

**Child Maltreatment and Child Welfare Intervention: Contextual and Individual
Inequalities**

BY

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THESIS

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This thesis is dedicated to my husband, Brett, and daughter, Charlotte, without whom it would never have been accomplished.

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LIST OF ABBREVIATIONS

CCAHS	Chicago Community Adult Health Study
CES	Community Environment Scale
CFA	Confirmatory factor analysis
DCFS	Department of Children and Family Services
DR	Differential response
DUFSSQ	Duke-UNC Functional Social Support Questionnaire
EFA	Exploratory factor analysis
FIA	Family impact analysis
IDB	Illinois Integrated Database
ISAT	Illinois Standards Achievement Test
LCA	Latent class analysis
NSCAW-II	National Survey of Child and Adolescent Well-Being-II

SUMMARY

Child welfare programs have started building alternative intervention programs designed to improve service delivery for families. In particular, the differential response (DR) approach to child welfare initiates a non-investigatory track for low-risk families referred into the system, which represents a shift from the investigatory approach of child protection. DR programs enable caseworkers to evaluate and deliver tailored services to address family needs while leaving children at home. Preliminary data in Chicago reveal that there are saturated neighborhoods where there are more than 50 families per square mile meeting the DR criteria (McEwen 2010). The saturation of families meeting the DR criteria may be due to individual factors or because families (especially poor and minority families) are often segregated in neighborhoods for reasons that are unrelated to their likelihood to abuse or neglect their children. However, the concentration of these families suggests that systemic, contextual risk factors may be operating for families residing in these blocks, highlighting the need for researchers to look for such explanations. Neighborhoods reproduce social stratification; the sorting into neighborhood can be “conceptualized as part of a dynamic social process of neighborhood stratification that reproduces racially shaped economic hierarchies” (Sampson and Sharkey 2008:27). This work will add to the literature on racial disproportionality in the child welfare system in the double jeopardy that families face from being poor and a racial-ethnic minority and residing in a disadvantaged neighborhood (Acevado-Garcia, Osypuk, McArdle, and Williams 2008).

I use data from the National Survey of Child and Adolescent Well-Being-II (NSCAW-II) and state-level data from the Illinois Department of Children and Family Services (DCFS) to analyze how contextual risk factors predict involvement with child protective services. This research identifies how individual and contextual characteristics contribute to child welfare

SUMMARY (continued)

allegations and intervention decisions. I employed propensity score weighted regression to test for differences across high and low risk neighborhoods, comparing families investigated by the child welfare system by allegation type and intervention decision. Then, I conducted multinomial logistic regression to test whether family-level race/income moderate the relationship between contextual measures and the outcomes of interest.

The national analysis found that caregivers who reported higher social support, and specifically, high affective support, were more likely to experience allegations of blatant child neglect than allegations of neglect/failure-to-provide. Caregivers with more social support as well as those who reported higher social order in their neighborhoods were also more likely to have cases that receive services. Overall, caregivers with the more intensive child welfare interventions – those with substantiated cases with services or with a child removal – reported better neighborhood conditions and higher social support. Such findings might also point to the fact that the NSCAW-II might be insufficient for these types of analyses. The ideal information for this type of analysis would be to measure caregiver social support and neighborhood conditions at the time of the report into the system to identify pre-existing risk and protective factors. It might be the case that those families with more intensive child welfare interventions were reporting better conditions or higher social support based on the service delivery they received as a result of the child welfare intervention, as their experience with the child welfare system might bias their perceptions and responses.

The Illinois DCFS analysis found few statistically significant relationships in predicting differential response based on neighborhood risk factors, when compared to other allegations. Overall, of investigated families, there was a higher proportion of families who resided in

SUMMARY (continued)

neighborhoods with the highest risk factors with allegations of neglect (not including DR). And, among investigated families, there was a higher proportion of families with substantiated cases and placements in the areas with the highest risk factors. Investigated Black families had a higher proportion of physical abuse allegations in areas with better neighborhood conditions and a higher proportion of DR allegations in areas with worse neighborhood conditions. It also appeared that Black families had a higher proportion of unsubstantiated cases in neighborhoods with lower risk factors. White families made up a higher proportion of physical abuse allegations in areas with worse conditions, but DR allegations in areas with better conditions, and finally, Hispanic families showed mixed results across the neighborhood items. White and Hispanic families had higher proportions of unsubstantiated cases in areas with higher risk factors. And, White families had a higher proportion of substantiated and placement cases in areas with higher risk factors. These findings speak to the fact that the neighborhood interacts differently for Black, White, and Hispanic families based on the race of the family and resources available.

I. INTRODUCTION

Child welfare programs have started building alternative intervention programs designed to improve service delivery for families. In particular, the differential response (DR) approach to child welfare initiates a non-investigatory track for low-risk families referred into the system, which represents a shift from the investigatory approach of child protection. DR programs enable caseworkers to evaluate and deliver tailored services to address family needs while leaving children at home. Most states include policies that exclude the most serious cases from entering DR and can move the family into the investigatory track if safety becomes an immediate risk. Preliminary data in Chicago reveal that there are saturated neighborhoods where there are more than 50 families per square mile meeting the DR criteria (McEwen 2010). Other data on social service provision in Chicago show that in some neighborhoods (notably Englewood, Washington Park, West Garfield Park, and North Lawndale), more than 50% of children are in families receiving multiple services, including foster care, care for mental illness/emotional disorders, substance abuse treatment, adult incarceration, or juvenile justice (Goerge et al. 2010). The saturation of families meeting the DR criteria may be due to individual factors or because families (especially poor and minority families) are often segregated in neighborhoods for reasons that are unrelated to their likelihood to abuse or neglect their children. However, the concentration of these families suggests that systemic, contextual risk factors may be operating for families residing in these blocks, highlighting the need for researchers to look for such explanations. Unlike the investigatory track, the DR track focuses on stabilizing the family by meeting their immediate needs and helping them build a support system in their community. The irony of the focus on community and informal supports is that there may be few neighborhoods with the capacity to help support families if there are contextual risk factors operating for

families. Chicago data suggest a service mismatch—as Chicago’s child and youth populations have changed, services have not kept up. Specifically, neighborhoods with a higher concentration of children and youth have less service availability while those with fewer children and youth have more (Goerge, Dilts, Yang, Wasserman, and Clary 2007).

It is also well documented that racial minorities, especially African-Americans, and lower income populations are disproportionately represented in the child welfare system (Kim, Chenot, and Ji 2011; Foster, Hillemeier, and Bai 2011; Osterling 2008). Of substantiated child welfare victims, African-American children represent 22.3%; Hispanics represent 20.7%; and Whites represent 44.0% (U.S. Department of Health and Human Services 2010). The tailored DR approach may be a way to reduce disproportionality in the child welfare system. DR caseworkers may recognize structural barriers that this population faces, such as discrimination in the job market, that may contribute to child neglect resulting from poverty. Additionally, because DR is a form of early intervention, future discrimination and bias in the child welfare system is eliminated because the family’s case is not substantiated when DR is employed (Richardson 2008). Contextual effects may contribute to disproportionality in substantiation as racial-ethnic minorities and poor families who live in more disadvantaged neighborhoods may face additional risk. A “double jeopardy” occurs when multiple forms of inequality interact to create a multiplicative, rather than additive effect. Neighborhoods reproduce social stratification; the sorting into neighborhood can be “conceptualized as part of a dynamic social process of neighborhood stratification that reproduces racially shaped economic hierarchies” (Sampson and Sharkey 2008:27). This work will add to the literature on disproportionality in the double jeopardy that families face from being poor and a racial-ethnic minority and residing in a disadvantaged neighborhood (Acevado-Garcia, Osypuk, McArdle, and Williams 2008).

I use national- and state-level data to analyze how contextual risk factors predict involvement with child protective services, with a particular focus on children placed into the differential response track. This research identifies how individual and contextual characteristics contribute to child welfare allegations and intervention decisions. The three main overarching goals of this work are to (1) contribute to the literature on the roles of individual, family and, especially, community correlates of child maltreatment and the system's response; (2) provide policy recommendations for differential response child maltreatment prevention efforts; and (3) inform the literature on context, social support, place, and race.

A. Research Objective and Plan

Differential response represents the latest movement in the field to stabilize and engage lower risk families, “recognizing the enormous challenges many families face in sustaining healthy lives” (Schene 2005:6). This non-investigatory track keeps children in their homes and out of the child welfare caseload and relies on the state and community to share responsibility in supporting families. My goal is to identify individual and contextual correlates of child maltreatment and the system's subsequent intervention (with a particular focus on DR) by comparing investigated families. The ecological and sociological literatures have argued that neighborhoods are important venues for child development as well as stratification in our society. Specifically, the sociological perspective argues that geographic physical spaces where people reside lead to a shared collective of social control through network ties and the institutional resources embedded within the place (Coulton et al. 2007). In this dissertation, I use integrated ecological and sociological theoretical foundations to examine the role of context (neighborhood and social support) for families involved with the child welfare system. I conduct quantitative analysis to understand how context may predict a family's service trajectory upon

entering the system. This study comprehensively tests for the role of contextual factors in child welfare involvement as a way to inform the literature on structural disadvantage resulting from the context in which a family resides.

Burgess and Draais (1999) argue that “understanding the nature of child maltreatment is so complex that no one disciplinary specialty is likely to be sufficient” (p. 373). Multiple disciplines frame this analysis, which builds from sociological foundations, including social work, developmental psychology, human development, and public policy. A sociological lens can identify structural mechanisms that contribute to child welfare system involvement and the service trajectory that families experience. By utilizing sociology, social policies can be designed to address individual and structural barriers of inequality. Developmental psychologists and human developmentalists are credited with integrated ecological theories of child development. Social work provides a perspective on service delivery and policy implementation. Finally, public policy informs how initiatives, such as DR, are incepted and applied.

I rely on two quantitative datasets for this analysis: the National Survey of Child and Adolescent Well-Being-II (NSCAW-II) and data from the Illinois Department of Children and Family Services (DCFS) accessed through the Integrated Database on Child and Family Programs in Illinois (IDB). Each dataset uniquely contributes to my research goals. The nationally representative NSCAW-II was gathered in 2008 to 2009. Researchers collected data on children following a child maltreatment investigation, documenting family experiences in the child welfare system. While the NSCAW-II does not include information on DR, it does provide a national picture of the child welfare service trajectory for investigated families—from the determination of maltreatment after an investigation, to child placement, to the duration and types of services received. Thus, the NSCAW-II analysis informs DR policy by providing an

understanding of how context may intervene during a child's involvement with the child welfare system. For the contextual-level measure, the NSCAW-II data includes an abridged version of the Community Environment Scale (CES),¹ which queried caregivers to assess risk and protective factors in their neighborhood such as self-perceived crime, safety, neighborliness, and information about other families with children. I use latent class analysis to identify how respondents cluster together with items from the CES.² The NSCAW-II also includes key questions on social support, using an abridged version of the Duke-UNC Functional Social Support Questionnaire. The Questionnaire includes items that assess the caregiver's quality and quantity of social support, including confidant support, affective support, and instrumental support.

In order to also understand the DR pathway, I then focus on the state of Illinois, using the data from DCFS, which allows me to drill down to Census tracts, specifically in Cook County, to analyze neighborhood-level correlates for maltreatment. I compile data from the American Community Survey, City of Chicago crime data, Chicago Public School ISAT scores, and measures of disorder and social support from the Chicago Community Adult Health Study (CCAHS) to link to the family's Census tract. I conduct exploratory factor analysis (EFA) with the Census contextual measures for the city of Chicago. I analyze DCFS cases from 2001 to 2009 and compare families who would have been eligible for the DR track based on the allegations in the case files.³ I also compare families based on their intervention received. Table I outlines the key measures described above.

¹ The abridged Community Environment Scale was created by Abt Associates for use on the National Evaluation of Family Support Programs.

² Note. Abt Associates has not completed factor analysis with this scale.

³ Chapter 4 provides a justification for this decision.

Table I. Key Measures in NSCAW-II and Illinois DCFS Data⁴

	National Picture: NSCAW-II	Local Picture: Illinois DCFS Data
Track	<ul style="list-style-type: none"> Investigation 	<ul style="list-style-type: none"> Differential Response Investigation
Allegation Type	<ul style="list-style-type: none"> Physical abuse Blatant neglect: abandonment, moral/legal neglect, educational neglect, exploitation, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, children in need of services, other Neglect/failure-to-provide: emotional neglect, physical neglect (failure-to-provide), supervision 	<ul style="list-style-type: none"> Differential response: mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, substantial risk of physical injury (neglect) Physical abuse: death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture Neglect: death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants
Intervention Decision	<ul style="list-style-type: none"> Unsubstantiated, no services Unsubstantiated, services Substantiated, no services Substantiated, services Substantiated, out of home care 	<p>DR:</p> <ul style="list-style-type: none"> Aspects of abuse/neglect eligible for DR <p>Not DR (physical abuse or neglect allegations):</p> <ul style="list-style-type: none"> Unsubstantiated Substantiated <p>No open case or placement made</p> <ul style="list-style-type: none"> Placement made <p>DR:</p> <ul style="list-style-type: none"> Aspects of abuse/neglect eligible for DR

⁴ Appendix A provides definitions of key terms.

		Not DR (physical abuse or neglect allegations): <ul style="list-style-type: none"> • Unsubstantiated, no placement • Substantiated, no placement • Substantiated, placement
Neighborhood Context	Community Environment Scale, which includes caregiver perceptions of their neighborhood	American Community Survey, City of Chicago crime data, Chicago Public School ISAT scores, and measures of disorder from the Chicago Community Adult Health Study (CCAHS)
Social Support	Duke-UNC Functional Social Support Questionnaire, measuring the quality and quantity of support that the caregiver receives	Social support measures from the Chicago Community Adult Health Study (CCAHS)

B. Key Gaps in the Literature

The following outlines key gaps in the literature that this research seeks to fill.

Child maltreatment and neighborhoods. It is well-documented that child abuse and neglect reports come primarily from more disadvantaged neighborhoods with high unemployment, economic deprivation, residential turnover, and poverty. Overall, such studies have shown that neighborhood structure is related to concentrations of child maltreatment (Coulton, Korbin, Su, and Chow 1995; Coulton, Crampton, Irwin, Spilsbury, and Korbin 2007; Coulton, Korbin, and Su 1999), but less is known about how neighborhood and context (especially disorder and social support) predict the type of system involvement, intervention, and outcomes. Such gaps highlight the importance of conducting rigorous quantitative methods to understand neighborhood effects. I use quantitative analysis techniques to address these gaps to understand contextual effects, such as adjusting for clustering at the Census tract level and propensity score analysis to account for selection bias.

Race and class disproportionality and disparity. Racial minorities and lower income populations have disproportionate rates of child maltreatment reports, substantiations, placements, and placement instability (Kim, Chenot, and Ji 2011; Foster, Hillemeier, and Bai

2011; Osterling 2008). There is evidence from national data (National Child Abuse and Neglect Data System [NCANDS] and Adoption and Foster Care Analysis and Reporting System [AFCARS]) that disparity increases for African-American and American Indian children as they progress through the system, from investigation to substantiation to placement (Hill 2007).

Similar findings have also been documented in the placement of American Indian and Alaska Native children (Carter 2010). Additionally, Latino children in the child welfare system have been gradually increasing over the last ten years—from 13% in 1999 to 21% in 2009—and are the fastest growing population in the child welfare system (Dettlaff, Earner, and Phillips 2009; Garcia 2009). The rise in Latino immigration to the U.S. has increased Latino child welfare involvement, and scholars have hypothesized that this is due to stress as a result of the immigration and acculturation process (Dettlaff, Earner, and Phillips 2009).

