 2.3. Estimation

We used two primary analytic methods: ordinary least squares (OLS) regressions and Blinder-Oaxaca decompositions. An important assumption in these analyses is that caseworker and child race are uncorrelated. That is, if children were systematically assigned to caseworkers of the same race than the interaction of caseworker and child race would be correlated with unobserved, nonrandom factors. To test this assumption, we estimated a logistic regression model using child race as the dependent variable. In a bivariate model (with no covariates), there was a statistically significant association between child race and

caseworker race. However, once geographic covariates were included in the model, the coefficient representing the association between caseworker race and child race reduced to nearly zero and was no longer statistically significant. Hence, we assume that assignment of children to caseworkers is not a direct function of child race and caseworker race, but is rather indicative of the relative proportion of black and white children and caseworkers in a given geographic region; we therefore controlled for geographic factors in all of our models and clustered the standard errors to adjust for correlation among cases drawn from the same county. Having satisfied this assumption we proceeded with the OLS and decomposition analyses described below.

**2.3.1. OLS regressions**—We estimated OLS regressions for all of the outcomes.<sup>8</sup> The most basic models took the following form:

$$Y_i = \alpha + \beta_{BCH}BCH_i + \beta_{BCW}BCW_i + \beta_{GEO}GEO_i + \beta_{CW}CW_i + \beta_{CASE}CASE_i + \beta_{SOC}SOC_i + \varepsilon_{i(1)}$$

where Y is a CPS assessment or outcome, BCH is an indicator that the child is black, and BCW is an indicator that the caseworker is black. **GEO** represents a vector of county level measures and neighborhood characteristics; **CW** and **CASE** are vectors of caseworker and case characteristics, respectively; **SOC** is a vector of sociodemographic characteristics; and  $\varepsilon_i$  is an error term. We estimated the model in four steps such that, in Model 1, we included only the race variables and geographic factors; in Model 2 we added caseworker characteristics; in Model 3 we added case characteristics; and, in Model 4 we added sociodemographic characteristics. Additionally, for substantiation, we estimated a fifth model in which we also controlled for the caseworker-reported risk assessment scores and level of harm to the child. This was useful for examining whether any differences in substantiation determinations are driven by differences in assessments of risk and harm.

We then estimated a second set of OLS regressions in which child race and caseworker race were fully interacted. These models took the form:

$$Y_i = \alpha + \beta_{BB}BB_i + \beta_{BW}BW_i + \beta_{WB}WB_i + \beta_{GEO}GEO_i + \beta_{CW}CW_i + \beta_{CASE}CASE_i + \beta_{SOC}SOC_i + \varepsilon_i$$

where BB indicates that both the child and caseworker are black, BW indicates a black child and white caseworker, and WB indicates a white child and black caseworker. White child and white caseworker was the reference category in these models. The covariates were entered in the same progression as was the case for the simpler model described above.

Since the combinations of caseworker and child race were represented using a series of indicator variables, each combination is interpreted relative to the omitted group, white child and white caseworker. In order to assess differences between other race combinations, we also computed F-statistics of the statistical equivalence between each of the child and caseworker race combination coefficients. Specifically, we tested for differences between case outcomes for black and white children when assessed by black caseworkers ( $\beta_{BB} = \beta_{WB}$ ),<sup>9</sup> case outcomes for black children when assessed by white and black caseworkers ( $\beta_{BB} = \beta_{BW}$ ), and case outcomes for children of the other race when assessed by black and white caseworkers ( $\beta_{BW} = \beta_{WB}$ ). Finally, we constructed a difference-in-difference test of

<sup>8</sup>Although both high level of harm to the child and case substantiation are dichotomous outcomes, we used linear probability models rather than logit or probit regressions for consistency with the models for the risk-related outcomes. Results from sensitivity analyses comparing the linear probability model estimates to marginal effects from logit regressions (not shown) were similar with regard to magnitude, direction, and statistical significance.

<sup>9</sup>Note that, because the reference category in these models was white child and white caseworker ( $\beta_{WW}$ ), the coefficient for black child and white caseworker ( $\beta_{BW}$ ) represents the difference between assessments of black and white children among white caseworkers.

whether the difference between case outcomes for black and white children was equivalent when black caseworkers and white caseworkers conducted the investigation ( $\beta_{BW} = \beta_{BB} - \beta_{WB}$ ). Here, a rejection of the null hypothesis that  $\beta_{WB} = \beta_{BW} - \beta_{BB}$  suggests that there is race-related bias in CPS decision making. However, it does not indicate whether the bias lies in black caseworkers' assessments of white children, white caseworkers' assessments of black children, or some combination thereof.

**2.3.2. Decomposition Models**—We employed Blinder-Oaxaca decomposition methods (Blinder, 1973; Oaxaca, 1973) to examine the extent to which differences in CPS assessments and case decisions between black and white children were due to differences in characteristics between black and white families versus differences between families in associations of those characteristics with the outcomes. Most commonly used in studies of labor market discrimination, the Blinder-Oaxaca decomposition allows for the difference in the outcome to be divided into two portions: that which is attributable to dissimilarities in characteristics of the two groups (e.g. different rates of poverty among black and white families); and that which is attributable to differences in returns to these characteristics (e.g. differences in the association of poverty with substantiation for black families compared to the association of poverty with substantiation for white families).<sup>10</sup>

An important element of the method is that an assumption must be made with regard to the “true” underlying model (i.e., set of coefficients) that is expected in the absence of bias (differences in associations between the predictors and outcomes by group). Furthermore, one must take into account that bias can be positive in nature, such that one group is favored, or negative in nature, such that one group is discriminated against (Jann, 2008). It would be possible for us to have argued that either the model for black families or that for white families represents the “true” model in the absence of bias and, therefore, used that model as the reference. For example, because black families are disproportionately overrepresented in CPS, we might have argued that the model for white families represented the “true” model and that black families faced discrimination in the system. This would suggest that black families should be treated the same as white families. Conversely, we might have argued that black families are not subject to negative discrimination, but rather that white families receive favorable treatment, whereby the model for black families would represent the true model, implying that white families should be treated the same as black families. However, we had no theoretical basis for choosing one model over the other given that it is unknown whether any bias in CPS assessments and decision making is due to harsher (less harsh) treatment of black families, less harsh (harsher) treatment of white families, or some other pattern. As such, we made the assumption that a pooled model (based on the full sample) would best represent the true underlying model in the absence of bias. Thus, we employed the generalized version of the Blinder-Oaxaca decomposition, proposed by Neumark (1988) and Oaxaca and Ransom (1988, 1994), in which the coefficients from a model for the combined sample are used as the reference coefficients for each of the two groups. Furthermore, because several studies (see, e.g., Elder, Goddeeris, & Haider, 2010; Fortin, 2006; Jann, 2008) have demonstrated that, unless the group variable (black versus white child, in our case) is included in the pooled reference model, the decomposition results will be biased toward over-inflating the proportion of the outcome that is attributed to dissimilarities in characteristics (the explained portion) relative to coefficients (the unexplained portion), we included in the pooled model estimation an indicator for child race.

<sup>10</sup>We used Stata's *oaxaca* program to estimate the decomposition models based on linear probabilities (Jann, 2008). We tested the robustness of our results to a nonlinear decomposition specification using Stata's *nldecompose* (Sinning, Hahn, & Bauer, 2008) and found the estimates to be nearly identical. As with the OLS regressions, we clustered the standard errors in all of the decomposition models at the county level to account for interdependency of observations.

Using case substantiation as the outcome of interest, for example, our pooled model took the form:

$$(\pi_w - \pi_B) = \Delta \bar{X} b + [\bar{X}_w (b_w - b) + \bar{X}_B (b_B - b)] \tag{3}$$

where  $\pi_w$  and  $\pi_B$  represent the proportions of black and white children whose cases were substantiated, respectively.  $\bar{X}$  represents the mean value of the covariates and  $b$  represents the mean association of (coefficients for) those variables with regard to the probability of substantiation and  $\Delta \bar{X} b = [\bar{X}_w - \bar{X}_B][b_w - b_B]$ . If the true model is represented by  $b_B$ , then equation 4 will be reduced to:

$$(\pi_w - \pi_B) = \Delta \bar{X} b + [\bar{X}_w (b_w - b)] \tag{4}$$

which is the decomposition specifying the black children as the reference group. Similarly, if the model for white children represents the true model, equation 4 will be reduced to:

$$(\pi_w - \pi_B) = \Delta \bar{X} b + [\bar{X}_B (b_B - b)]. \tag{5}$$

However, if the true model includes discriminate associations in both groups, the results of the pooled model will not be consistent with either equation 5 or 6, because  $b \neq b_B$  and  $b \neq b_w$ .<sup>11</sup> In simple terms, we examine the portion of the black-white differential that is explained (due to  $\Delta \bar{X}$ ) versus unexplained (due to  $\Delta b$ ). The unexplained portion is often interpreted as the variation due to discrimination or bias because it reflects differences in the treatment of each group—as observed by differences in the associations between the characteristics and the outcome between groups—as opposed to differences in the composition of the groups.

Empirically, the decomposition analysis consists of estimating the pooled regression (including the group indicator) as well as separate regressions for each race group. The covariates were entered into the decomposition models in the same progression as was used in the OLS regressions. The separate regression results are then used to compute the difference between each coefficient and (on average) the full set of coefficients from the pooled model and from those from both the model for black children and that for white children. The mean difference in each covariate and (on average) across the full set of covariates between the pooled sample and each race group is also computed. The resulting quantities are used to identify the explained and unexplained portions of the outcome as follows:

$$Explained = (\bar{X}_w - \bar{X}) - (\bar{X}_B - \bar{X}) \tag{6}$$

$$Unexplained = (b_w - b) - (b_B - b) \tag{7}$$

where  $\bar{X}$  and  $b$  (without subscripts) represent the mean covariate and coefficient values from the pooled model.

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<sup>11</sup>Supplemental analyses (results not shown) using the coefficients from models for black and white children as the reference coefficients suggested that results when the pooled model was used as the reference model followed the same overall pattern (though with some differences in the magnitude of the estimates) as those when the model for black children was used as the reference model with regard to subjective and objective risk as well as substantiation, but not with regard to harm to the child; results when the pooled model was used as the reference model followed the same overall pattern as those when the model for white children was used as the reference model with regard to subjective risk and substantiation, but not objective risk or harm to the child.

Recent evidence suggests that black and white families differ in many ways that are related to CPS reports (Drake et al., 2011) and that are also likely to be correlated with CPS outcomes. Because few prior studies, particularly those investigating differences in outcomes of CPS investigations, have simultaneously adjusted for the wide range of covariates that are included in our models, little is known about how these factors may account for differences in outcomes for black and white children. It is also unclear whether, net of these differences, black and white families experience differential treatment by CPS. Our decomposition analyses enable us to explicitly quantify any unexplained variation in outcomes by race and to explore potential sources of such variation by examining individual coefficients from separate models for black and white families. It is important to note, however, that results of both the OLS and decomposition analyses may be biased by omitted variables if we have failed to include in our models factors that may influence associations between race and CPS assessments and decisions.