The literature has tackled the question of whether racial disparities are a result of a biased child welfare system or of increased risk factors facing minority children and the failure of the system to mitigate such risks (Barth 2011; Wulczyn 2011a). While there has been some research that suggests there may be discrimination in reports, investigations, and substantiation for African-American children, the literature points to certain risk factors (poverty, substance abuse, and single parenting) that are higher for African-Americans and contribute to maltreatment (Bartholet 2009; Drake et al. 2011; Jonson-Reid, Drake, and Kohl 2009). As such, contextual risk factors facing African-American families in the child welfare system, such as concentrated poverty and segregation, are important in understanding structural disparities. There is some evidence that controlling for poverty reduces the disparity between Whites and African-Americans, but racial disparity still exists (Dettlaff et al. 2011; Kim, Chenot, and Ji 2010; Kaufmann 2011). Also, Richardson (2008) identifies that there is a gap in existing knowledge

around how differential response can inform “solutions to racial disproportionality” and assist in understanding the disparities in the front end of child maltreatment intake (p. 76). The National Quality Improvement Center on Differential Response in Child Protection (2009) posits that information is needed on the effects of differential response across demographic differences (e.g. race or culture) of the population that is receiving the intervention.

Community area and social support. As previously stated, differential response initiatives rely upon multiple social support systems and the local community to provide a safety net. However, there may be few neighborhoods with the capacity to help support families. Crain and Tonmyr (2008) argue that “it is critical to acknowledge that a weakness of some differential response systems is the assumption that community support services are available” (p. 22). Differential-response-eligible cases in Chicago are clustered in neighborhoods that may not have support services available. Similarly, it can be difficult to implement differential response in rural areas because of the lack of concentrated service delivery providers; however, there is some evidence to suggest that well-established and longstanding network ties between the child welfare agencies and community-based organizations in rural areas could be a potential strength (Zielewski and Macomber 2008). Overall, differential response seeks to provide a wide range of services, recognizing that families who come into contact with child protective services face a diverse set of needs. This research will seek to better understand contextual factors that may contribute to service delivery within child welfare system involvement.

C. Policy Relevance and Significance

Child welfare data show that from October 2008 through September 2009, child protective service agencies across the country received 3.3 million referrals involving 6.0 million children, of which 61.9% were screened in as substantiated abuse and neglect. Further

identifying contextual mechanisms can bolster existing policy and help create new policy to target preventative programs at the most vulnerable families and neighborhoods.

This research also comes at a time when many states are implementing differential response. A literature review by the National Quality Improvement Center on Differential Response (QIC-DR) revealed that in 2011, 13 states had implemented differential or alternative child welfare pathway programs statewide, and six states were piloting programs (QIC-DR 2011). Illinois implemented an evaluation of DR from 2010 to 2012 and has since discontinued the program due to funding.

Contextual-level research also aligns with current federal priorities. President Obama's administration has undergone a plan to include a place-based approach in government policy. Specifically, the federal government is analyzing how policies shape the communities where people live and how the neighborhood supports its residents. By supporting the community as a whole, the place-based approach seeks to build a support system around individuals and families in more vulnerable neighborhoods, metropolitan areas, and regions. The place-based approach is theoretically grounded in the ecological approach, which posits that children are embedded into families and communities that help them thrive (Douglas 2010). Thus, while differential response focuses on the family, the preliminary data suggests that place-based approaches are necessary to help address the concentration of families eligible for differential response within city neighborhoods.

D. Research Questions and Overview

Do neighborhood/social support characteristics predict the type of alleged maltreatment? Do the same neighborhood/support characteristics predict the child welfare intervention decision?⁵ Do individual covariates (race and income) moderate the relationship between context and the allegation or intervention type?

⁵ See Table I for information on how these characteristics will be operationalized.

My research aims to understand how structural, contextual measures may contribute to the type of allegation recorded for families, but also how these same variables may predict the type of child welfare intervention received. Neighborhood and social support characteristics serve as predictors, and I also control for individual characteristics, such as race and income, as potential moderators. I compare children across allegation types to understand how structural disadvantage may operate differently for certain types of allegations. Historically, child protective services has operated under a “one size fits all” approach, but the inception of DR suggests a recognition of different types of barriers facing families. Thus, this research will help test for structural differences across child abuse and neglect allegations and intervention types.

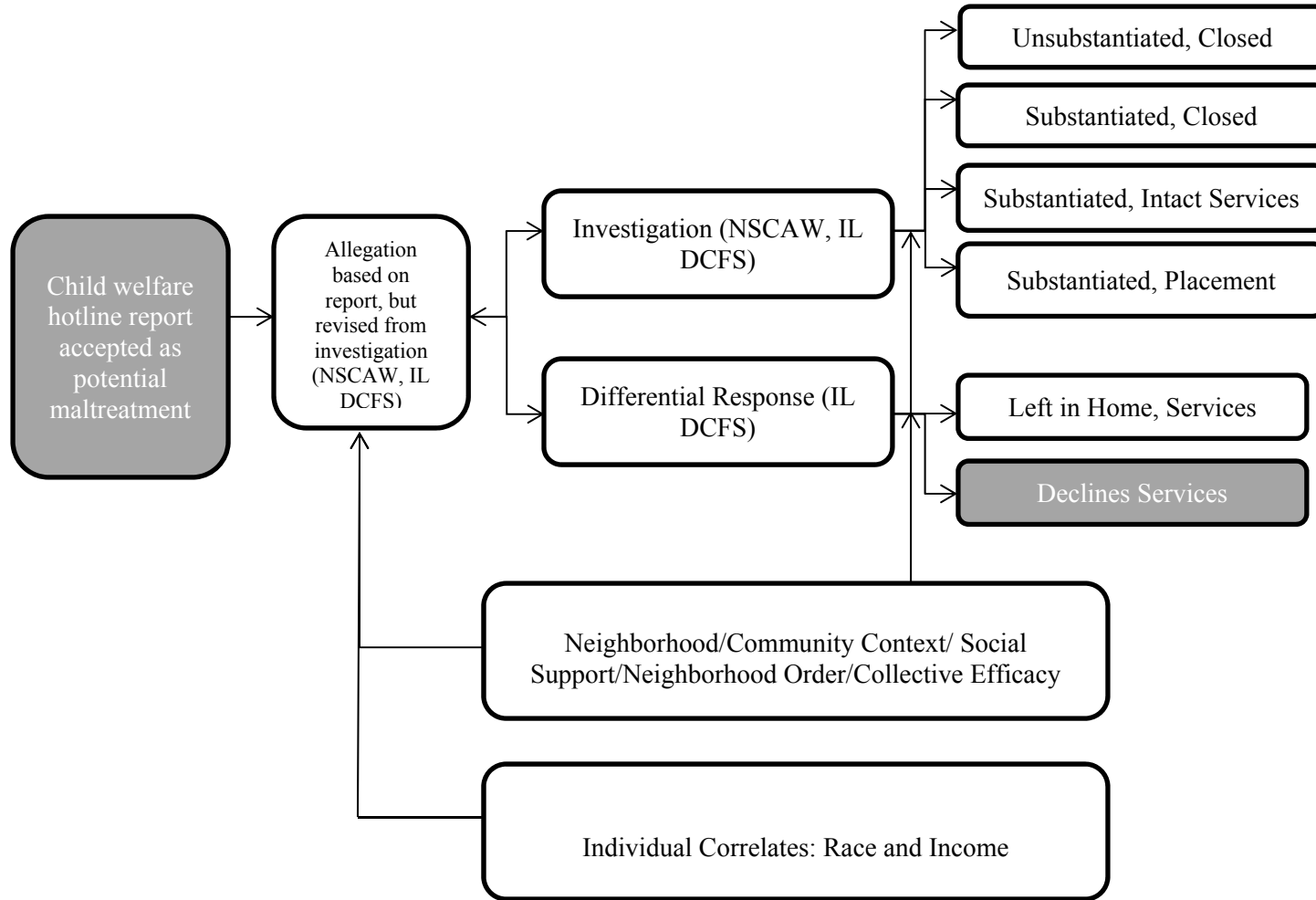
I first conduct propensity score weighting with this set of models, using exposure to high or low contextual disadvantage as the treatment. Propensity score weighting using non-experimental data has been increasingly used in evaluating interventions. Most child and family interventions do not include randomized control trials, but this approach allows researchers to attempt to identify the most similar control group based on measured variables to reduce selection bias (Barth, Guo, and McCrae 2008).

Using individual- and family-level controls, I predict the likelihood that the child resides in a high or low risk neighborhood or the family has high or low social support, which creates a propensity score. Then, I predict the type of allegation and intervention decision, using the propensity score in weighting the regressions. (For a similar application, please see Harding 2003).

Then, I conduct multinomial logistic regression to test whether family-level race/income moderate the relationship between contextual measures and the outcomes of interest. I run a series of additive models, adding covariates of interest and interactions between individual- and

contextual-level models, where the contextual factors serve as predictors for the outcomes of interest. Figure 1 graphically depicts the trajectory of child welfare involvement and the specific areas of interest for this work. Below Figure 1, I provide examples of the case outcomes by using sample vignettes.

Figure 1. Conceptual Model (*White Indicates Trajectory of Interest*)



E. Sample Case Outcome Vignettes

Investigation, Unsubstantiated, Closed

- Family A was referred into the child welfare system by the children’s father who reported that the mother had physically abused the children in the home. The child welfare worker came to the home and determined that the claim was unsubstantiated. The children had no visible injuries and denied any abuse. The children’s mother indicated that the father was angry about the children’s custody with the mother.

Investigation, Substantiated, Closed

- Family B was referred to the child welfare system by the police who were called to a house for a domestic violence dispute. The mother’s 12 year old son was punched in the arm by the mother’s boyfriend when he attempted to intervene in the dispute. The child welfare worker conducted a risk assessment in the child’s home and determined that the abuse had occurred but that there was no risk for future abuse as the boyfriend was no longer in the home or with the mother. The case was substantiated but no further service delivery was administered since the risk to the child was no longer in the home.

Investigation, Substantiated, Intact Services

- Family C was referred into the child welfare system by the grandmother because of a substance abusing parent. The child welfare worker conducted a risk assessment and determined that the parent did have a substance abuse issue, but the children were in no immediate risk of harm which would not warrant removal. The parent agreed to attend rehabilitation services, and the caseworker agreed to let the children remain in the home, provided that the mother participated in all recommended services. The child welfare worker also determined that the parent had a support system in the neighborhood.

Investigation, Substantiated, Placement

- Family D was reported to the child welfare system by hospital workers when a mother and her newborn both tested positive for cocaine use. Upon conducting a risk assessment, the child welfare worker determined that the child was at risk because the mother refused to detox or attend rehabilitation. The child welfare worker chose to remove the child and place the child out of the home once released from the hospital until the mother agreed to attend rehabilitation for her substance abuse addiction.

Differential Response, Left in Home, Services

- Family E was referred into the child welfare hotline with an allegation of “inadequate supervision by a neighbor where the six-year-old girl was coming home alone from school with no parent at home. The family had no prior child welfare involvement. The child welfare worker conducted a risk assessment and determined that there was no immediate risk to the child, and the family agreed to receive services from a community based service provider. The community based provider worked with the family to refer them to child care services or helped them identify a support person who can help provide child care.

F. Organization of Dissertation

This dissertation is organized in multiple chapters. The next chapter (Chapter 2) outlines the theory for this dissertation. Chapter 3 includes the NSCAW-II analysis and results. Chapter 4 includes the Illinois DCFS analysis and results. Finally, Chapter 5 concludes the project, proposes future research, and discusses implications for policy and practice. Companion work included a *family impact analysis* of the differential response program, which is included in Appendix B.

II. THEORETICAL FRAMEWORK: ECOLOGICAL AND SOCIOLOGICAL PERSPECTIVES

A. Theory: Sociological Foundations

In this chapter, I review ecological and sociological theory that considers the wider environment to understand individual- and family-level phenomena. This theoretical perspective highlights that (social) capital may or may not accrue to the individual/family as a result of the network connections available to them within their neighborhood context. I then review child maltreatment literature that applies neighborhood and network theories to empirically demonstrate the effect on child maltreatment and subsequent reports. While existing sociological and ecological theories, more generally, and child maltreatment literature, specifically, point to these environmental correlates in determining child maltreatment, the differential response program looks forward and prescribes connecting individuals to social support as a way to overcome possible structural disadvantage. However, I argue that more research is necessary to understand and evaluate whether these prescriptions are effective. Given that extant research has identified networks embedded in particular neighborhood contexts as predictors of child well-being, how effective is building social support in families across different neighborhood contexts? Further, do the effects of social support, given the context where a family resides, vary by individual characteristics?

A sociological approach situates child abuse and neglect as a social problem, where child maltreatment perpetuates social stratification, especially among families residing in vulnerable neighborhoods. Child maltreatment—and child welfare involvement—is shaped by social factors created through interlocking social inequalities, such as race, class, gender, and neighborhood disadvantage.

In *The Sociological Imagination*, C. Wright Mills (1959) posits that individuals do not realize their agency in creating history, and do not fully understand the dynamic between the individual and the larger society. Rather than focus on the individual level, some sociologists argue that effective policy can be informed by understanding the larger institutional structures, discourse, and power in the policymaking process. Mills (1959) argues that through a sociological imagination individuals can understand how their actions shape society as a whole. Mills' approach can be used to understand how child maltreatment may be a product of larger sociological processes. By utilizing one's *sociological imagination*, social service policies can be designed to address the individual and structural barriers of poverty and inequality. The *sociological imagination* gives the ability to see the relationship between child maltreatment and social forces. Sociologists have a rich history in studying poverty, public policy, and open social services programs, such as welfare. The concept of poverty and economic disadvantage as a social problem arose from the early sociologists who defined poverty as such and the conditions of poverty as a property of the social structure itself (Cosser 1965). Using sociological theory to investigate child maltreatment, this paper will take into account that "macrostructural influences are the forces of history and social structure that shape and provide the context for individual lives" (Garbarino and Crouter 1978:606).

Early sociological theory contributed to the field the idea that conceptions of child abuse and neglect were constructed through the interaction between the state, social workers, and parents. Thus, child abuse and neglect was institutionalized within society as the state mandated how parents were supposed to treat their children (Reich 2005; 2008). Additionally, sociologists noted that child maltreatment was not limited to impoverished and vulnerable populations, but that family violence was a social problem (Gelles 1985). Gelles (1999), seeing family violence as

a complex social problem, argues that “the sociological perspective provides the widest and most inclusive perspective from which to understand and explain family violence” (Gelles 1999:306).

Additionally, literature on child maltreatment shows that there is disproportionate reporting, substantiation, and placement among minority racial and ethnic groups and lower-income families. Participating in the child welfare system “reproduces the same fractures along the lines of gender, race, and class...and in doing so reif[ies] larger social inequalities” (Reich 2005:7). In a study of families involved in child protective services, Young (1979) shows evidence that such families are more likely to experience poverty, be on public assistance, and have sporadic employment and poor housing. Specifically, “these families walk our streets; their children go to our schools; their problems throng into our hospitals, courts, and social agencies. They are part of our society, but too often they are as isolated from its main stream as if they lived on a desert island” (Young 1979:135). As such, external social factors, such as poverty, may lead to child maltreatment reports.

Child maltreatment reports are also a product of the economic climate. Sell, Zlotnik, Noonan, and Rubin (2010) argue that “there is no single factor, but rather the combination of individual, familial, and community risk factors that increase the risk of maltreatment within families” (p. 26). In their study on the effect of the current economic recession on child well-being, data show that children in poverty are at higher risk for both abuse and neglect and that reports of child neglect increase during times of economic recession (Sell et al. 2010).

There remains a need to use a sociological perspective to understand child maltreatment as a social problem and how the structure plays a role in child maltreatment and entry into the system (Reich 2008; Schuck 2005). The discipline of sociology has started to contribute in understanding child maltreatment, but more work remains to situate child maltreatment as a

social problem. In the next section, I discuss ecological and sociological theories that can be applied to child maltreatment to provide a foundation for this analysis.

1. Human ecology

Ecological theories were first used to explain human phenomena by Park and Burgess in 1921. Human ecology is defined as the process by which individuals collectively adjust, interact, and organize within their environment. This approach considers the unit of analysis as not one single individual, but a group of individuals, and considers how they are embedded into the physical and cultural areas of their surroundings. Specifically, in human ecology, “the family constitutes a universal expression of corporate organization” (Hawley 1951:211).