### 3. Results

#### 3.1. Descriptive Statistics

Table 1 presents descriptive statistics for black and white children. The raw data reveal no race differences with regard to the objective or subjective risk assessment measures. However, black children were more likely than white children to be rated as having experienced a high level of harm (marginally significant at  $p < .10$ ) and also to have had their CPS case substantiated. As noted above, differences in the characteristics and environments of black and white families are a possible explanation for racial disproportionality in CPS outcomes. Indeed, we find significant differences by race in a number of areas. Specifically, relative to white children, black children tended to live in counties that were more heavily populated and had a larger percentage of black and poor residents, and their neighborhoods were reported as being of lower quality and having more problems. Black children were more likely to be assigned a black caseworker<sup>12</sup> and, on average, they were assigned older and more experienced caseworkers. Case characteristics also differed by race: white children were more likely than black children to have been reported for allegations of physical, sexual, emotional, or “other” maltreatment. Finally, black children tended to live in households with greater numbers of children and were less likely to live with both of their biological parents and more likely to have a (non-parent) relative caregiver, as compared to white children. In addition, black children experienced lower levels of household income and their households were more likely to receive TANF and SNAP. Below, we present the results from our regression and decomposition analyses, which examine the role of these differences vis-à-vis CPS experiences for black and white children.

#### 3.2. Regression Results

Table 2 presents results from our OLS regressions which included child race and caseworker race, but did not include the interaction between them. Results from Model 1, which controlled only for geographic factors, suggest associations between caseworker race and case outcomes, but none between child race and case outcomes. Specifically, black caseworkers rated all children, black or white, at lower levels of subjective risk than did white caseworkers. Conversely, however, black caseworkers were more likely to substantiate a family for maltreatment than were white caseworkers, again, regardless of the child’s race. With the addition of caseworker and case characteristics, the association between caseworker race and subjective risk was attenuated and, with the addition of family sociodemographic characteristics, reduced to nonsignificance. Conversely, however, the

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<sup>12</sup>As noted above, however, this is purely a function of county demographic characteristics and there is no systematic relationship between child race and caseworker race once county characteristics are controlled (i.e., within county).

association between caseworker race and substantiation retained significance in all of the models. Thus, even after accounting for the full set of covariates, including caseworker-perceived risk and harm to the child, black caseworkers were about 10 percentage points more likely to substantiate families for maltreatment than were white caseworkers. Given that white and black families in our sample were substantiated at rates of 43% and 56%, this suggests that white and black families investigated by black caseworkers were 23% and 18% more likely to be substantiated than those investigated by white caseworkers (assuming that the difference in substantiation rate by caseworker race is consistent for black and white families).

We next examined whether CPS assessments and case decisions varied by the interaction between caseworker race and child race. These results are shown in Table 3. We find that the interactions between caseworker race and child race do appear to matter, and in unexpected ways. First, we find that, compared to white caseworkers, black caseworkers rated white children—but not black children—at lower subjective risk. This finding was robust to the addition of the full set of covariates. Second, we find that, once the full set of covariates was taken into account (Model 4), compared to white caseworkers' ratings of white children, black caseworkers rated black children as 9 percentage points more likely to have suffered a high level of harm. Furthermore, results from the F-tests for equality of the coefficients revealed that black caseworkers rated black children as 11 percentage points more likely to have suffered a high level of harm than white children, and also that black caseworkers rated black children as 11 percentage points more likely to have suffered a high level of harm than did white caseworkers. The difference-in-difference test, which explicitly compares the gap between black and white caseworkers' ratings of black and white children, was also significant, suggesting that higher harm ratings for black children are not equally determined by black and white caseworkers.

We also find that black caseworkers were significantly more likely to substantiate black children than were white caseworkers to substantiate white children. This finding was robust to all of the model specifications. Consistent with the results for high level of harm to the child, estimates from Model 4, which included all of the covariates, indicated that black caseworkers were more likely to substantiate black children than they were to substantiate white children (12 percentage points) and that black caseworkers were more likely to substantiate black children than were white caseworkers (17 percentage points). However, the difference-in-difference test for substantiation was nonsignificant. Furthermore, after also adjusting for caseworker-perceived risk and harm (Model 5), we find that black caseworkers were 14 percentage points more likely to substantiate black children than were white caseworkers to substantiate white children, and that black children were 13 percentage points more likely to be substantiated when investigated by a black caseworker than by a white caseworker. Nonetheless, the difference-in-difference estimate was, again, nonsignificant.

### 3.3. Decomposition Results

Table 4 depicts the primary results of the decomposition models. The top row shows the raw difference between black and white children ( $\bar{Y}_W - \bar{Y}_B$ ) for each outcome variable (repeated from Table 1). The subsequent panels present the results of the decomposition analyses for Models 1 through 4 for the risk and harm measures, and 1 through 5 for substantiation. Because there was no statistically significant mean difference between black and white children on the subjective or objective caseworker-perceived risk measures, there were no substantial gaps in risk to decompose with regard to risk. Nonetheless, for consistency with the other analyses, we present these models. We also note that, though nonsignificant (given the nonsignificant mean difference) the results from Model 4 suggest that, once the full set of covariates was controlled, the slight difference between black and white children vis-à-vis

caseworkers' assessments of subjective and objective risk was fully explained by differences in characteristics.<sup>13</sup>

Black children were .04 percentage points more likely than white children to have been assessed as having experienced a high level of harm. The decomposition results from Models 1 through 3 suggest that the vast majority of this gap was attributable to differences in characteristics rather than coefficients. In the final model, this pattern changes such that the majority of the difference (70%) was attributable to differences in associations (coefficients) of primarily sociodemographic characteristics with the probability of black and white children being assessed as having experienced a high degree of harm. Though this pattern suggests that there may be some degree of race-related bias with regard to caseworker assessments of harm to a child, these estimates are not statistically significant, which likely reflects that the raw difference in the outcome was quite small in magnitude. Nonetheless, a comparison of the coefficients from the separate regression models for black and white children (Table 5) suggests that there may have been differences in returns to some of the sociodemographic characteristics. For example, having a male caregiver was associated with the caseworker perceiving a high level of harm to the child for white but not black children, whereas a child having a (non-parental) relative caregiver and household TANF receipt were associated with the caseworker perceiving a lower level of harm for white than black children. For black but not white children, having a caregiver with less than a high school degree was associated with more, and receiving SNAP with less, caseworker-perceived harm.

In contrast to the raw differences in caseworker-perceived risk and harm, the black-white gap in substantiation was large and statistically significant. The mean difference, here, suggests that black children were approximately 13 percentage points more likely to be substantiated than white children. In Model 1, we find that just over half of this difference was attributable to differences in geographic characteristics. This suggests that county- or neighborhood-level differences in rates of substantiation may, in part, explain disproportionate rates of substantiation for black children; and, indeed, our descriptive statistics (Table 1) showed significant differences in geographic contexts for black and white children. With the addition of caseworker (Model 2) and case (Model 3) characteristics, the proportion of the difference explained by characteristics (as opposed to coefficients) increased considerably, to just over 75%. It was then moderately attenuated with the addition of sociodemographic characteristics, but remained large at 65%. Overall, then, it appears that the majority of the gap in the black-white substantiation rates was attributable to mean differences in factors such as the geographic environment, as well as the caseworker, case, and family sociodemographic characteristics that were documented in Table 1.

Finally, after adjusting for caseworker perceived risk and harm (Model 5), we find that 74% of the difference in substantiation rates between black and white children was explained by mean differences in the covariates, whereas 26% was attributable to differences in coefficients. However, the latter estimate was statistically nonsignificant in all 5 models. With this in mind, an examination of the coefficients from the separate models for black and white children (Table 5) reveals some differences in the coefficients across models. For example, having a physical abuse allegation, the focal child being male, and TANF receipt were associated with a lower probability of substantiation among white but not black children, whereas having a male caregiver was associated with a higher probability of

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<sup>13</sup>That the portion of the mean difference due to differences in the coefficients in these models is negative indicates that (and is typically the case when) the group with the worse mean outcome possesses a relative advantage with regard to some of the coefficients. Again, however, this is inconsequential given that there is no significant mean difference for either outcome.



substantiation for white children only. For black (but not white) children, having been assessed by a black caseworker and having had a neglect allegation were associated with a higher probability of substantiation, whereas the child being older and living in a county in which a greater proportion of the population was black were associated with a decreased probability of substantiation. Notably, the associations of caseworker-perceived risk and harm with substantiation were quite similar for black and white children.

#### 4. Discussion

Our results offer new information about how race may influence decision making within CPS in the United States. To begin with, while the prior literature has been inconsistent on whether risk assessment scores differ by race (Baird et al, 1999; Riveaux et al, 2008; Miller, 2011), our raw data revealed no differences by child race in caseworker assessments of either objective or subjective risk assessment items. This may, at least in part, reflect that our analysis sample by necessity excluded children who were likely to be most severely abused and neglected and were therefore removed from home prior to the first NSCAW-II interview. We do, however, find differences by race such that caseworkers were slightly more likely to rate black children than white children as experiencing a high level of harm and also that, consistent with prior literature, they were more likely to substantiate black families than white families for maltreatment (Detlaff et al, 2011; Fluke et al, 2003). That the former gap was quite small and only marginally significant may, again, reflect that children experiencing severe maltreatment were likely excluded from our analysis sample. Our raw data also revealed considerable differences in background characteristics and risk factors, such that the black children in our sample were more disadvantaged than the white children. This, too, is consistent with prior work (see Chand, 2000; Hines et al, 2004). Thus, we used regression and decomposition analyses to further examine the role of such differences, as well as the interplay between caseworker and child race, in explaining differences in CPS assessments and outcomes.

Our regression results from models adjusting for the full set of covariates produced three major findings. First, we find that black caseworkers rated white children, but not black children, at lower subjective maltreatment-related risk than did white caseworkers. Second, we find both that black caseworkers rated black children as more likely to have suffered a high level of harm than white children and also that black caseworkers rated black children as more likely to have suffered a high level of harm than did white caseworkers.. Third, we find that black caseworkers were more likely to substantiate all families—black and white—for maltreatment, even after accounting for the caseworkers' own assessment of risk and harm to the child. We also find that black caseworkers were significantly more likely to substantiate black children than were white caseworkers to substantiate white children. Again, however, the difference-in-difference test revealed that the gap in substantiation between black and white children did not differ by caseworker race.

Together, these results imply that black caseworkers tend to assess all families at greater levels of harm and as more likely to cross a legal threshold for maltreatment than do white caseworkers. Furthermore, although black families with black caseworkers were significantly more likely to be attributed a high level of harm than any other child/caseworker race combination, both black and white caseworkers appear to identify more substantiation-worthy maltreatment among black families than among white families, and at a similar degree of magnitude. While this is consistent with other studies which have suggested that black and white caseworkers may have different beliefs about what constitutes harm or maltreatment (Chand, 2000; Chibnall et al, 2003; Surbeck, 2003), our findings generally indicate that the black-white gap in substantiations is not driven by caseworkers treating white and black children differently. Rather, because black children

have a higher likelihood of being assigned to a black caseworker as a result of racial homogeneity within communities (Perry & Limb, 2004), the greater propensity of black caseworkers to substantiate cases may disproportionately affect black children.