Urie Bronfenbrenner (1974; 1979) argues that “human abilities and their realization depend in significant degree on the larger social and institutional context of individual activity” (Bronfenbrenner 1979:xv). Public policy focused on children must take into account the “enduring environment” of the child. A child’s ecology is made up the *immediate* surroundings of the child’s life and the *supporting and surrounding* layer. The immediate layer is embedded within the supporting and surrounding layer, the latter of which includes geographic surroundings as well as institutional processes that function in the social system around the child. According to Bronfenbrenner (1974), research focusing on policy should take the ecological level into account, including the relationship between systems — not only systems in which the child participates, but also systems that are in the supporting and surrounding level of the child’s environment. Thus, ecologists focus on these surrounding layers, and one which sociologists have particularly focused on is residential context, which will be discussed below.

2. Residential context and neighborhood effects

The sociological imagination calls for understanding the relationship/interaction between the individual (child) and his/her structure. Sociologists have been studying neighborhood contextual effects starting with the work of Durkheim in 1897. Previous sociological research has shown that neighborhood characteristics shape social processes, including crime, attitudes, health, well-being, and child and adolescent development (Sampson et al. 2002; Wilson 1987; Brooks-Gunn et al. 1997; Brooks-Gunn et al. 1993; Kling et al. 2006). Neighborhoods mirror society, where social interactions reflect and reproduce larger inequalities within society across class, race, and family structure (Sampson et al. 2002). One's place of residence is embedded within a social context where residents "walk its streets, share its facilities, depend upon it for security, and frequently encounter other neighborhood residents" (Huckfeldt 1986:1).

Self-selection bias has been cited as a possible limitation with studying contextual effects, as people with similar attitudes self-sort into similar neighborhoods. Huckfeldt (1979) argues that the existence of individuals who do not have the same characteristics/demographics of the majority of people in the neighborhood are a way to prove that the theory of self-selection bias may not hold up. Additionally, despite such limitations of neighborhood effects, Coulton and colleagues (1995) argue that "individual level explanations can be equally flawed when what seems to be an individual problem, such as a failure to use community resources, is really a function of lack of community institutions" (Coulton et al. 1995:1265). Neighborhoods and community context can have a negative effect on families through a lack of community integration or a positive effect by providing families with social support to serve as a protective factor against child neglect, for example. The present study follows this line of research to conceptualize child maltreatment as an effect of both family and social support/network

accessibility in residential contexts. Rather than conceptualizing the two levels as separately operating, I conceptualize them as possibly confounding (interacting) with each other.

Urban neighborhood disadvantage. The early Chicago school sociologists were the first to view the city as a social laboratory. Robert Park (1925) theorized that “the city is rooted in the habits and customs of people who inhabit it” (p. 90). Neighborhoods organize city life and foster interactions among community members, which create an environment of social control (Park 1925). Sociologists have since focused on poverty within inner city ghettos and the social consequences surrounding such poverty.

Despite its age, William J. Wilson’s work is considered to be seminal in understanding neighborhood disadvantage, and many of his theories continue to apply today. Wilson’s work has focused on concentrated poverty, urban deprivation, and understanding how race and class function in the urban environment (1987; 1998). Specifically, Wilson (1987) was the first to coin the term “concentration effects” in relation to how high rates of joblessness, poverty, and minority groups increase likelihood of social problems in the neighborhood. Wilson (1998) argues that it is the disappearance of employment within inner-city ghettos that is the cause for such devastation. Over the past decade, work has disappeared from central city neighborhoods, and the current discourse on the causes and consequences of dislocated employment posits that it can be explained (by liberals) as a failure of the social structure or (by conservatives) through individually based causes. However, Wilson attempts to develop an all-inclusive model to explain the causes of joblessness and poverty within the inner-city using employment as the key mechanism for understanding the intersection between race and class. Wilson posits that the rise of jobless poverty in cities is a result of the decline in unskilled labor in the economy resulting from technological advances and a more skilled labor market. The problem is also exacerbated

by a spatial mismatch in the growth of suburbs and subsequent job opportunities, but a lack of transportation infrastructure to promote employment in outward-lying suburbs. Also, as middle-class and higher-income African-Americans have moved out to suburbs, social networks and resources in inner city neighborhoods have also declined (Wilson 1998). As a result, the unemployment rate in these areas has caused a “racial divide,” which continues to plague our society (Wilson 1998:xix). Wilson notes that “if inner-city blacks are experiencing the greatest problems of joblessness, it is a more extreme form of economic marginality that has affected most Americans since 1980” (Wilson 1998:xx).

From the 1950s to the time of Wilson’s data collection in the late 1980s, residents within the inner-city speak of the social deterioration of their neighborhoods, exemplified by high rates of crime and poor public education. Wilson differentiates poor neighborhoods by the rates of joblessness. The poverty rate has increased over time in inner-city neighborhoods and many of the residents are minorities. From 1980 to 1990 in Chicago, the number of ghetto poor Census tracts (tracts with high poverty and high joblessness) increased 61.5%. Wilson calls this “the new urban poverty”, referring to jobless neighborhoods that are overwhelmingly African-American (Wilson 1998:19). Such neighborhoods are socially isolated, have little social organization, and have few opportunities for networking because they have been subject to racial segregation practices such as redlining (Wilson 1998; Massey and Denton 1993). In order to address urban poverty, Wilson argues that policy must “account for the ways in which segregation interacts with other changes in society to produce the recent escalating rates of joblessness and problems of social organization in inner-city ghetto neighborhoods” (Wilson 1998:24).

While Wilson mostly focuses on class, Massey and Denton (1993) argue that the word “segregation” has left American vocabulary although residential segregation is still very much

alive in the United States. African-American inner city segregation is a result of institutionalized social structures that perpetuate disadvantage. Such segregation is a result of structural components that cause poverty concentration and reduce resources and opportunities in certain neighborhoods. Racial discrimination still occurs in many venues throughout society, which contributes to racial residential segregation and outcomes for inner city African-Americans. African-American segregation is a recent trend, as inner cities, in the past, were not made up of concentrated areas of racial groups. But the urban ghetto constructed in the beginning of the twentieth century is still maintained today. Industrialization and the movement of jobs into cities were related to the development of the urban ghetto. In the 1970s, cities became increasingly segregated on the color line as Whites began to move out of cities into suburbs and African-Americans became socially isolated in cities. Data show that one-third of African-Americans in the United States live in racially segregated conditions (Massey and Denton 1993).

Massey and Denton (1993) argue that poverty has increased African-American segregation, and the concentration of poverty is maintained as such neighborhoods are vulnerable during economic recessions. Segregation has caused a lack of social mobility among inner city inhabitants as integration is impossible due to the lack of socioeconomic resources to purchase a home. Cultural aspects of the ghetto also contribute to the perpetuation of the “underclass” including drug culture and teenage pregnancy (Massey and Denton 1993).

Coupled with high poverty rates in neighborhoods with a higher concentration of African-Americans, Mary Pattillo-McCoy (1999) argues that the African-American middle class face more environmental vulnerability where they reside than do their White middle class counterparts, due to residential segregation and discrimination. African-American middle class neighborhoods are often geographically closer to neighborhoods with high concentrations of

poverty than White middle class areas (Pattillo-McCoy 1999). Thus, it is important to understand not only the class disadvantage, but also the racial disadvantage, in the urban environment.

Children and families are embedded within a larger social context, which may predict not only reports of child abuse and neglect, but also child outcomes across a wide range of domains.

3. Networks and social disorganization

Sociologists and ecologists both argue that context is important, and it is network theorists that specify a mechanism to explain why and how context matters.

Social networks. Networks are defined as “a personal relationship with relatives, friends, neighbors, co-workers, and other acquaintances who interact with the person” (Unger and Powell 1980:566). Social networks play an important role in our economic system, through the creation of employment opportunities as well as opportunities to advance in the labor market. Mark Granovetter’s work on social networks is considered seminal in the field of sociology. Granovetter (1985) argues that theories around the social structure should take social relations into account, and networks, specifically. Networks provide individuals with emotional, material, and informational supports, through both formal and informal systems, and can help facilitate formal support services for families who experience stress (Unger and Powell 1980).

Henly and colleagues (2005) use Granovetter’s model in analyzing social capital and networking within social support services. Networks help individuals “cope” with economic hardship. The types of networks of low-income individuals have access to are constrained due to a lack of economic resources. The social structure plays a role in network properties and social support content, and the most economically vulnerable families have the most limited access to social support networks. Studying current and former Temporary Assistance for Needy Families (TANF) recipients, families with lower perceived social support (not including financial support)

have higher perceived economic hardship and higher rates of material hardships, such as housing issues. Higher perceived social support helps low-income vulnerable populations cope with current hardship and reduces future economic hardship (Henly et al. 2005).

However, Small (2004) notes the importance of understanding the mechanisms in poor neighborhoods that contribute to social capital acquisition. Specifically, in analyzing the pseudonymous *Villa Victoria* in Boston, Small studies the effects of poverty on individuals within a community in the contexts of agency, culture, and variation across other similar neighborhoods. Small notes that all poor neighborhoods are not defined by social isolation and uninvolved neighbors, and argues that variation among poor neighborhoods is important in understanding the mechanisms of residential, concentrated poverty (Small 2004).

Not only are networks among individuals important, but organizational communication also contributes to outcomes for children. Small, Jacobs, and Massengill (2008) studied organizational ties among child care centers in New York. Considering organizations from an open system perspective, they define the local organization as a “loosely coupled set of actors and institutional practices oriented towards multiple yet overlapping objectives, actors motivated by internal and external, economic and social factors” (p. 5). Organizations in local areas provide access to their subsequent “ties” and can often link individuals to resources. Neighborhood poverty has been blamed for disproportionate resource allocation for low-income residents. Networks and the ability to build networks are key to understanding neighborhood poverty and well-being of poor residents. Small et al. (2008) posited that the neighborhood effects literature should not only use the individual as the unit of analysis but also the local climate and political environment of the time.

Networks also are important for child development and well-being as Cochran and Brassard (1979) argue:

Network influence is both direct and indirect. It includes the sanctioning of parental behaviors and the provision of material and emotional support for both parent and child. Network members also serve as models for parent and child, they stimulate the child directly, and they involve the child more generally in network activities. These processes interact with the developmental age of the child to stimulate the basic trust, empathy, and mastery of the reciprocal exchange skills essential to network building. Movement through developmental time also brings with it the child's increasing capacity to influence the establishment and maintenance of network linkages and therefore to play an active part in the nature and extent of network ties (pp. 606-607).

Social capital/disorganization in the neighborhood. Neighborhood effects are social processes that operate through the collective community and are important for the type of information individuals receive and how they interpret it (Burbank 1997; Sampson 2001). Variation across neighborhoods—ecological differentiation—leads to the presence or absence of social problems, which also shape short- and long-term outcomes (Forrest and Kearns 2001; Sampson 2001). The current study looks at how residential context and social support create structural disadvantage leading to child maltreatment and the service trajectory of involvement.

Social disorganization theory, as explained by Sampson (1997) posits that the community surrounding the individual is important in that it creates and facilitates social capital through networks and social institutions. Social capital is embodied in relationships (Coleman 1988), and a higher prevalence of social disorganization is due to a lack of social capital, which is built from social ties (Gephart 1997). Sampson (1997) argues that “the structural dimensions of community social organization include both the prevalence and interdependence of social networks in a community and the span of collective suspension the community directs to local problems” (p. 34). The interaction between informal networks and formal institutions mediates the community organization (or disorganization) (Sampson 2001). As such, institutions within the community

context, such as schools and police presence, are important for child development and family functioning (Jencks and Mayer 1990). The community structure is mediated through community-level processes, such as social support and networks (Gephart 1997). Networks within the neighborhood provide a collective efficacy to build trust, informal social control, and mutual support (Sampson 2001). Social isolation in neighborhoods prevents individuals from forming networks that facilitate opportunities and build social capital.

Literature has shown that there is variation across communities in child health and child educational outcomes, specifically infant mortality rates, low birth weight children, childhood IQ, and high school dropout rates (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Morenoff 2003). Concentrated poverty, high concentration of minority racial groups, and population loss lead to poor health outcomes, particularly self-rated health, as well as childhood outcomes (Wen, Browning, and Cagney 2003; Gephart and Brooks-Gunn 1997). Additionally, population loss within center city neighborhoods equates to fewer available social services (Sampson 1997).

While child abuse and neglect most often occurs at the hands of a parent, the “genetic relatedness in no way precludes the importance of social and ecological factors operating both within and outside families for explaining such behavior” (Burgess and Draais 1999:391). Neighborhood disorder reduces social capital through a lack of structural resources to foster positive family functioning, and observed disorder can create implicit bias and statistical discrimination in child welfare services’ decision-making (Sampson and Raudenbush 2004).

B. The Multi-Dimensional Nature of Child Maltreatment: Ecological and Sociological Approaches

Using the general theoretical foundations highlighted above, I now discuss how ecological, neighborhood, and network theories have been used to study child maltreatment, specifically. Within these theoretical frameworks, research on child maltreatment has focused on the following broad areas, which are described below: the ecology of child maltreatment, neighborhood disadvantage, social disorganization, social isolation and stress, and social supports and resource availability.

1. The ecology of child maltreatment

Garbarino (1977), a developmental psychologist, was one of the first to argue for taking an ecological approach to child maltreatment. Understanding child maltreatment “as a problem of family asynchrony i.e. as a mismatch of parent to child and of family to neighborhood and community,” this approach fully encompasses the complex nature of child maltreatment (Garbarino 1977:721). The environment is an “interactive set of systems nested within each other and sees the interdependent interaction of systems as the prime dynamic shaping the context in which the organism directly experiences social reality” (Garbarino 1977:722). Within this approach, child abuse is considered a dysfunction of the social system, disorganization within the community, and a social stressor (Garbarino 1977; Kesner 2007; Garbarino and Collins 1999).

2. Neighborhood disadvantage

The main contribution of research on neighborhoods and child maltreatment is that neighborhood disadvantage, generally, is tied to increased rates of child abuse and neglect reports and substantiation, which I will outline below as a frame for my analysis since little

research has been completed on the role of neighborhoods in predicting child involvement within the child protection system.

Studying neighborhoods in Chicago, Garbarino and Kostelny (1992) analyze trends in child maltreatment rates based on substantiated cases across the city to identify high-risk family environments, and they find nine neighborhood variables that correlate with incidence of maltreatment: poverty, unemployment, female-headed households, overcrowded housing, percentage of African-Americans, percentage of Hispanics, affluence, educational attainment, and young children within the Census tract. Finding different rates between the North and West parts of Chicago, Garbarino and Kostelny expand their analysis with qualitative interviews to understand differences. In the North, respondents were more likely to report neighborhood deterioration and were less likely to know of available services in their area than their Western counterparts, which contributed to a higher incidence of child maltreatment (Garbarino and Kostelny 1992).

Disadvantage and child maltreatment in smaller communities has also been studied. Specifically, Ben-Arieh (2010) conducted a study using data in Israel to analyze rates of child maltreatment reports using a variety of neighborhood, place-based correlates. Results show that the social organization of the place predicts rates of child maltreatment; adult unemployment, population loss and/or gain, and the incidence of single parent households significantly contribute to child maltreatment. Also of note is that the percentage of immigrants, percentage of families with more than five children, and the socioeconomic status of the neighborhood do not significantly predict the occurrence of child maltreatment (Ben-Arieh 2010).

Following the ecological perspective, Ernst (2000) uses Geographic Information System (GIS) mapping to track rates of child maltreatment reports in a suburb of Washington DC. By

linking with 1990 Census data and using hierarchical Ordinary Least Squares (OLS) regression, it was shown that Census tracts with high rates of neglect overlap with Census tracts with high rates of physical abuse. Families, who experience physical abuse live in tracts with lower property value, are more likely to have moved in the past year, experience poverty, and have lower female labor force participation (Ernst 2000).