Simply put, though we find no evidence of bias associated with child race, our findings do suggest that race may matter with regard to CPS assessments and decision making, but in unexpected ways: children in general, and black children, in particular, are assessed to have greater levels of harm and face a greater probability of substantiation when investigated or assessed by a black caseworker. One implication of this finding is that raw differences in CPS outcomes by race may, at least in part, reflect that black children are more likely than white children to be assessed by black workers. Indeed, in our data (Table 1), 54% of black children were assessed by a black worker, compared to 24% of white children. At the same time, given that our preliminary analyses (not shown) revealed the correlation between worker race and child race to be fully explained by county- and neighborhood-level factors, it is possible that this finding reflects environmental contextual factors for which we failed to control. Future research should therefore seek to better understand how both caseworker race and geographic context may influence CPS assessments and decisions.

Finally, our decomposition analyses suggest that differences in substantiation rates between black and white children were predominantly explained by differences in geographic factors, caseworker characteristics, case characteristics, sociodemographic characteristics, and caseworker assessments of risk and harm, rather than by differences in associations between these factors and substantiation. Notably, we added these sets of factors to the models in blocks and find this to be the case in each model specification. Thus, our decomposition analyses further indicate that differences in substantiation rates do not primarily reflect differential treatment of black and white families involved with CPS. However, we cannot fully rule out that differential treatment may play a (limited) role.

Two primary limitations of this study should be considered when assessing our results. First, our results should not be interpreted as causal estimates. Rather, we focused on the extent to which assessments and substantiations were similar or different for black and white children based on observed geographic factors, as well as caseworker, case, and family sociodemographic characteristics (and, in some models, caseworker assessments of risk and harm to the child). As is the case with all observational studies, our results may therefore have been biased to the extent that we failed to account for factors that are correlated with child race and the CPS outcomes of interest. Second, data limitations of NSCAW-II required that we exclude from our analysis sample children who were removed from home prior to the initial interview. As such, our analysis sample likely excluded children exposed to more severe forms of maltreatment. Our results should be considered in this context and should not be generalized to all CPS-involved families.

## 5. Conclusion

Despite the limitations noted above, this study extends knowledge of how race may influence CPS assessments and decision making in several ways, and adds to the ongoing debate about whether black and white children and their families experience differential treatment by CPS. We find that, all else equal, child race is not predictive of CPS case outcomes or assessment. That is, we find no evidence that black and white families are systematically subject to differential treatment by CPS. At the same time, however, caseworker race and associated combinations of child and caseworker race may be important. Whereas, we find no evidence that black families are judged more harshly by white caseworkers than by black caseworkers, nor that black families are judged more harshly than white families when both are assessed by white caseworkers, we do find

evidence that black caseworkers judge all families more harshly than white caseworkers and also that black caseworkers are more likely to substantiate black families than white families for maltreatment.

On the whole, these findings suggest that efforts to address racial disproportionality in CPS, which have predominantly focused cultural competence training for caseworkers and recruitment of minority workers (Chand, 2000; Harris & Hackett, 2008; James et al, 2008; Kim et al, 2011) are unlikely to reduce black-white gaps in CPS outcomes, particularly if they operate under the assumption that such differences are determined by white caseworkers' assessments of black families. Rather, greater attention should be given to the geographic contexts in which families and caseworkers function, as well as to racial differences in sociodemographic and case characteristics that are associated with maltreatment. In addition, future research should focus on better understanding how caseworkers gather and interpret information from families of the same and other races. Finally, though we find no explicit evidence of racial bias in this study, we do not argue that bias or discrimination is completely absent from the CPS process. Rather we caution that the role of race within CPS is complex and that there is likely a great deal of heterogeneity in case details as well as worker-family interactions. Nonetheless, we believe that a discourse focused predominantly on caseworker bias oversimplifies an assessment and decision-making process in which individuals must weigh evidence (and the relative severity) of acts which have already occurred and contextual factors which are, at best, probabilistically indicative of future harm to a child, all in a context of incomplete information. Hence, the task of sorting out the relative weight of various pieces of information that factor into caseworkers' decisions and disentangling the unique contribution of caseworker and family race remains especially difficult.

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### Highlights

- We assess how CPS assessments vary by worker and child race.
- Risk assessment scores were not significantly different by child race.
- Substantiation rates and harm ratings were higher for black children.
- Different substantiation rates were mostly explained by case differences.
- Black and white caseworkers differed in their propensity to substantiate cases.

Table 1

Descriptive statistics

	White Child			Black Child			t	*
	M	SD	%	M	SD	%		
<b>Outcomes</b>								
Objective risk	5.63	2.64		5.74	2.54		-0.76	
Subjective risk	2.00	1.68		1.94	1.69		.65	
High level of harm to Ch			29.70			33.81	-1.68	+
Case substantiated			42.92			56.29	-5.11	***
<b>Geographic Factors</b>								
Unemployment rate (%)	5.99	1.27		6.09	1.22		-1.55	
% black	9.72	1.17		20.80	11.58		-19.43	***
% in poverty	14.08	4.05		15.32	4.02		-5.82	***
County population (ln)	5.23	.61		5.75	.66		-15.59	***
Nbhd quality (0-3)	1.74	.53		1.93	.59		-6.74	***
Nbhd problems (count)	1.32	2.02		2.52	3.04		-9.03	***
<b>Caseworker Characteristics</b>								
Non-Hispanic black			23.88			53.62	-12.26	***
Age	35.43	9.55		38.10	1.43		-5.09	***
Male			21.21			20.44	.36	
Years of experience	5.29	5.11		6.60	5.89		-4.55	***
BA degree			53.58			43.40	3.88	***
BSW degree			21.09			23.90	-1.28	
MA/MSW			23.76			31.32	-3.16	**
<b>Case Characteristics</b>								
Criminal investigation			22.91			22.80	.05	
Neglect			64.48			66.67	-.89	
Physical abuse			25.45			21.23	1.89	+
Sexual abuse			9.94			5.50	3.11	**
Emotional abuse			7.27			3.46	3.15	**
Other			15.88			2.75	-2.41	*



	White Child			Black Child			t	*
	M	SD	%	M	SD	%		
<b>Sociodemographic Characteristics</b>								
Caregiver age	30.88	8.02		30.08	8.01		1.90	+
Caregiver male			9.45			6.13	2.32	*
Cg more than HS education			16.00			15.25	.39	
Cg less than HS education			26.18			28.62	-1.04	
Cg's no. bio children	2.65	1.44		3.37	1.98		-8.12	***
Single parent			38.91			41.67	-1.07	
Both biological parents			38.67			24.69	5.71	***
Social parent			16.85			9.43	4.12	***
Relative caretaker			.24			1.42	-2.57	*
Number of children in HH	2.21	1.20		2.47	1.36		-3.87	***
Number of adults in HH	2.33	1.60		2.46	1.89		-1.41	
Cg employed			41.33			41.19	.05	
Household income	30522.95	32738.69		21912.36	39644.50		4.10	***
TANF receipt			13.33			18.24	-2.58	*
SNAP receipt			59.76			74.21	-5.85	***
Child age	2.27	1.16		2.01	1.14		4.21	***
Child male			48.73			45.44	1.23	
Observations			825			636		

Notes: 1,461 observations. Means (and standard deviations) or proportions presented. Values may not sum to total due to rounding. Two-tailed tests of significance between means for white and black children.

+  $p < .1$ ;

\*  $p < .05$ ;

\*\*  $p < .01$ ;

\*\*\*  $p < .001$

**Table 2**

Linear regression results for models without child and caseworker race interactions

	Subjective Risk	Objective Risk	Harm	Substantiation
<b>Model 1: race and geographic factors</b>				
Caseworker is black	-.280* (.138)	-.072 (.186)	.047 (.040)	.115* (.047)
Child is black	.062 (.101)	.135 (.174)	.001 (.029)	.061 (.045)
<b>Model 2: add caseworker characteristics</b>				
Caseworker is black	-.271+ (.143)	-.059 (.190)	.042 (.040)	.110* (.049)
Child is black	.056 (.096)	.138 (.171)	-.005 (.027)	.043 (.041)
<b>Model 3: add case characteristics</b>				
Caseworker is black	-.232+ (.136)	-.012 (.187)	.056 (.039)	.119* (.046)
Child is black	.100 (.092)	.178 (.169)	.000 (.027)	.033 (.039)
<b>Model 4: add sociodemographics</b>				
Caseworker is black	-.225 (.136)	-.029 (.185)	.053 (.037)	.113* (.044)
Child is black	.011 (.099)	-.012 (.172)	.029 (.027)	.046 (.038)
<b>Model 5: add risk and harm</b>				
Caseworker is black				.103** (.036)
Child is black				.035 (.036)
<i>F-tests of joint significance of the covariate blocks in the full model (p-values):</i>				
Geographic factors	.001	.084	.719	.009
Caseworker characteristics	.002	.305	.305	.001
Case characteristics	.000	.000	.000	.000
Sociodemographics	.000	.000	.000	.009
Risk and harm				.000

Notes: 1,461 observations. Coefficients and standard errors from OLS regressions presented. Standard errors were clustered to account for intra-cluster correlation at the county level. *F*-test results presented as *p* values. Covariates in each block are listed in Table 1.

+  $p < .1$ ;

\*  $p < .05$ ;

\*\*  $p < .01$ ;