Freisthler (2004) studies the role of alcohol availability in the neighborhood and its contribution to substantiated child maltreatment using a spatial ecology approach in three California counties. Neighborhoods with higher incidences of poverty, female-headed households, Hispanic population, and recent population loss, and those with a higher density of bars serving alcoholic beverages were found to have higher rates of substantiated child maltreatment. Using qualitative focus groups to supplement this research, child protective services workers note that it is not only neighborhood poverty, but also the lack of opportunities, social isolation, and neighborhood stress within the neighborhood that contribute to child maltreatment reports (Freisthler 2004). In similar work, Freisthler, Bruce, and Needell (2007) study differing neighborhood characteristics for children of different racial groups in terms of how neighborhoods may contribute to the overrepresentation of minority groups in the child welfare system (analyzing substantiated cases). Specifically, they find that poverty in the neighborhood is statistically significant for all racial groups, but population change in the neighborhood is statistically significant for African-Americans. Additionally, maltreatment rates for African-Americans and Hispanics decrease when they live in neighborhoods with a higher percentage of African-Americans. Thus, this research suggests that interventions should be tailored to the needs of children based on both their racial group and where they live (Freisthler, Bruce, and Needell 2007).

3. Social disorganization

While researchers have used ecological measures to study neighborhood effects and child maltreatment, they have also studied social disorganization in the neighborhood as a mechanism contributing to child maltreatment. Most of the work in this area has been focused on child maltreatment report rates, which I will outline here.

The social processes in the neighborhood, including community social organization and available services in the neighborhood to support parents, account for structural conditions of maltreatment (Coulton, Korbin, and Su 1999; Coulton, Korbin, Su, and Chow 1995). In particular, more resources in the neighborhood could account for more opportunities for children and families. The most comprehensive study of a variety of factors contributing to child maltreatment reporting in urban neighborhoods is the work of Claudia Coulton and colleagues (1995). Across 177 urban Census tracts in Cleveland, Coulton and colleagues used principal component analysis to isolate the mechanisms explaining why neighborhood disadvantage is tied to child maltreatment (as measured by official reports). Coulton theorizes that multiple structural, community factors contribute to child maltreatment rates, such as poverty, unemployment, vacant housing, tenure in the neighborhood, population loss, male/female ratio, elderly population, violent crime, rate of drug trafficking, juvenile delinquency, low birth weight babies, teen childbearing, and race. Because many of these factors are inter-correlated, Coulton uses principal component analysis to determine three factors: impoverishment including poverty, unemployment, population loss, female-headed households, and race; child care burden, including the ratio of children to adults and males to females, and the percent elderly in the tract; and instability in the neighborhood including tenure within the tract. Running regression analysis with the child maltreatment rate as the dependent variable, the impoverishment factor of the

neighborhood most significantly contributes to high rates of maltreatment. The child care burden has a moderate effect and residential instability has a weaker effect. This study also included analyses of other community variables that did not load on the three factors. From additional regression analysis, it was found that community social organization, such as the rates of violent crime, drug trafficking, juvenile delinquency, and teen childbearing, significantly contributes to child maltreatment. The percentage of low birth weight babies in the tract was not a significant predictor of child maltreatment. From this analysis, Coulton and colleagues conclude that child maltreatment is “embedded” within communities (Coulton et al. 1995).

Similarly to Coulton et al. (1995; 1999), Drake and Pandey (1996) examine child maltreatment reports and neighborhood poverty by estimating child physical abuse, child neglect, and child sexual abuse in separate models. Neighborhood poverty is most significant for child neglect reporting. Additional contextual variables predicting child neglect included the dropout percentage and the percent of two-parent families in the neighborhood. Children who were physically or sexually abused also lived in neighborhoods with lower property value and high poverty (Drake and Pandey 1996).

From a qualitative perspective, Korbin and colleagues (1998) studied 400 people in 20 Census tracts in Cleveland to understand racial differences in child maltreatment rates comparing predominantly European-American neighborhoods with African-American neighborhoods. Using the same three factor components (impoverishment, child care burden, and instability), Korbin and colleagues find that there is a higher rate of maltreatment in African-American tracts and that African-American tracts have higher scores on all three factors than European-American tracts. However, the strength of the relationship between child maltreatment and impoverishment is lower in African-American neighborhoods than White neighborhoods, which suggests higher

levels of social support, which they find in their qualitative analysis. Korbin and colleagues conducted ethnographic work in four neighborhoods—White and African-American neighborhoods with high rates of child maltreatment as well as White and African-American neighborhoods with low rates of child maltreatment. The neighborhoods with low rates of child maltreatment appear similar, with neighbors having high rates of collective efficacy, accessibility to downtown, low transient rates, and neighbor stability. The high maltreatment neighborhoods have different characteristics across racial groups. The African-American neighborhood has more neighborhood organizations than the White neighborhood, but both neighborhoods have a high rate of crime, drugs, and violence (Korbin et al. 1998).

Finally, interacting individual characteristics and child maltreatment, Irwin (2009) conducted a multi-level discrete time hazard analysis analyzing neighborhood factors contributing child maltreatment and testing the interaction of individual-level race at the neighborhood level. Using the three factors as previously identified by Coulton—impoverishment, child care burden, and instability in the neighborhood—Irwin (2009) finds that the hazard of child maltreatment (measured by reports) is increased in neighborhoods with higher poverty and instability, but not neighborhoods with increased child care burden. She also finds that individual race interacts with neighborhood characteristics, as neighborhood instability and impoverishment have less of an effect on child maltreatment for African-American children than White children (Irwin 2009).

4. Social isolation and stress

Social stress is facilitated or ameliorated by the absence or presence of social isolation or integration within social networks. Social isolation, the absence of social supports and networks, can create an environment where abuse or neglect can occur due to the lack of social control,

causing deviance on the part of the perpetrator (Garbarino 1977). Thus, child maltreatment can be understood as an indicator of the well-being of the society as a collective (Kesner 2007; Garbarino and Crouter 1978).

In a preliminary descriptive study, Garbarino (1976) analyzed how neighborhood surroundings facilitate parent and child relationships. Using New York State and Census data, neighborhoods with high economic distress, including a higher rate of single, working, mothers with low education, were found to have higher rates of child maltreatment reporting. As a result, children in such neighborhoods are less likely to be involved in an educational program or child care. From this research, Garbarino concludes that “economically depressed mothers, often alone in the role of parenting, [are] attempting to cope in isolation without adequate facilities and resources for their children” (p. 183); and therefore, mothers in economically depressed neighborhoods need support systems to help reduce social isolation in parenting (Garbarino 1976).

Networks play an important role in facilitating social isolation. Conducting a quasi-experimental study of families with a case of abuse or neglect versus families recruited from a pediatric care clinic, Salzinger and colleagues (1983) argue that families with child maltreatment may have deficient social connections in that the networks fail to give parents the social cues on how to parent their children. Networks are a means of information dissemination and the ease of transfer of information among people. This experiment showed that families involved in the child welfare system have fewer network members, more disjointed sub-networks, and less contact with the few network members that they do have (Salzinger et al. 1983). In research comparing maltreating mothers to non-maltreating mothers, maltreating mothers have fewer network connections, more troubled relationships, less reciprocity and more distrust in their

relationships, and more limited contact with the wider community (Corse, Schmidt, and Trickett 1990; Beeman 1997).

Coohey (1996) tests the social isolation hypothesis for mothers who experience child abuse or neglect in comparison to mothers who had no experience of abuse or neglect. Social isolation is difficult to define, but Coohey defines social isolation in terms of the network proximity, contact, and size. Among 300 Chicago mothers, neglectful mothers perceive less support from their networks and have different structural properties of their networks as they have less network members within close proximity to their residence (Coohey 1996).

Finding evidence that poverty and neighborhood disadvantage are not always correlated to high levels of child maltreatment, Garbarino and Sherman (1980) use qualitative interviews to assess the difference between two neighborhood settings with similar socioeconomic status (SES), but with different incidences of child abuse and neglect. Conducting interviews with key neighborhood informants, Garbarino and Sherman (1980) conclude that high risk neighborhoods are more *socially impoverished*, meaning that residents in the low risk neighborhood were more likely to use the resources around them, had more upkeep of their residences, and were more likely to have exchanges with their neighbors. Thus, social isolation contributes to a higher rate of child maltreatment. Replicating the work of Garbarino and Sherman, Deccio, Horner, and Wilson (1994) studied low and high risk neighborhoods in Spokane, Washington. Higher risk neighborhoods have lower tenure among residents, higher unemployment, and higher rates of vacant housing. Unlike Garbarino and Sherman, they do not find that social support and perceived parenting support mediate child maltreatment rates but conclude that social integration is at play (Deccio, Horner, and Wilson 1994). McDonell and Skosireva (2009) also find that child neglect rates are related to the number of boarded up dwellings and abandoned housing

units (McDonnell and Skosireva 2009). Additionally, Vinson and colleagues (1996) studied differences between high and low risk neighborhoods in terms of child maltreatment and social networks in Australia. Understanding neighborhoods as social entities and families as open systems, they found that high risk neighborhoods tend to have more recent neighbor arrivals into the area, as opposed to low risk neighborhoods where neighbors tend to have higher interaction among all types of their neighbors—including home, acquaintance, and friend networks.

Coupled with social isolation is the degree to which families experience social stress. Stressors can be a major contributor to family violence and can include a change in the family's life, such as financial or economic change, health or illness, or having to move. Families with more stressful incidences are more likely to experience abuse. Reducing violence-provoking stressors, such as poverty and unemployment, and also better integrating families into kin and neighborhood support networks can ameliorate stress that contributes to child maltreatment (Straus, Gelles, and Steinmetz 2006).

5. Social support and resource availability

Social support include support through neighbors and individuals within the neighborhood, but also community program involvement, such as education and job training. Social ties in the community can provide “natural helpers” for parents raising children. In particular, Thompson (1995) defines social support as consisting of “social relationships that provide (or can potentially provide) material and interpersonal resources that are of value to the recipient” (p. 43). Similar to social isolation and the role of networks, the availability of social supports and resources in the surrounding area of a family is important when predicting child maltreatment (Vondra 1990; Garbarino and Crouter 1978). Conducting a multivariate analysis, Garbarino and Crouter (1978) use measures of family socioeconomic status, family background

demographics, and individual attitudes toward their neighborhood in predicting child maltreatment reports. Descriptive statistics show that neighborhoods with scarce resources tend to have higher substantiated reports of child maltreatment, and specifically, higher reports from unknown reporters. In contrast, higher income areas tend to have a higher incidence of reports by known reporters. Overall, contextual socioeconomic and demographic characteristics significantly contribute to child maltreatment reports (Garbarino and Crouter 1978).

Polansky et al. (1985) conducted a study comparing the environment of neglectful mothers with non-neglectful mothers with the same demographics. Interviewing both the mothers and a near neighbor across urban and rural areas of Georgia, authors show that the environments were not different in terms of being economically distressed, but neglectful mothers perceived their environments as less supportive than non-neglectful mothers, which suggests that neglectful mothers may be stigmatized and isolated in their environments.

Zuravin (1989) suggests that neighborhood measures of social support are important in measuring child abuse and neglect reporting. Using Census tracts, Zuravin's study operationalized rates of child abuse and neglect separately within neighborhoods, as she defines these as distinct measures. Using hierarchical analysis, child neglect is significantly related to the percent poverty in the neighborhood, single family dwellings, vacant housing, and the population change in the neighborhood as operationalized by the percentage of new families. The population change in the neighborhood is not statistically significant in predicting child abuse, which suggests that for children who are victims of neglect, social networks and social support play a role in the rate of child neglect.

Not only are child abuse and neglect reports a result of the social support system in the neighborhood, but parenting strategies also are influenced by the neighborhood context. In

studying 262 African-American single mothers in Flint, Michigan, Ceballo and McLoyd (2002) use multi-level modeling to test how neighborhood quality may mediate how social support influences parenting. Mothers with higher social support are less likely to punish their children. The mothers' social support is, in fact, mediated by their neighborhood conditions and presences of environmental stressors. More isolated and desolate neighborhoods present additional stressors for single mothers, whereas the level of social support they have may not have as much influence if they lived in another residential area.

C. Structural Factors Predicting Child Welfare Involvement

Finally, in this section, I discuss the specific literature that relates to my research questions in terms of how structural factors have been used in predicting child welfare involvement.

1. Neighborhood context

The literature suggests that there are multiple factors that determine the intervention decision resulting from a child welfare investigation; however, there is little research on neighborhood factors. Using the first iteration of the NSCAW, Barth, Wildfire, and Green (2006) test predictors for foster care placement, including family poverty, the presence of child behavioral problems, and urbanicity. In urban environments, family-level poverty predicted placement, but in rural areas, child mental health functioning was a much stronger predictor of placement. Thus, this study suggests the importance of controlling for intervening geographic context in predicting the intervention and using individual-level covariates to account for selection.

Other literature has attempted to analyze the effect of the neighborhood on child placement in general. However, as outlined below, research in this area remains limited; therefore, this is a contribution of my research. In a comprehensive study of placement factors, a

report from the University of Illinois' Children and Family Research Center used Illinois administrative data to test a variety of factors that lead to placement in Illinois, conducting logistic regression and categorical and regression tree (CART) analysis with cases during 1996 and 1997. Testing individual- and family-level factors, such as child, caregiver, and family structure, researchers include a factor of a combined measure of the percent of households on public assistance, percent African-Americans, and percent of poor Caucasians residing in each ZIP code to predict placement decision. Findings suggest that children left in the home versus placement outside of the home do not differ significantly in terms of their geographic area (Harris and Poertner 1999). But, more current understanding is needed of geographic context using other measures of neighborhood disadvantage.

Studying a more comprehensive set of neighborhood characteristics, Lery (2009) conducted factor analysis to identify four characteristics of neighborhoods: instability, impoverishment, child care burden, and immigrant concentration. Using three different levels of analysis at the geographic level—ZIP code, Census tract, and block group—Lery (2009) finds that neighborhood characteristics of impoverishment, instability, and child care burden are significantly related to foster care placement in a large urban County of California across all levels of analysis. Lery (2009) suggests that these findings are due to the lack of informal supports in such neighborhoods.

Additionally, literature suggests that racial demographics of the neighborhood may predict child placement. Using data from 1998 to 2003 in California, Freisthler and colleagues (2007) find that the percent African-American, as well as the percent Hispanic in the ZIP code is related to higher referrals, substantiation, and foster care entry.

From my review, only one study has been completed using caregiver perceptions of the neighborhood, and it relates to reunification rather than placement. Courtney and colleagues (2004) find that children with a history of housing instability are more likely to be removed in a sample of child welfare involved families in Milwaukee. Testing for reunification among the removed population, it was found that if caregivers rated their neighborhood quality as higher (neighborhood as safe, positive role models in the neighborhood), the child was more likely to be reunified (Courtney, McMurtry, and Zinn 2004). Thus, Courtney's study suggests that caregiver neighborhood perceptions may predict child placement into foster care as well, which will be analyzed in this dissertation.

2. Race

Much of the literature focusing on placement analyzes disparity across racial groups, which reveals a higher likelihood of foster care placement for minority children. Testing for a wider range of placement decisions, including reunification, Lu and colleagues (2004) analyze how individual-level characteristics predict case outcomes. Using data from 1990 to 1991 in San Diego as part of the Foster Care Mental Health Project, African-American children were overrepresented in all aspects—from substantiation, to the length of stay in foster care, to the time of reunification—when compared to Whites, Hispanics, and Asians/Pacific Islanders. Using logistic regression, Lu and colleagues tested for confounders on the race effect, including age, gender, and the type of abuse, but found that racial differences remain (Lu et al. 2004). The finding that African-American children are more likely to get removed is also evident for children in other minority groups. Studying removal rates of urban Alaska Native and American Indian children in the NSCAW, Carter (2010) finds that White caregivers are more likely to have drug and alcohol problems than Alaska Native/American Indian caregivers. But Alaska

Native/American Indian children are seven times more likely to be removed for drug-related reasons and two to three times more likely to be removed for alcohol related reasons than White children are (Carter 2010).