\*\*\*  $p < .001$

Table 3

Linear regression results for models with child and caseworker race interactions

	Subjective Risk	Objective Risk	Harm	Substantiation
<b>Model 1: race and geographic factors</b>				
Black child, black caseworker ( $\beta_{BB}$ )	-.202 (.155)	.065 (.262)	.055 (.047)	.184 ** (.060)
Black child, white caseworker ( $\beta_{BW}$ )	-.044 (.117)	.124 (.219)	-.049 (.034)	.011 (.062)
White child, black caseworker ( $\beta_{WB}$ )	-.425 ** (.145)	-.088 (.236)	-.021 (.049)	.047 (.066)
F test: $\beta_{BB} = \beta_{WB}$	.194	.444	.107	.014
F test: $\beta_{BB} = \beta_{BW}$	.389	.778	.021	.002
F test: $\beta_{BW} = \beta_{WB}$	.046	.388	.591	.585
F test: $\beta_{BW} = (\beta_{BB} - \beta_{WB})$	.171	.906	.021	.118
<b>Model 2: add caseworker characteristics</b>				
Black child, black caseworker ( $\beta_{BB}$ )	-.198 (.154)	.084 (.261)	.044 (.044)	.160 ** (.059)
Black child, white caseworker ( $\beta_{BW}$ )	-.046 (.109)	.109 (.215)	-.049 (.032)	.000 (.056)
White child, black caseworker ( $\beta_{WB}$ )	-.411 ** (.149)	-.099 (.241)	-.018 (.049)	.052 (.067)
F test: $\beta_{BB} = \beta_{WB}$	.204	.359	.161	.051
F test: $\beta_{BB} = \beta_{BW}$	.414	.906	.031	.004
F test: $\beta_{BW} = \beta_{WB}$	.059	.399	.550	.420
F test: $\beta_{BW} = (\beta_{BB} - \beta_{WB})$	.175	.763	.029	.160
<b>Model 3: add case characteristics</b>				
Black child, black caseworker ( $\beta_{BB}$ )	-.118 (.142)	.167 (.263)	.063 (.045)	.159 ** (.055)
Black child, white caseworker ( $\beta_{BW}$ )	.016 (.109)	.170 (.211)	-.042 (.033)	-.009 (.052)
White child, black caseworker ( $\beta_{WB}$ )	-.345 * (.140)	-.023 (.240)	-.002 (.046)	.062 (.062)
F test: $\beta_{BB} = \beta_{WB}$	.141	.331	.136	.054
F test: $\beta_{BB} = \beta_{BW}$	.448	.990	.019	.001
F test: $\beta_{BW} = \beta_{WB}$	.051	.421	.419	.241
F test: $\beta_{BW} = (\beta_{BB} - \beta_{WB})$	.242	.933	.036	.129
<b>Model 4: add sociodemographics</b>				
Black child, black caseworker ( $\beta_{BB}$ )	-.204 (.154)	-.048 (.247)	.091 * (.043)	.167 ** (.051)
Black child, white caseworker ( $\beta_{BW}$ )	-.044 (.110)	.028 (.224)	-.023 (.034)	.001 (.050)
White child, black caseworker ( $\beta_{WB}$ )	-.302 * (.146)	.025 (.247)	-.018 (.043)	.050 (.059)
F test: $\beta_{BB} = \beta_{WB}$	.556	.697	.012	.018
F test: $\beta_{BB} = \beta_{BW}$	.365	.708	.011	.001
F test: $\beta_{BW} = \beta_{WB}$	.168	.992	.920	.407
F test: $\beta_{BW} = (\beta_{BB} - \beta_{WB})$	.443	.686	.011	.082
<b>Model 5: add risk and harm</b>				
Black child, black caseworker ( $\beta_{BB}$ )				.143 ** (.051)
Black child, white caseworker ( $\beta_{BW}$ )				.010 (.046)
White child, black caseworker ( $\beta_{WB}$ )				.069 (.050)

	Subjective Risk	Objective Risk	Harm	Substantiation
F test: $\beta_{BB} = \beta_{WB}$				.149
F test: $\beta_{BB} = \beta_{BW}$				.006
F test: $\beta_{BW} = \beta_{WB}$				.223
F test: $\beta_{BW} = (\beta_{BB} - \beta_{WB})$				.341
<i>F-tests of joint significance of the covariate blocks in the full model (p-values):</i>				
Geographic factors	.001	.069	.772	.010
Caseworker characteristics	.002	.298	.014	.001
Case characteristics	.000	.000	.000	.000
Sociodemographics	.000	.000	.000	.008
Risk and harm				.000

Notes: 1,461 observations. Coefficients and standard errors from OLS regressions presented. Standard errors were clustered to account for intra-cluster correlation at the county level. *F*-test results presented as p values. Covariates in each block are listed in Table 1.

<sup>+</sup>  $p < .1$ ;

\*  $p < .05$ ;

\*\*  $p < .01$ ;

\*\*\*  $p < .001$

**Table 4**

Decompositions with pooled reference group

	Subjective Risk	Objective Risk	Harm to Child	Substantiation
Raw difference	.058	-.104	-.041 <sup>+</sup>	-.134 <sup>*</sup>
<b>Model 1: race and geographic factors</b>				
Explained	.119 (.086)	.031 (.115)	-.040 <sup>+</sup> (.024)	-.073 (.046)
Percent	205.17%	-29.81%	97.56%	54.48%
Unexplained	-.062 (.097)	-.135 (.175)	-.001 (.031)	-.061 (.046)
Percent	-106.90%	129.81%	2.44%	45.52%
<b>Model 2: add caseworker characteristics</b>				
Explained	.113 (.082)	.034 (.115)	-.047 <sup>+</sup> (.024)	-.091 <sup>*</sup> (.045)
Percent	194.83%	-32.69%	114.63%	67.91%
Unexplained	-.056 (.092)	-.138 (.168)	.005 (.028)	-.043 (.042)
Percent	-96.55%	132.69%	-12.20%	32.09%
<b>Model 3: add case characteristics</b>				
Explained	.157 <sup>*</sup> (.079)	.073 (.110)	-.041 (.026)	-.101 <sup>*</sup> (.045)
Percent	270.69%	-70.19%	100.00%	75.37%
Unexplained	-.100 (.092)	-.178 (.168)	-.000 (.028)	-.033 (.039)
Percent	-172.41%	171.15%	0.00%	24.63%
<b>Model 4: add sociodemographics</b>				
Explained	.069 (.091)	-.116 (.121)	-.012 (.024)	-.088 <sup>+</sup> (.045)
Percent	118.97%	111.54%	29.27%	65.67%
Unexplained	-.011 (.093)	.012 (.173)	-.029 (.028)	-.046 (.039)
Percent	-18.97%	-11.54%	70.73%	34.33%
<b>Model 5: add risk and harm</b>				
Explained				-.099 <sup>*</sup> (.048)
Percent				73.88%
Unexplained				-.035 (.037)
Percent				26.12%

Notes: 1,461 observations. Standard errors in parentheses. Percentages based on absolute values. Percentage totals may not sum to 100 due to rounding. Covariates in each block are listed in Table 1.