3. Race and context

There is some evidence that county and neighborhood context moderates the relationship between race and placement. Controlling for family risk factors using the Childhood Victimization and Delinquency, Adult Criminality, and Violent Behavior study,⁶ Kaufmann (2011) finds that the odds African-American children will be placed in out of home care are three times higher than they are for White children. The child's age is not significant, but gender is significant; girls are less likely to be placed than boys. Testing for neighborhood poverty, as operationalized by the number of families receiving Aid for Families with Dependent Children (AFDC) in the Census tract, every one percent increase in AFDC take-up increases the odds of child removal by three percent, and while it does not completely remove the African-American/White disparity in removal, the disparity is reduced. Similarly, using data from 48 counties in California, Kim, Chenot, and Ji (2010) used latent growth curve analysis and found that African-Americans were three more times more likely to have a substantiated case than Whites and four more times like to be placed in out of home care—but the county context reduced the disparity. Counties with increased poverty, with higher unemployment, and in more rural areas have lower disparity rates between White and African-American children (Kim, Chernot, and Ji 2010).

The relationship between race and context is also observed when analyzing rates of reunification. Wulczyn (2011b) finds that the county poverty and the number of female-headed

⁶ The Childhood Victimization and Delinquency, Adult Criminality, and Violent Behavior study is from a large urban northwest U.S. county.

households moderate the relationship between race and reunification⁷; the race effect of reunification is not as pronounced when adjusting for poverty or female headed households. This research suggests that children who live in poor counties reunify more slowly than their counterparts in higher income counties, and more African-American children live in poor counties. Thus, Wulczyn (2011b) calls for a renewed understanding of segregation in relation to understanding racial disparity in the child welfare system. Context also predicts family reunification. Wulczyn and colleagues (2010) find across 945 counties in 17 states that the percent African-American, the number of female-headed households, and urbanicity in the county are associated with lower rates of reunification in the first six months of foster care. While individual race is important in predicting placement and reunification, county and neighborhood context are moderators to the relationship between race and placement.

Jantz and colleagues (2011) use Illinois administrative data to understand the likelihood of child placement by interacting child race and the county of residence. Jantz notes the significant gap in the literature of understanding child placement where individual- and community-level factors are rarely included in the same analysis. Using county indicators of crime, income, residential mobility, and child care burden (borrowing from Coulton et al. 1995) and conducting a latent profile analysis to categorize the state into high, moderate, and low levels of organization, results show that both individual and contextual characteristics predict placement. Lower levels of social organization were associated with higher placement, and this varied by race—specifically, African-American children in the most disorganized counties experienced the highest removal rates. Results suggest the need for community-specific interventions (Jantz et al. 2011).

⁷ While my study does not look specifically at rates of reunification, the literature on reunification helps to inform my study by showing the structural barriers that some children face to reunifying with their families, which may also be operating at the point of placement as well.

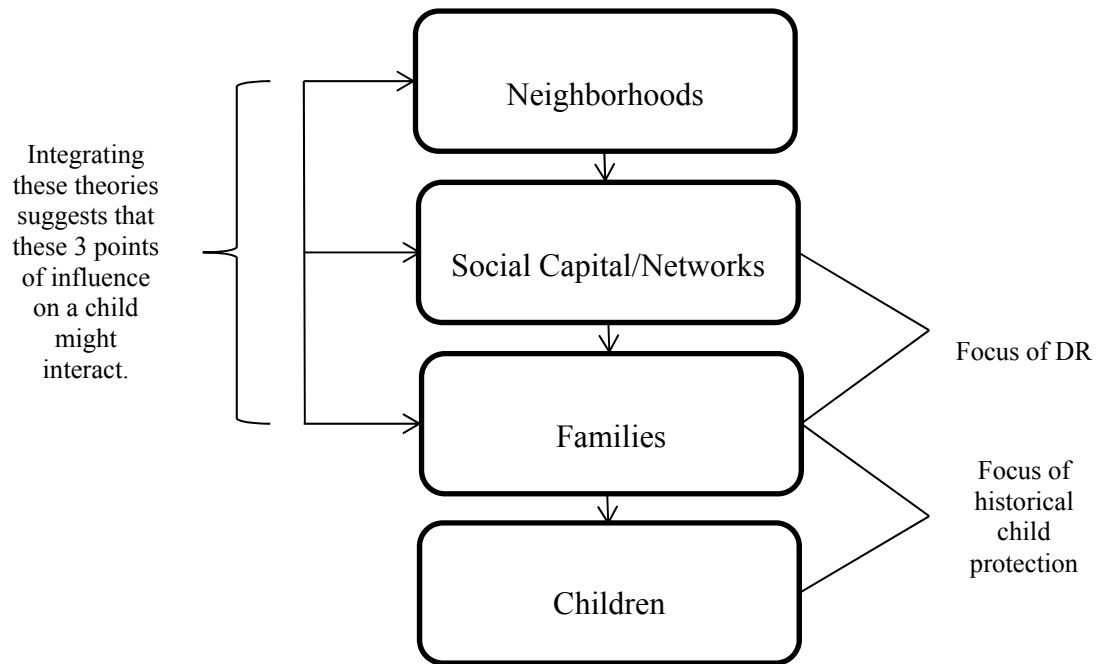
While there has been much work on neighborhoods and social support and how they contribute to child maltreatment reporting and substantiation rates, there is less work on how such factors might contribute to the type of child welfare intervention that a family receives.

D. Conclusion

In conclusion, the above outlined key theories provide a foundation for this research. Ecologists tell us that context matters, and sociologists have particularly focused on the role of neighborhood context. As such, networks and social support are an important dimension in showing how context matters. Figure 2 provides an overview of the theoretical frame for this analysis. There have been few academic publications within sociology that have focused on child welfare and no publications within sociology that focus on understanding the service trajectory once a family is involved with the child welfare system.

As previously discussed, differential response programs focus on building social support around the family, but to what extent can network connections and informal social support overcome structural problems in the neighborhood? Should solutions to child maltreatment, like DR, be focused on the family level, or should policies be focused on more of the “outer layers” of a family’s context?

Figure 2. Theoretical Framework



III. NATIONAL SURVEY OF CHILD AND ADOLESCENT WELL-BEING-II ANALYSIS⁸

A. Overview

The National Survey of Child and Adolescent Well-Being-II provided a national picture of the child welfare service trajectory for investigated families. For the contextual-level measures, the NSCAW-II queried caregivers to assess risk and protective factors in their neighborhood and also included key questions on social support. In this chapter, I describe the NSCAW-II data analysis, methodology, and results in answering my research questions:

1. Do neighborhood/social support characteristics predict the type of alleged maltreatment? Do the same neighborhood/support characteristics predict the child welfare intervention decision?⁹

As discussed in the introduction, I used propensity score weighting to answer these research questions, using exposure to high or low contextual (dis)advantage as the treatment. Using individual- and family-level controls, I predicted the likelihood that the child resides in a high or low risk neighborhood or the family has high or low social support. Then, I predicted the type of allegation and intervention decision, using the propensity score in weighting the regressions.

2. Do individual covariates (race and income) moderate the relationship between context and the allegation or intervention type?

I conducted multinomial logistic regression to test whether race and income moderated the relationship between contextual measures and the outcomes of interest. I ran a series of additive models by starting with the contextual-level measure, adding a wide range of covariates,

⁸ This dissertation includes data from the National Survey on Child and Adolescent Well-Being, which was developed under contract with the Administration for Children, Youth, and Families, U.S. Department of Health and Human Services (ACYF/DHHS). The data have been provided by the National Data Archive on Child Abuse and Neglect. The information and opinions expressed herein reflect solely the position of the author(s). Nothing herein should be construed to indicate the support or endorsement of its content by ACYF/DHHS.

⁹ See Table I for information on how these characteristics will be operationalized.

and further adding interactions between race and family income with contextual-level models.

B. Data and Sample

Funded through the U.S. Department of Health and Human Services' Administration for Children and Families, the National Survey of Child and Adolescent Well-Being-II was a nationally representative sample of children who were subjects of a child welfare investigation conducted by child protective services between February 2008 and April 2009 (and data were collected from March 2008 to September 2009). The Personal Responsibility and Work Opportunity Act of 1996 authorized the first iteration of the NSCAW, which was considered a landmark study of this population. The NSCAW-I collected five waves of data from 1999 to 2007. The NSCAW-II was implemented in 2008 as a result of a continuing need to understand child maltreatment in the United States. The NSCAW-II included multiple waves of data collection, but I used data from the first wave since this dissertation is focused on the caregivers' perceptions of their neighborhood and social support at the baseline interview in order to capture their perceptions closest to the time of the child welfare investigation (Dowd et al. 2010).

From my review, only a few studies have examined child welfare interventions and neighborhood characteristics using caregiver perceptions of the neighborhood. However, using caregiver perceptions as a proxy for neighborhood characteristics as opposed to using neighborhood-level Census characteristics may help identify additional mechanisms contributing to maltreatment and intervention decisions. Caregiver perceptions of their neighborhood may reflect a more accurate depiction of their neighborhood, as geographic boundaries may not align with what a caregiver perceives as their neighborhood.

Guterman and colleagues (2009) used the Fragile Families and Child Well-Being Study to test for abuse and neglect risk (Parent-Child Conflict Tactics Scale) and parent perceptions of

their neighborhood. Specifically using scales that measure social disorder and collective efficacy, they found a “mild, direct” link between negative neighborhood perceptions and risk for physical abuse, but no link with child neglect. In terms of intervention decisions, Courtney and colleagues (2004) found that children with a history of housing instability were more likely to be removed in a sample of child welfare involved families in Milwaukee. Testing for reunification among the removed population, when caregivers rated their neighborhood quality as higher (neighborhood as safe, positive role models in the neighborhood), the child was more likely to be reunified (Courtney, McMurtry, and Zinn 2004).

1. Sampling design

The sample was identified using a two-stage stratification methodology. At the first stage, statisticians divided the U.S. into nine strata including the eight states with the most child abuse and neglect investigations and a ninth stratum of the remaining 38 states and D.C. At the second stage, the sample was further divided into primary sampling units (PSU) of areas served by single child protection agencies, which were mostly at the county level. PSUs across the country were assigned a sampling rate for each of five domains of interest described below and the target population size. The PSUs were selected for the sample using a probability-proportionate-to-size (PPS) procedure. Within PSUs, children were identified based on five domains, which include (1) children age 0-17.5 years old who were not receiving CPS agency-funded services (but who received a child welfare allegation and subsequent investigation), (2) infants age < 1 year old who were receiving CPS agency-funded services and were in out of home care, (3) children age 1 to 17.5 years old who were receiving CPS agency-funded services and were in out of home care, (4) infants age < 1 year old who were receiving CPS agency-funded services and were not in out of home care, and (5) children age 1 to 17.5 years old who were receiving CPS agency-

funded services and were not in out of home care (Dowd et al. 2010). Infants and cases that received ongoing services after investigation were also oversampled to gain adequate sample sizes. The final sample included 5,873 cases, and the baseline overall response rate was 55.8%. Sampling weights were used to account for differential selection probabilities as well as nonresponse (Dowd et al. 2010).

I used information from the full current caregiver instrument, which included permanent and non-permanent caregivers. Then, I ran similar analyses on the sample of biological family caregivers (mother, father, step-parent, sibling, aunt, uncle, or grandparent), which excluded relative adoptive or foster parents, non-related adoptive or foster parents or siblings, or other non-relatives. Foster parents may reside in neighborhoods with more social order, for example, since they were monitored by the state. I chose to exclude other types of permanent caregivers, such as adoptive parents, because I have little information on the previous case history that may have resulted in the permanent placement. Of most importance for this dissertation was understanding the context in which at-risk children reside permanently. (The NSCAW-II did not interview the person from whom the child was removed from if the child was still in child welfare custody at the time of the interview).

2. Measures

Neighborhood perceptions. Current caregivers were asked items from an abridged version of the Community Environment Scale (CES). The CES asked caregivers to assess risk and protective factors in their neighborhood, such as crime, safety, and neighborliness. The abridged CES was developed by NSCAW researchers using items from the National Evaluation of Family Support Programs (Furstenberg 1990). The abridged scale consisted of the following items: (1) assaults and muggings, (2) delinquent or drug gangs, (3) drug use or dealing, (4)

unsupervised children, (5) groups of teenagers hanging out in public places. For each of the above items, the respondent selected one of three choices: 1, not a problem; 2, somewhat of a problem; or 3, a big problem. Then, the respondent was asked to compare her neighborhood to others on the following measures: (6) neighbors that help each other, (7) involvement of parents, (8) the neighborhood as a good place to live, and (9) safety of neighborhood. For each of these items, the respondent selected one of three choices: (1) neighborhood is better than most; (2) neighborhood is about the same as most; or (3) neighborhood is worse than most.

I used the average neighborhood score across the nine items and created a dummy of high (57%) or low (43%) based on the average. I also created clusters from a latent class analysis. The goal of the latent class analysis was to determine how many classes were needed to explain the distribution of neighborhood items reported by the caregiver from the abridged version of the Community Environment Scale (CES) in the NSCAW-II. From this exploratory study, with the full weighted sample, using latent class analysis, three classes of respondents were identified based on their responses to the nine CES items: respondents in communities with high social order and medium social capital (32%), respondents in communities with high social order and low social capital (51%), and respondents in communities with low social order and low social capital (17%). For more information on the latent class analysis, see Appendix C.¹⁰

Social support. The NSCAW-II assessed the caregiver's social support with an abridged version of the Duke-UNC Functional Social Support Questionnaire. In particular, social support included a scale from "I get much less than I would like" to "I get as much as I like" (Broadhead et al. 1988). This section of the questionnaire was only asked of permanent caregivers—foster parents and other types of non-permanent caregivers were excluded. The resulting sample size was 3,109. The items included measures across the following domains: confidant support

¹⁰ The LCA was also published in the *Journal of Social Service Research*.

(invitations to go out and do things with other people; talk to someone about personal/family issues); affective support (love and affection); and instrumental support (help when I need transportation; help when I am sick in bed). The NSCAW documentation did not include reliability or validity information of this scale. For this dissertation, I used the average social support score across the items to create a total score of high (52%) or low (48%) on the measure. Additionally, I used factors from a confirmatory factor analysis (CFA): confidant, affective, and instrumental support. For the full CFA, see Appendix D.

Allegation type. The allegation type was derived from the NSCAW-II researcher-created variable. I recoded the variable into three categories: physical abuse (27%), blatant neglect (28%), and neglect/failure-to-provide (46%). I separated neglect out into the two categories so I could determine whether there was a difference between neglect categories that were more structural in basis versus more blatant neglect. Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and lack of supervision. For example, the child may be emotional neglected because the parent was unavailable to provide them with the emotional support they need because of poverty-related stressors. Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, children in need of services, and neglect classified as “other”. I excluded cases that had an allegation as “other” and “investigation only way to get services.”

I removed children with allegations of sexual abuse ($N=260$) for this analysis. Research on child sexual abuse has found that while there are some factors that might increase the risk of sexual abuse (girls versus boys; stepfather in the home, etc.), no demographic category is excluded from the possibility of sexual abuse. And, specifically, socioeconomic status or race-

ethnicity has not been associated with a higher risk of sexual abuse (Finkelhor 1993). Sexual abuse research has largely focused on an individual approach by analyzing the psychology of the alleged perpetrators, rather than the context in which they reside (Peterson 1993). Thus, there was no evidence to suggest that sexual abuse was associated with social- or contextual-level risk factors.

Intervention decision. I created a five-category measure that was derived from three variables in the NSCAW-II: unsubstantiated, no services (55%); unsubstantiated, services (13%); substantiated, no services (14%); substantiated, services (10%); and substantiated, out of home care (8%). The outcome of the investigation was coded from the caseworker interview as substantiated or unsubstantiated. Some states do not classify cases as substantiated or unsubstantiated, but classify cases as high, medium, or low risk. I excluded these cases from my analysis (around 8%). The “services” measure was a NSCAW-II researcher-derived variable whether services were received or not. I also used the NSCAW-II researcher-created measure whether the child was in an out of home placement. Additionally, there were 356 cases of children who had unsubstantiated cases who were also in substitute care. It was likely that these reports were children who were already in care at the time of the report; however, there was no way to discern this information from the NSCAW-II (personal communication with Margaret McCarthy on December 7, 2012). Therefore, I removed those cases from this analysis.

Covariates. I used a variety of items from the child, caregiver, caseworker, and local area director interviews to help account for selection bias. I controlled for the child’s age (23% were 0 to 2; 23% were 3 to 5; 28% were 6 to 10; 28% were 11 and above), gender (53% male; 47% female), race-ethnicity (23% Black; 42% White; 29% Hispanic; 7% Other), whether the child was born in the U.S. (97%), and whether the family had received a prior child welfare report

(59%).¹¹ For caregiver and family covariates, I accounted for the caregiver's relationship to the child (excluded for biological caregivers) (91% biological parent; 5% relative to child; 4% adoptive/foster parent), whether the caregiver was the child's legal guardian (excluded from the sample of biological caregivers) (94%), whether there was another adult in the home that was responsible for the child (26%), the caregiver's education level (27% less than high school; 45% high school education; 28% more than high school), employment status (33% full-time; 15% part-time; 51% not working), marital status (32% married), the number of children in the household (30% one child; 47% two to three children; 23% four or more children), and family income (27% under \$12,480; 31% 12,500 to 24,360; 24% 24,400 to 45,600; 18% greater than 46,000). I also controlled for whether the family received TANF (15%), WIC (37%), SNAP (57%), housing assistance (14%), or disability assistance (22%). The caseworker provided information about the child's case, including who made the initial report (18% parent; 5% neighbor; 17% school; 13% doctor; 31% other), the child's level of harm (47% none; 30% mild; 18% moderate; 5% severe), whether the family experienced high stress (52%), had low social support (26%), had a lack of basic needs (24%), and whether the caregiver used excess discipline (6%) or had poor parenting skills (79%). I also included whether the agency was located in an urban area (76%). The NSCAW-II also surveyed local agency directors, and I used a few items to account for organizational-level information, including whether the agency provided voluntary services to families (87%) or short-term services (85%) after an investigation for all cases. I additionally controlled for whether the agency had a local community board (65%).

3. Analytic sample

¹¹ Note that this was different from Illinois DCFS analysis where I dropped prior reports because if I excluded cases that had a prior report in the NSCAW-II analysis, I had a much smaller sample size, so I controlled for it.

The controls varied in terms of missing values (ranging from 0 to 10%), and I used multiple imputation to account for item non-response for covariates using the “mi” commands in *Stata* 12. The imputation accounted for clustering by PSU and controlled for the NSCAW-II stratum and sampling weights. I completed two separate imputations, one for the neighborhood and one for the social support measures since my analysis ran the neighborhood and social support measures in separate models. I completed 20 imputations per the recommendations of Graham, Olchowski, and Gilreath (2007) and did not impute the outcome measures (allegation or intervention decision), neighborhood, or social support variables, but carried them through the imputation as “regular” variables so that they would be included in the imputation of the covariates.¹² For the neighborhood cluster variables, approximately 10.4% were missing. Approximately 30.7% were missing on the social support variables (these questions were only asked of permanent caregivers). The final sample size for the analysis ranged from 3,538 to 3,540 for the neighborhood analysis and 2,730 to 2,734 for the social support analysis (sample sizes were different across imputation models). Table II provides weighted descriptive statistics for the covariates.

¹² The literature on multiple imputation was inconclusive on whether to impute the dependent variable. Some literature (Cohen and Cohen 1985) argues against imputing the dependent variable, while others (Allison 2001) argue for imputing the dependent variable. However, Young and Johnson (2010) note that the results do not differ significantly either way, and are even less different with a higher number of imputations (von Hippel 2007).

Table II. NSCAW- II Weighted Descriptive Statistics (N = 3,540)

	<i>M</i> or %
Outcome measures	
Abuse allegation type	
Physical	27%
Blatant neglect ^a	28%
Neglect/failure-to-provide ^b	46%
Intervention decision	
Unsubstantiated, no services	55%
Unsubstantiated, services	13%
Substantiated, no services	14%
Substantiated, services	10%
Substantiated, out of home placement	8%
Contextual measures	
Neighborhood total score	
Low (<1.5)	43%
High (>=1.5)	57%
Neighborhood latent classes	
Low social order, low social capital	17%
High social order, low social capital	51%
High social order, medium social capital	32%
Social support total score ^c	
Low (<4)	52%
High (>=4)	48%
Social support factors	
High confidant	49%
High affective	50%
High instrumental	49%
Caregiver measures	
Caregiver relationship to child	
Biological parent	91%
Relative to child	5%
Adoptive/foster parent	4%
Caregiver education	
Less than high school	27%
High school education	45%
More than high school education	28%
Caregiver employment status	
Full-time	33%
Part-time	15%
Does not work	51%
Caregiver married	32%
Family income	
0 to 12,480	27%
12,500 to 24,360	31%
24,400 to 45,600	24%

Greater than 46,000	18%
Caregiver receives WIC	37%
Caregiver receives SNAP	57%
Caregiver receives TANF	15%
Caregiver receives housing assistance	14%
Caregiver receives disability assistance	22%
Number of children in household	
One child	30%
Two to three children	47%
Four or more children	23%
Caregiver is child's legal guardian	94%
Other responsible caregiver in the home	26%
<hr/>	
Child measures	
<hr/>	
Child age	
Zero to two	23%
Three to five	23%
Six to ten	28%
Eleven and above	28%
Child is male	53%
Child race	
Black	23%
White	42%
Hispanic	29%
Other	7%
Child born in the U.S.	97%
<hr/>	
Caseworker reported measures	
<hr/>	
Prior report to child welfare	59%
Child level of harm	
None	47%
Mild	30%
Moderate	18%
Severe	5%
Type of reporter	
Parent	18%
Neighbor	5%
School	17%
Doctor	13%
Other	31%
Poor parenting skills	79%
Parent uses excess discipline	6%
Family had high stress at time of investigation	52%
Family had low social support at time of investigation	26%
Family had trouble paying for basic needs at time of investigation	24%
Agency located in an urban area	76%
<hr/>	
Local area director reported measures	
<hr/>	
Agency has community board	65%
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Agency provides voluntary services to families	87%
Agency provides short-term services	85%

^aBlatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

^bCategories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and lack of supervision.

^cSample size for the social support variables was 2,730.

C. Propensity Score Analysis

Among families investigated by the child welfare system, do their neighborhood/social support characteristics predict the type of alleged maltreatment reported? Do the same neighborhood/support characteristics predict the child welfare intervention decision?

1. Analysis plan

A variety of individual, family, organizational and environmental factors were likely to influence neighborhood characteristics, social support, the type of child welfare allegation reported, and the intervention decision. The NSCAW-II included a rich set of covariates, as previously discussed, to account for selection. Analytically, I addressed selection on observed characteristics by using propensity score weighted regression, an approach that is becoming more widely used in non-experimental evaluation to account for selection bias (see Imbens and Wooldridge 2009; Williamson, Morley, Lucas, and Carpenter 2012). Propensity score analysis allows researchers to match a control group to a treatment group on observable characteristics, and test the effect of a given treatment (Barth, Guo, and McCrae 2008).

For this approach, my “treatment” was living in a neighborhood with higher neighborhood advantage or high on the social support factor. (For a similar application, see Harding 2003). Each neighborhood or social support contrast was included in a separate model. Table III includes the categories used in separate propensity score weighted regressions.

Table III. Treatment and Control Groups for Propensity Score Analysis

	Treatment	Control
Neighborhood perceptions		
Total average perceptions	High average perceptions (better conditions)	Low average perceptions (worse conditions)
Contrasts	High social order, medium social capital (high/medium) ^a High social order, medium social capital (high/medium) ^a High social order, low social capital (high/low) ^a	Low social order, low social capital (low/low) ^a High social order, low social capital (high/low) ^a Low social order, low social capital (low/low) ^a
Social support		
Total average support	High social support	Low social support
Factors	High confident High affective High instrumental	Low confident Low affective Low instrumental

^aThe abbreviated names in parentheses will be used in the analytic tables for ease of interpretability.

Propensity score weighted regression is preferred over standard multiple regression because of the ability to match children in treatment and control groups based on specified observables. The matching procedure creates a weight to apply to the data that allows the covariates to be balanced so that children in the treatment and control groups have a similar distribution across the measures. The procedure was completed by estimating the predicted probability to be the outcome category (better neighborhood or higher social support) using logistic regression. Thus, the propensity score is the probability of receiving the treatment—residing in a neighborhood with higher social order and social capital or the probability of having higher social support.

Since the two outcomes studied were categorical (abuse allegation type and intervention decision), I then estimated a multinomial logistic regression to model the impact of neighborhood or social support on each of the child welfare system-related outcomes. For the multinomial logistic regression, I used the predicted probability of being in the treatment group—referred to as the propensity score—as a weight for children in families in the control group. In order to calculate the propensity score, observations for the high category were given a weight of one, and those in the low category were given a weight of the inverse of the probability ($p/1-p$). For each case in the control group, p was the predicted probability of being in the treatment group computed from the logistic regression (Imbens and Wooldridge 2009; Hirano and Imbens 2002). I used the same set of covariates in the outcome regressions as in the regressions used to estimate propensity weights.

The literature was largely inconclusive on the role of sampling weights in propensity score analysis with survey data (Dong 2013). I employed a model-based approach to account for the complex sampling design of the NSCAW-II by adjusting for clustering at the PSU level and

accounting for the stratum and sampling weights as controls (Gelman 2007; Korn and Graubard 1991). This approach was similar to the approach used in other papers using propensity score weighting with survey data (Korenman, Abner, Kaestner, and Gordon 2013).

2. Hypotheses

In following the trajectory of child maltreatment research that finds abuse and neglect reports clustered in neighborhoods with higher levels of disadvantage, I expect that families with allegations of neglect will reside in neighborhoods with more perceived disadvantage than those experiencing other types of abuse allegations. This might be because families in more resource-poor areas do not have access to certain supports that neighborhoods might provide, such as nearby child care or other supportive institutions, and thus, were more likely to have allegations of neglect.

Research has shown that families experiencing neglect were more clustered together than those experiencing other types of abuse (Drake and Pandey 1996). I expect that the neighborhood structure and social support might also predict the intervention decision. Disadvantaged neighborhoods can increase environmental vulnerability for families, which could lead to child maltreatment reports and more severe outcomes (Wilson 1987, 1998; Pattillo-McCoy 1999). The child welfare intervention type is also based on a caseworker's decision. If children live in neighborhoods with higher disadvantage (e.g., higher crime), caseworkers may be biased in placing the child outside of the home or give the family a more intensive intervention; the neighborhood may also not have resources to provide support to the family, and therefore, the caseworker may choose to remove the child because safety is at risk. Previous work has shown that more disadvantaged neighborhood structure leads to a higher likelihood to remove a child (Lery 2009). Thus, children residing in neighborhoods with the most

disadvantage and with caregivers with the least social support may be the most likely to be initially removed from the home, controlling for family- and case-level demographics.

It is important to note that the NSCAW-II is a study of investigated child welfare cases in contrast to a study of the population of children as a whole, and as such, all of the families in the sample have received some level of child welfare involvement. Thus, while prior literature has shown neighborhood and social support as risk and protective factors for children, those findings may not be consistent in this case due to the lack of a reference group of non-reported or non-investigated children.

3. Results

Tables IV and V provide the conditional marginal effects from the propensity score weighted regressions for the full sample. The results from the sample of biological caregivers are available in Appendix E. I ran a series of models using the neighborhood and social support items described above. First, I ran the treatment of high or low on the total neighborhood score. Then, I ran a series of contrasts across the three neighborhood latent classes, using the better category as the treatment group and the worse category as the control group. For social support, better overall social support was the treatment group, and worse overall social support was the control group. Finally, I used the social support factors of confidant, affective, and instrumental and tested high versus low on each factor. I completed analyses for each neighborhood and social support measure separately for the allegation type and intervention decision for both the full sample and the sample of biological caregivers.

The conditional marginal effects are the effects on the conditional mean of the outcome (in this case, abuse allegation type or intervention decision) in one unit of the predictor. Holding the covariates constant at their means, the marginal effect is the discrete difference in probability

between each outcome category. The tables report the conditional marginal effects for each outcome for the full sample and the sample of biological caregivers. I report significance of the marginal effects at the $p < .05$. The superscript letters identify marginal effects that statistically significantly differ at $p < .10$ across the outcome categories.¹³

Allegation type. Table IV provides the results from the abuse allegation type for the full sample.

¹³ In order to be consistent with prior research, I also conducted similar analyses for a two- category allegation measure: physical abuse versus neglect (all types). The results were consistent with the findings reported above for the blatant neglect category for total neighborhood score, neighborhood clusters, and total social support. I no longer had significance when predicting the abuse allegation type for the social support factor scores.

Table IV. Conditional Marginal Effects for Allegation Type: Propensity Score Weighted Multinomial Logistic Regression

	Total Neighborhood Perceptions	Neighborhood Latent Classes			Total Social Support	Social Support Factors		
	High versus Low	High/Medium versus High/Low	High/Medium versus Low/Low	High/Low versus Low/Low	High versus Low	High Confidant (versus Low)	High Affective (versus Low)	High Instrumental (versus Low)
Allegation type								
Physical abuse	-0.01	-0.00	-0.01	-0.03 ^a	0.00	0.01	-0.00	-0.01
Blatant neglect ¹	0.03	0.02	0.04	-0.00	0.02	0.03 ^a	0.04* ^a	0.04 ^a
Neglect/failure-to-provide ²	-0.02	-0.02	-0.03	0.04 ^a	-0.03	-0.03 ^a	-0.04* ^a	-0.03 ^a
Sample Size	3,538	2,989	1,859	2,226	2,730	2,730	2,730	2,730

Note. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child's age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver's education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child's level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver's relationship to the child and whether the caregiver was the child's legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^aWithin outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

¹Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

²Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and lack of supervision.

* $p < 0.05$

The neighborhood total score, neighborhood latent classes, and social support total score did not statistically significantly predict the allegation type. However, there was one statistically significant result for the sample of biological caregivers. Children were five percentage points more likely to have an allegation of blatant neglect than physical abuse or neglect/failure-to-provide if caregivers reported better overall neighborhood conditions. This finding did not fit with prior literature and with what one might expect that families with allegations of neglect would reside in areas with worse conditions. This may be because the neglect categories were divided into blatant neglect and failure-to-provide in this analysis, as opposed to prior literature.

For the social support factors, results were consistent across the full sample and sample of biological caregivers. Children with caregivers with high affective support had a lower probability of having an allegation of neglect/failure-to-provide than an allegation of blatant neglect for both the full sample and sample of biological caregivers. Thus, affective support might be an important protective factor for children with such allegations, more so than confidant and instrumental support. It might be expected that instrumental support (help with child care) may help prevent allegations of failure-to-provide, but it may be that affective support (people who care) might be providing strong emotional support to help caregivers.

Intervention decision. The results from the full sample predicting the intervention decision are in Table V.

Table V. Conditional Marginal Effects for the Intervention Decision: Propensity Score Weighted Multinomial Logistic Regression

	Total Neighborhood Perceptions	Neighborhood Latent Classes			Total Social Support	Social Support Factors		
	High versus Low	High/Medium versus High/Low	High/Medium versus Low/Low	High/Low versus Low/Low	High versus Low	High Confidant (versus Low)	High Affective (versus Low)	High Instrumental (versus Low)
Intervention decision								
Unsubstantiated, no services	-0.01 ^a	-0.00 ^a	-0.01 ^a	-0.01	-0.02 ^a	-0.02 ^{ab}	-0.03 ^{ab}	-0.03 ^a
Unsubstantiated, services	-0.01 ^b	0.03 ^{abc}	-0.07 ^b	-0.10 ^{*ab}	-0.01 ^b	0.01 ^c	-0.02 ^{cd}	-0.02 ^b
Substantiated, no services	-0.02 ^c	-0.04 ^{bd}	-0.01 ^c	0.01 ^a	-0.05 ^{*c}	-0.06 ^{*de}	-0.04 ^{ef}	-0.03 ^c
Substantiated, services	-0.04 ^d	-0.09 ^{cde}	-0.04	0.09 ^b	0.09 ^{*abc}	0.07 ^{*adf}	0.08 ^{*aceg}	0.08 ^{*abc}
Substantiated, out of home care	0.08 ^{*abcd}	0.10 ^e	0.13 ^{abc}	0.01	-0.00	-0.00 ^{bcef}	-0.00 ^{bdfg}	-0.00
Sample Size	3,538	2,989	1,859	2,226	2,730	2,730	2,730	2,730

Note. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child's age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver's education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child's level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver's relationship to the child and whether the caregiver was the child's legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^{a,b,c,d} Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

¹ Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

² Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and lack of supervision.