<sup>+</sup>  $p < .10$ ;

<sup>\*</sup>  $p < .05$

Table 5

Breakdown of decomposition components

Block	Measure	Subjective Risk		Objective Risk		Harm to Child		Substantiation	
		White	Black	White	Black	White	Black	White	Black
Geographic	County population (logged)	0.026	0.028	0.076	0.208	-0.006	0.071 <sup>+</sup>	0.032	0.078
	Total county population percent Black	-0.009	-0.031 <sup>**</sup>	-0.003	-0.040 <sup>*</sup>	0.003	-0.004	0.003	-0.007 <sup>*</sup>
	% county poor	0.022	0.040	0.032	0.056	-0.004	0.013 <sup>+</sup>	-0.010	0.015
	% county black	-0.057	0.079	0.018	-0.023	0.017	0.000	0.036 <sup>+</sup>	0.063 <sup>**</sup>
	Neighborhood problems	0.010	0.064 <sup>*</sup>	0.118 <sup>+</sup>	0.036	0.004	0.006	0.001	-0.004
	Neighborhood quality	0.150	0.081	0.031	0.070	0.003	-0.005	0.050	0.048
Caseworker	Black	-0.375 <sup>*</sup>	-0.056	-0.161	0.061	-0.038	0.112 <sup>*</sup>	0.031	0.152 <sup>**</sup>
	Age	0.010	-0.010	0.023 <sup>+</sup>	-0.018	-0.001	-0.005 <sup>*</sup>	-0.001	0.003
	Male	-0.339 <sup>**</sup>	-0.435 <sup>**</sup>	-0.321 <sup>+</sup>	-0.191	-0.052	-0.046	-0.027	0.010
	Years at job	0.004	0.018	-0.020	0.032	0.006	0.017 <sup>***</sup>	0.010 <sup>*</sup>	0.009 <sup>*</sup>
	BA degree	-0.003	-0.115	0.141	-0.090	-0.046	0.015	-0.059	0.008
	BSW degree	0.089	-0.295 <sup>*</sup>	-0.268	-0.175	-0.135 <sup>**</sup>	-0.001	-0.104 <sup>*</sup>	-0.068
Case	Neglect	0.490 <sup>**</sup>	0.539 <sup>**</sup>	0.723 <sup>***</sup>	0.712 <sup>*</sup>	0.088 <sup>*</sup>	0.077	0.025	0.095 <sup>*</sup>
	Physical abuse	0.680 <sup>***</sup>	0.844 <sup>***</sup>	0.269	0.476	-0.010	0.138 <sup>*</sup>	-0.129 <sup>**</sup>	-0.017
	Sexual abuse	-0.248	0.533	-0.564	0.522	0.149 <sup>*</sup>	0.111	-0.032	-0.112
	Emotional abuse	0.434 <sup>*</sup>	0.767	0.717 <sup>+</sup>	1.164 <sup>*</sup>	0.154 <sup>*</sup>	0.064	-0.099	-0.167 <sup>+</sup>
	Other maltreatment	0.273 <sup>+</sup>	0.496 <sup>**</sup>	-0.019	0.330	-0.055	-0.002	-0.043	0.044
	Criminal investigation	0.474 <sup>**</sup>	0.199	0.452	0.360	0.251 <sup>***</sup>	0.117 <sup>+</sup>	0.150 <sup>***</sup>	0.222 <sup>***</sup>
Socio-demographic Factors	Caregiver age	0.016 <sup>+</sup>	-0.009	0.037 <sup>*</sup>	-0.023	-0.002	0.003	-0.003	0.003
	Caregiver male	0.031	-0.613 <sup>**</sup>	0.314	0.508	0.168 <sup>*</sup>	-0.045	0.106 <sup>*</sup>	-0.044
	C-g less than HS education	0.263 <sup>*</sup>	0.158	0.663 <sup>**</sup>	0.241	-0.007	0.093 <sup>*</sup>	-0.050	0.040
	Cg more than HS education	0.003	0.252	-0.386	-0.043	-0.014	-0.052	0.003	0.025

Block	Measure	Subjective Risk		Objective Risk		Harm to Child		Substantiation	
		White	Black	White	Black	White	Black	White	Black
	Cg's number of bio children	0.069	0.056	0.215*	0.287***	0.012	0.002	-0.004	-0.008
	Single parent	-0.230 <sup>+</sup>	-0.004	-0.324*	-0.321 <sup>+</sup>	-0.054	-0.022	-0.020	0.029
	Social parent	-0.312*	-0.314	0.220	-0.410	-0.059	0.032	-0.009	0.039
	Relative caregiver	-0.395	-0.555	-4.164***	-0.112	-0.477***	-0.105	-0.286**	-0.217 <sup>+</sup>
	Number of children in household	-0.017	0.250*	0.010	-0.189	-0.037	-0.029	-0.034	-0.008
	Number of adults in household	-0.016	-0.122 <sup>+</sup>	0.014	0.113	0.020	0.018	0.003	-0.006
	eg employed	0.039	-0.193	-0.228	-0.663***	-0.067	-0.018	-0.050	-0.010
	Logged household income	-0.009	-0.130	-0.113	-0.035	0.055 <sup>+</sup>	0.065**	0.013	0.019
	child age	0.184*	0.270**	-0.042	0.236*	-0.041*	-0.068***	-0.001	-0.032 <sup>+</sup>
	child male	-0.070	-0.128	-0.172	-0.425 <sup>+</sup>	-0.000	0.041	-0.087*	-0.009
	TANF receipt	0.028	0.313 <sup>+</sup>	0.223	0.053	-0.075 <sup>+</sup>	-0.030	-0.129**	-0.066
	SNAP receipt	0.269*	-0.298	0.282	0.211	-0.025	-0.097 <sup>+</sup>	0.027	0.069
	Subjective risk							0.046***	0.034***
	Objective Risk							0.016*	0.024**
	High level of harm to child							0.401***	0.302***
	Constant	-0.218	0.817	2.004	4.173**	0.182	-0.397	-0.037	-1.221**

<sup>+</sup> p < .10;

\* p < .05;

\*\* p < .01;

\*\*\* p < .001