* $p < 0.05$

Children with caregivers who perceived better neighborhood conditions were eight percentage points more likely than children with caregivers who perceived worse neighborhood conditions to be in out of home care with a substantiated case than any other intervention decision. One might hypothesize that this was likely because foster parents and other non-permanent caregivers resided in better neighborhoods than a child's permanent residence. However, the effect was slightly reduced to five percentage points, but still statistically significant, when the sample was restricted to biological caregivers. Thus, caregivers who reported better neighborhood conditions were more likely to have a case with the most intensive child welfare intervention. I discuss possible reasons for this finding at the end of this section, which may be due to NSCAW-II sampling design or reporting bias from the caregivers.

For the first neighborhood contrast, there were no statistically significant results for the full sample. For biological caregivers, those in neighborhoods with high social capital (high social order, medium social capital) versus lower social capital (high social order, low social capital) had a higher probability (six percentage points) of having an unsubstantiated case with services than having an unsubstantiated or substantiated case with no services or a substantiated case with services. The second contrast tested the difference between caregivers reporting better conditions (high social order, medium social capital) versus worse conditions (low social order, low social capital). None of the results were statistically significant for the full sample, but children in better neighborhoods were more likely to be in out of home care than any of the other interventions in the sample of biological caregivers (seven percentage points). The third contrast tested the difference between caregivers reporting high social order, low social capital versus low social order, low social capital. Children with caregivers reporting higher social order neighborhoods were less likely than their counterparts in lower social order neighborhoods to

have cases that were unsubstantiated with services when compared to children in substantiated cases with and without services in the full sample (ten percentage points). However, in the biological caregiver sample, higher social order was associated with a higher likelihood of the case being substantiated and the child being placed in out of home care than any other intervention decision (by four percentage points). Thus, families in areas with higher social order had more intensive child welfare interventions. Again, possible reasons for this finding are discussed at the end of this chapter.

There were similar findings for the intervention decision across the full sample and sample of biological caregivers for the total social support measure. Caregivers with higher social support were less likely to have substantiated cases with no services than those with lower social support when compared to substantiated cases with services in both samples and out of home cases in the sample of biological caregivers only (five percentage points in the full sample and biological caregivers). But caregivers with higher social support were more likely to have substantiated cases with services than unsubstantiated cases with or without services or substantiated cases without services (nine percentage points in the full sample, eight percentage points for biological caregivers). For the social support factors, children with caregivers who had higher confidant support were six percentage points less likely to have substantiated cases with no services than they were to have substantiated cases with services or out of home care. As with the total social support measure, children with caregivers who had higher confidant, affective, and instrumental support were more likely to have substantiated cases with services and not be in out of home care than children with caregivers with lower social support, when compared to many of the intervention decisions.

D. Multinomial Logistic Regression

Among families investigated by the child welfare system, do individual covariates (race and income) moderate the relationship between context and the allegation or intervention type?

1. Analysis plan

I ran a series of additive multinomial logistic regression models where the contextual factors (separate models completed for each neighborhood and social support factor) served as predictors for the abuse allegation type and intervention decision. All models included a robust set of covariates, and I paid special attention to the effect of child race and family income on the outcomes and in relation to the contextual measures. The series of models were:

- Model 1: Neighborhood or social support factors with full set of controls
- Model 2: Child race with full set of controls
- Model 3: Family income with full set of controls
- Model 4: Child race and family income with full set of controls
- Model 5: Model 4, interacting race and income
- Model 6: Model 4, interacting race and contextual measure
- Model 7: Model 4, interacting income and contextual measure

I employed a model-based approach to account for the complex sampling design of the NSCAW-II by adjusting for clustering at the PSU level and accounting for the stratum and sampling weights as controls (Gelman 2007; Korn and Graubard 1991).

Tables VI and VII provide the conditional marginal effects from the multinomial logistic regressions for the full sample on each outcome. The conditional marginal effects measured the effect on the conditional mean of the outcome (in this case, abuse allegation type or intervention decision) of a change in one unit of the predictor. Holding the covariates constant at their means, the marginal effect is the discrete difference in probability between each outcome category. I report significance of the marginal effects at the $p < .05$. The superscript letters identify the marginal effects that statistically significantly differ at $p < .10$ across the outcome categories.

2. Hypotheses

This portion of the analysis tested whether the individual covariates of child race and family income moderated the relationship between contextual measures and the abuse allegation type and intervention decision. I expected that when I accounted for neighborhood disadvantage and social support, families with the lowest structural position (African-American and poor), will have the most allegations of neglect/failure-to-provide (following the work of Massey and Denton 1993, Pattillo-McCoy 1999, and theory on “double jeopardy” per Sampson and Sharkey 2008). I also expected that race and income may confound the relationship between context and the intervention decision. Families in more disadvantaged neighborhoods or who have lower social support may be more likely to have a child placed in out of home care; however, this may only be the case for minority families, as race may also confound this relationship, since racial minorities, and especially African-Americans, are subject to additional bias in the child welfare system (Kaufmann 2011; Kim, Chenot, and Ji 2011). This work was exploratory in nature as there was no literature on the moderation between race and neighborhood effects in predicting child welfare involvement.

3. Results

The neighborhood clusters were included in one model, with the high social order, low social capital cluster serving as the reference group. The models were completed separately for each type of social support: confidant, affective, and instrumental. When controlling for the full set of covariates (Model 4) including race and income, the statistically significant effects for the neighborhood cluster measures and social support factors remained the same as when only

controlling for the specific neighborhood cluster or social support factor and full controls (Model 1).¹⁴ Thus, I start the discussion below with results from Model 4.

Allegation type. Child race and family income with full set of controls (Model 4). For Model 4, no results were statistically significant for the neighborhood clusters. However, for social support, affective support significantly predicted the abuse allegation type between blatant neglect and neglect/failure-to-provide. Specifically, the marginal effect in predicting blatant neglect was three percentage points higher for those with high affective support and three percentage points lower when predicting neglect/failure-to-provide. (The predicted probabilities for blatant neglect were 38.2% for those with low affective support and 41.5% for those with high affective support. For neglect/failure-to-provide, the predicted probability for low affective support was 42.7%, and it was 39.8% for those with high affective support.) These findings were consistent with the propensity score analysis.

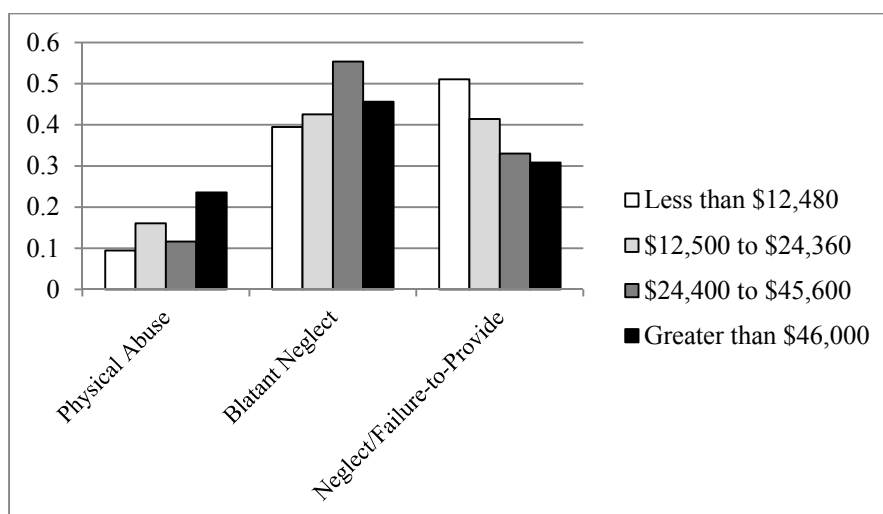
When controlling for child race and the factors of confidant support and affective support (in separate models), as well as the full set of covariates, families with higher incomes had a higher likelihood of a physical abuse allegation (predicted probability around 25%) as opposed to families with lower incomes (predicted probability of 16.3%). Additionally, for each social support type, when predicting blatant neglect, families with high incomes had a predicted probability of around 34% as compared with 42% if they had lower incomes (discrete marginal change for high income was eight percentage points). This was consistent with the literature that families with higher incomes were more likely to have allegations of physical abuse and families with lower incomes were more likely to have allegations of neglect, as neglect was more tied to impoverishment.

¹⁴ The multinomial logistic regression for biological caregivers showed similar results, but are not reported.

Child race and family income with full set of controls, interacting race and income (Model 5). Model 5 tested for interactions between child race and income when predicting allegation type and intervention decision. Only three interactions were statistically significant for the neighborhood contrasts, and no interactions were statistically significant between race and income when controlling for social support.

Children in the ‘other’ racial group were much more likely to have an allegation of physical abuse if they had higher incomes (for children in this racial group with an allegation of physical abuse, the predicted probability was 9.6% for low income as opposed to 23.6% for high income). However, they were more likely to have an allegation of blatant neglect if they were in the 24,400 to 45,600 income group than those in the lowest income group (55.4% with incomes ranging from 24,400 to 45,600 versus 39.5% with incomes less than 12,500). Finally, children in the ‘other’ racial group were much more likely to have allegations of neglect/failure-to-provide if they were in the lower income group (51.0% in the low income category versus 30.8% in the highest income category). The predicted probabilities for the ‘other’ racial group and income interactions are graphically shown in Figure 3.

Figure 3. Predicted Probabilities of the Interaction between Child Other Race-Ethnicity and Income on Abuse Allegation Type from Multinomial Logistic Regression (Model 5)



The results were in the expected direction as children with the lowest incomes (white bar) were more likely to have allegations of neglect/failure-to-provide than those with higher incomes (gray to black bars), and those with higher incomes were more likely to have allegations of physical abuse than those with lower incomes. But these findings were not consistent across all racial groups and warrant additional research around understanding the role of income for children of ‘other’ racial groups. However, the sample size for the ‘other’ racial group category was low (seven percent of the sample), so results should be interpreted with caution.

Child race and family income with full set of controls, interacting neighborhood clusters and income (Model 6). Model 6 tested the interaction between the neighborhood clusters/social support factors and family income and found no statistically significant interactions.

Child race and family income with full set of controls, interacting neighborhood clusters and race (Model 7). Model 7 interacted neighborhood and race, and there were three (out of 18) statistically significant interactions when predicting the abuse allegation type for the neighborhood clusters. For predicting the contrast of blatant neglect versus physical abuse, White children were more likely to have a physical abuse allegation if they resided in neighborhoods with low social order, low social capital rather than neighborhoods with high social order and medium social capital (predicted probabilities: 19.2% in low social order, low social capital; 16.0% in high social order, low social capital; 12.3% in high social order, medium social capital). But, White children in high social order, medium social capital neighborhoods were much more likely to experience blatant neglect (predicted probabilities: 43.6% in low social order, low social capital; 42.7% in high social order, low social capital; 48.7% in high social order, medium social capital). Thus, it was evident that the relationship between neighborhood and abuse allegation type was somewhat moderated by child race as Whites were more likely to

have physical abuse allegations if they resided in neighborhoods with lower social order and social capital and more likely to have blatant neglect allegations if they resided in lower risk neighborhoods. It would be interesting to conduct further analyses based on this finding in terms of the racial demographics of the neighborhood.

Additionally, in contrast to Whites, children in the ‘other’ racial group were more likely to have allegations of blatant neglect if they resided in neighborhoods with low social order and low social capital (predicted probabilities: 59.8% in low social order, low social capital; 42.0% in high social order, low social capital; 49.0% in high social order, medium social capital). However, they were more likely to have allegations of neglect/failure-to-provide if they resided in neighborhoods with high social order, low social capital than other types of neighborhoods (predicted probabilities: 21.3% in low social order, low social capital; 46.7% in high social order, low social capital; 32.9% in high social order, medium social capital).

When predicting the abuse allegation type across the types of social support, caregivers of the ‘other’ racial group with lower confidant support were more likely to have blatant neglect allegations (predicted probabilities: low was 41.2% and high was 29.1%), but those with higher confidant support were more likely to have allegations of neglect/failure-to-provide (predicted probabilities: low was 42.0% and high was 50.5%). Hispanics with high instrumental support were slightly more likely to have allegations of blatant neglect (predicted probability: 38.9%) than those with low instrumental support (predicted probability: 38.4%). However, Hispanics with high instrumental support were slightly less likely to have allegations of neglect/failure-to-provide (40.5%) than those with low instrumental support (predicted probability: 41.7%). It is my presumption that there may be racially- and culturally-specific social support mechanisms occurring that alleviate stress on parents for children with allegations of neglect/failure-to-

provide. Korbin and colleagues qualitatively found that while African-Americans resided in more structurally disadvantaged areas, they did experience higher community social organization and support (Korbin et al. 1998). Similar experiences may be occurring here for different racial groups.

Intervention decision. Child race and family income with full set of controls (Model 4).

With regard to the intervention decision (Table VI), caregivers who reported high social order and social capital as well as low social order and social capital were six percentage points more likely to have unsubstantiated cases with services, rather than substantiated cases with services or out of home care, than those reporting high social order and low social capital. Caregivers in high social order and medium social capital neighborhoods were also six percentage points less likely to have cases that were substantiated with services versus unsubstantiated cases with services than caregivers reporting high social order and low social capital. Caregivers residing in neighborhoods with high social order but low social capital were more likely to have substantiated cases with services than the other neighborhood groups—even those with low social order and low social capital. Thus, those families may be facing higher risk factors. As I discuss in the latent class analysis (see Appendix C), classifying families based on either “high” or “low” risk across a multi-item scale may not fully capture the story for families reported to the child welfare system—especially given that a multi-item scale like the CES measures multiple dimensions of risk including social order and social capital items. The LCA revealed that there was a third group of respondents, who resided in places with high social order but low social capital; as shown here, they were more likely to have substantiated cases and receive services. Thus, it may be that neighborhoods that appear to have higher social order but lower social capital are a place to begin to build community-based prevention efforts since these families

appear to receive a higher level of child welfare intervention. Social capital (such as having neighbors that help each other) is an important factor in preventing child maltreatment.

Table VI. Conditional Marginal Effects of Neighborhood, Race, and Family Income on the Intervention Decision from Multinomial Logistic Regressions (Model 4)

	Intervention Decision				
	Unsubstantiated, No Services	Unsubstantiated, Services	Substantiated, No Services	Substantiated, Services	Substantiated, Out of Home Care
	Discrete Change in Probability				
Neighborhood (Ref.: High social order, low social capital)					
Low social order, low social capital	0.00	0.06* ^{ab}	0.00	-0.02 ^a	-0.05 ^b
High social order, medium social capital	-0.00 ^a	0.06* ^{abc}	-0.03 ^b	-0.06* ^c	0.04
Child race (Ref.: African-American)					
White	0.01	0.10* ^{ab}	-0.03 ^a	-0.08 ^b	-0.00
Hispanic	-0.03* ^{ab}	0.10* ^{acd}	-0.06 ^c	-0.01 ^{bd}	-0.00
Other	-0.01	0.09 ^a	-0.05 ^a	-0.03	-0.00
Family income (Ref.: Less than 12,500)					
12,500 to 24,360	0.02* ^{abc}	0.05 ^a	0.03 ^b	-0.04 ^c	-0.05
24,400 to 45,600	0.01 ^a	-0.00 ^a	0.02	0.00	-0.03
Greater than 45,600	0.03 ^{ab}	-0.01 ^{ac}	0.08 ^{cd}	-0.04 ^{bd}	-0.04

Note. N=3,538 to 3,540. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child's age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver's education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child's level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver's relationship to the child and whether the caregiver was the child's legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

¹Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

²Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and lack of supervision.

* $p < 0.05$ + $p < 0.10$

Table VII includes the results from Model 4 for predicting the intervention decision for affective social support. (The results for confidant and instrumental support were consistent with the affective support findings; therefore, I included affective support as an example). Caregivers

reporting high affective, confidant, and instrumental support) were more likely to have cases that were substantiated with services than those with low social support. It goes against what one might expect, that families reporting higher support have more intensive child welfare interventions, but it is consistent with the propensity score results. I hypothesize that this might be due to the way that the caregivers answered the survey, and I discuss in more detail below.

Table VII. Conditional Marginal Effects of Affective Social Support, Race, and Family Income on Abuse Allegation Type and Intervention Decision from Multinomial Logistic Regressions (Model 4)

	Affective Support				
	Unsubstantiated, No Services	Unsubstantiated, Services	Substantiated, No Services	Substantiated, Services	Substantiated, Out of Home Care
Discrete Change in Probability					
Social support (Ref: Low)					
High	-0.02 ^{ab}	-0.02 ^{cd}	-0.05 ^{ef}	0.08 ^{*aceg}	-0.00 ^{bdfg}
Child race (Ref.: African-American)					
White	0.00	0.11 ^{*ab}	-0.05 ^a	-0.07 ^{bc}	-0.00 ^c
Hispanic	-0.06 ^{*ab}	0.13 ^{*ac}	-0.09 ^c	0.02 ^b	-0.00
Other	-0.02 ^a	0.12 ^{*ab}	0.06 ^b	-0.02	-0.00
Family income (Ref.: Less than 12,500)					
12,500 to 24,360	0.04 ^{*abc}	0.02 ^{ad}	0.02 ^{bc}	-0.08 ^{*cde}	0.00
24,400 to 45,600	0.02	-0.02	0.01	-0.02	-0.00
Greater than 45,600	0.04 ^{ab}	-0.03 ^a	0.06 ^c	-0.08 ^{bc}	-0.00

Note. N=2,730 to 2,734. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child's age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver's education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child's level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver's relationship to the child and whether the caregiver was the child's legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^{a,b,c,d} Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

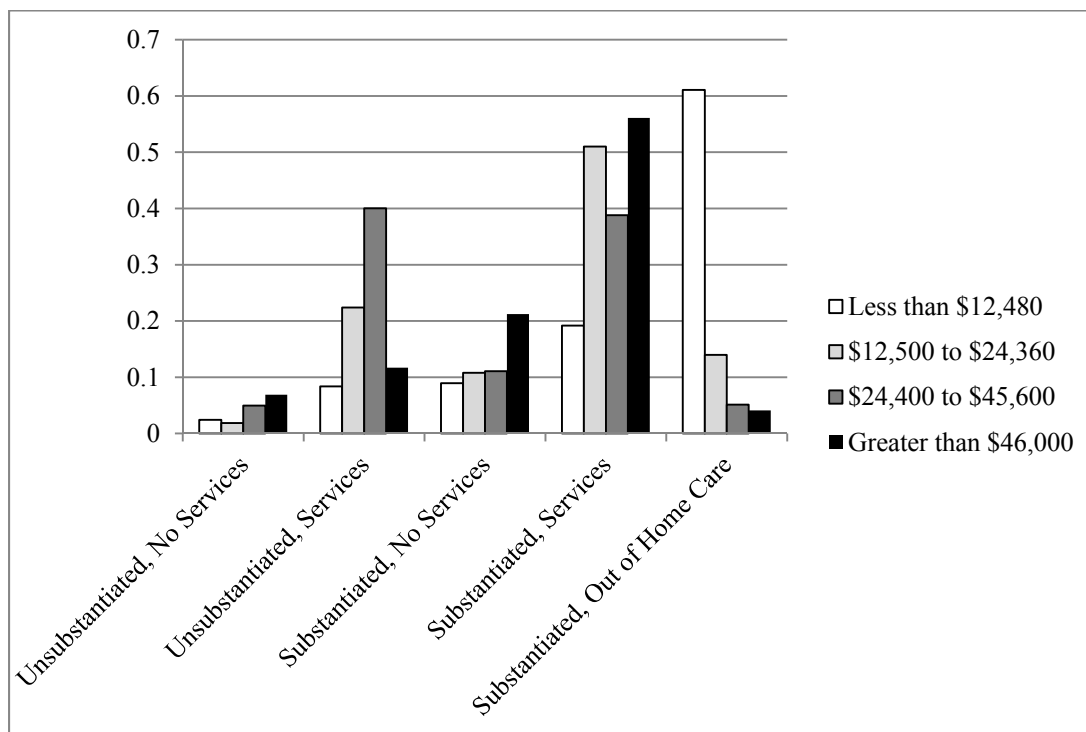
* $p < 0.05$

It is also important to note the statistically significant race and income effects across the neighborhood and social support models. For the race findings, Whites, Hispanics, and families in the ‘other’ racial group were significantly more likely to have unsubstantiated cases with services than African-Americans were. But, Hispanics were less likely than African-American children to have cases that were unsubstantiated without services versus unsubstantiated or substantiated cases with services.

Thus, African-American children were the least likely racial group to have unsubstantiated cases with services—and, unsubstantiated cases with services might be the most “positive” outcome, as the family does not formally enter the child welfare system but still receives needed services. Perhaps African-Americans are the least likely to receive services after unsubstantiated cases due to racial bias in the system. With regard to income, families with higher income were more likely to have unsubstantiated cases without services than those with lower incomes. And families with lower incomes were more likely to have substantiated cases with services than those with higher incomes. This was in line with what one might expect—that families with lower income are subject to more intensive child welfare interventions.

Child race and family income with full set of controls, interacting race and income (Model 5). Model 5 tested for interactions between child race and income. The results are graphically depicted in Figure 4. Children of ‘other’ racial groups were more likely to have unsubstantiated cases with no services if they had higher incomes and more likely to be placed in out of home care if they had lower incomes, when controlling for neighborhood. Such findings were not surprising.

Figure 4. Predicted Probabilities of the Interaction between Child Other Race-Ethnicity and Income on the Intervention Decision from Multinomial Logistic Regression (Model 5)



Additionally, the outcome groups of unsubstantiated without services versus unsubstantiated with services had a statistically significant interaction for Whites across all social support factors. Whites with income levels between 12,500 to 24,360 had the highest probability for having an unsubstantiated case without services (around 16%), and the lowest income group had the lowest probability of this outcome compared to other income groups (around 7% for incomes less than 12,500, 12% for incomes between 24,400 to 45,600, and 14% for incomes greater than 45,600). However, there was a gradient pattern when predicting unsubstantiated cases with services, where lower income White families (39.1%) had the highest probability and higher income White families had the lowest probability (27.8%). Again, it might be desirable to have an unsubstantiated case and also receive services, and income may play a role in how caseworkers make such a decision for White families.

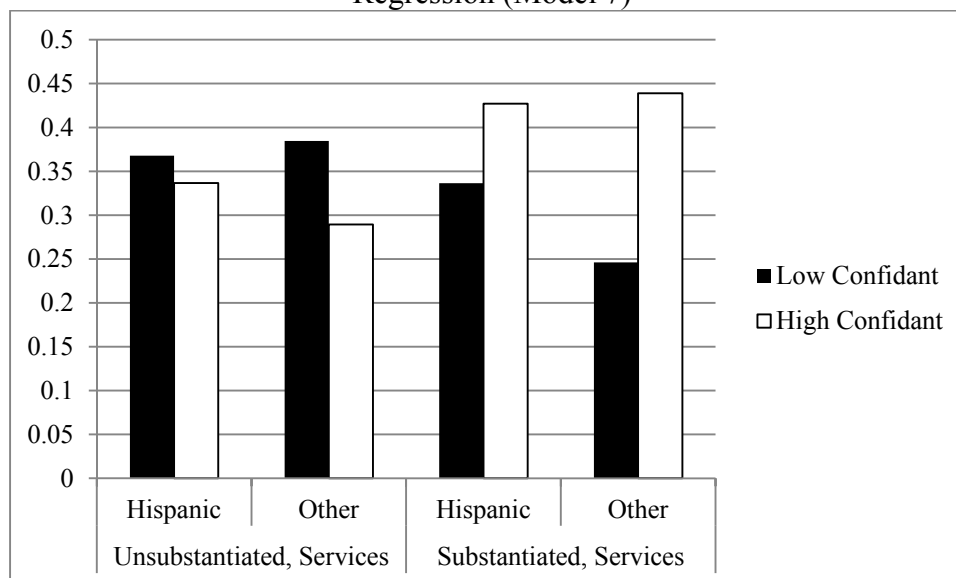
Child race and family income with full set of controls, interacting neighborhood clusters and income (Model 6). Model 6 tested the interaction between the neighborhood clusters and family income. When predicting the intervention decision, eight (out of 30) interactions were significant. Caregivers reporting low social order and low social capital in their neighborhood were more likely to have unsubstantiated cases and receive services if they had higher incomes. This was not the case for any other outcome category. Additionally, caregivers in low social order, low social capital neighborhoods with lower incomes were much more likely to have substantiated cases with services (predicted probability: 55.6%), than those in higher social order, medium social capital neighborhoods (predicted probability: 35.8%). Thus, families in areas with higher risk and lower incomes may have the highest risk cases as they are the most likely to have substantiated cases with services. No interactions between social support and income were statistically significant when predicting the allegation or intervention decision.

Child race and family income with full set of controls, interacting neighborhood clusters and race (Model 7). Model 7 interacted neighborhood/social support and race. Of most interest, Whites were less likely to have substantiated cases without services if they resided in neighborhoods with higher social capital (predicted probabilities: 12.0% in higher social order, medium social capital; 20.4% in high social order, low social capital; 18.4% in low social order, low social capital), but more likely to have substantiated cases with services (predicted probabilities: 42.1% in high social order, medium social capital; 44.4% in high social order, low social capital; 33.6% in low social order, low social capital). However, Hispanics were more likely to have substantiated cases with no services if they resided in neighborhoods with higher social order and low social capital (predicted probabilities: 11.3% in high social order, medium social capital; 17.0% in high social order, low social capital; 10.1% in low social order, low

social capital), but also more likely to have substantiated cases with services if they resided in neighborhoods with lower social order and social capital (predicted probabilities: 43.4% in high social order, medium social capital; 49.0% in high social order, low social capital; 59.0% in low social order, social capital).

For social support, for Hispanics and other racial groups, those with higher confidant support were more likely to have substantiated cases with services (predicted probabilities: Hispanics were 42.7%; other was 43.9%) than those with low social support (predicted probabilities: Hispanics were 33.6%; other was 24.6%). Figure 5 graphically depicts these findings. In contrast, those with lower social support were more likely to have unsubstantiated cases with services (predicted probabilities: Hispanics were 36.8%; other was 38.5%) than those with high social support (predicted probabilities: Hispanics were 33.7%; other was 28.9%). A similar pattern held for affective support for Hispanics. There was no prior theory to explain these findings; although, as discussed above, there may be cultural mechanisms at play for Hispanics and other racial groups driving such findings. There has been one recent article on child maltreatment and social support that analyzed the negative impact of certain types of social support, specifically by increasing alcohol consumption and risk behavior, for increasing the likelihood of physical abuse (Freisthler, Holmes, and Wolf 2014). Thus, all social support may not be beneficial for Hispanics and other racial groups, and that may be causing this finding. This warrants additional research.

Figure 5. Predicted Probabilities of the Interaction between Child Hispanic and Child Other Race-Ethnicity and Confidant Support on the Intervention Decision from Multinomial Logistic Regression (Model 7)



Summary. Previous literature found that higher neighborhood risk and fewer social supports were more related to allegations of neglect than allegations of physical abuse (Drake and Pandey 1996; Zuravin 1989). In this analysis, the neighborhood measures were largely not significant. I found that caregivers who reported higher social support, and specifically, high affective support, were more likely to experience allegations of blatant child neglect than allegations of neglect/failure-to-provide. This is against what one might expect- where families with more severe allegations of neglect are reporting more social support.

In predicting the intervention decision, the results across the propensity score analysis and multinomial logistic regression were consistent. For the most part, caregivers reporting higher social support, and specifically, higher confidant support, were less likely to have substantiated cases with no services than those with lower social capital in their neighborhoods and lower social support when compared to the other intervention categories. However, caregivers reporting higher confidant, affective, and instrumental support were more likely to

have substantiated cases and receive services when compared to the other intervention decisions. Caregivers with more social support as well as those who reported higher social order in their neighborhoods were, thus, more likely to have cases that receive services. For the multinomial logistic regression, caregivers reporting better neighborhood conditions were more likely to have cases that were substantiated with their children in out of home care than any of the other intervention decisions that did not involve removing the child from the home, at least for a period of time. This was not consistent with past literature that has pointed to higher risk neighborhoods as predictive of child removal (Lery 2009). However, these findings should be interpreted with caution as only eight percent of cases were in this outcome category. These findings held for both the full sample and the sample of biological caregivers.

In the multinomial logistic regression, this finding especially held for the interaction between Hispanic and other racial groups and social support. Along a similar vein, Whites in higher social capital neighborhoods were less likely to have cases that were substantiated with no services, but more likely to have cases with services. African-Americans were the least likely of any racial group to have unsubstantiated cases with services. This suggests that African-Americans may be reported at a higher rate than other racial groups but may be at a lower risk where the case is not substantiated. Or racial bias might be occurring where African-Americans are less able to access services than other racial groups. However, other racial groups were more likely to have unsubstantiated cases with services if they had higher incomes. But, Whites were the opposite; they were more likely to have unsubstantiated cases with services if they had lower incomes.

Overall, caregivers with the more intensive child welfare interventions—those with substantiated cases with services or with a child removal—reported better neighborhood

conditions and higher social support. There are a few possible explanations for such findings. Due to the nature of the NSCAW-II study, the caregivers were answering questions about their neighborhood or social support networks after an abuse or neglect investigation and subsequent intervention. These caregivers, who had more intensive involvement with child welfare, might have answered the survey questions more positively than other caregivers due to fear that the child welfare system may intervene again—social desirability bias in survey responses may be at play. Or, at the time of the interview, these caregivers may have moved into a different neighborhood than the neighborhood they lived in the time of the child welfare report. The data did not make it possible to tease out these findings.

It was also evident that higher privilege (better neighborhoods, non-African-American racial groups) may be associated with a higher likelihood to have substantiated cases with services, which was consistent across the propensity score results and multinomial logistic regression. There were a few possible explanations for this finding. First, it may be due to reverse causality where families who received services initially were reporting more social support as a result of the services they received. Or families may be fearful of being reported again in the system, so they reported a higher level of social support and more stable neighborhood characteristics.

The inconsistent findings also point to the fact that the NSCAW-II might be insufficient for these types of analyses. The ideal information for this type of analysis would be measurements of caregiver social support and neighborhood conditions at the time of the report into the system to identify pre-existing risk and protective factors. However, the NSCAW-II interviewed children and caregivers at the baseline at an average of 123 days after the investigation was complete; therefore, some families may not have current contact with the child

welfare system (Dowd et al. 2010). It might also be the case that those families with more intensive child welfare interventions were reporting better conditions or higher social support based on the service delivery they received as a result of the child welfare intervention; their experience with the child welfare system might bias their perceptions and responses. As such, these data have the problem of reverse causality.

IV. ILLINOIS DEPARTMENT OF CHILDREN AND FAMILY SERVICES

ANALYSIS

A. Overview

The Illinois administrative data provided information on the population of families investigated by the child welfare system across Cook County and included information on where families reside. I compiled data to link the family's Census tract to a variety of contextual measures. In this chapter, I describe the Illinois DCFS data methodology, analysis, and results in answering my research questions:

1. Among Cook County families newly investigated by DCFS between 2001 and 2009, do their neighborhood characteristics predict the type of maltreatment? Do the same neighborhood characteristics predict the child welfare intervention decision?

As discussed in the introduction, I used propensity score matching to answer these research questions, using exposure to high or low contextual (dis)advantage as the treatment. Using family-level controls, I predicted the likelihood that the child resides in a high or low risk neighborhood. Then, I predicted the type of allegation and intervention decision, using the propensity score in weighting the regressions.

2. Among Cook County families newly investigated by DCFS between 2001 and 2009, does family-level race-ethnicity moderate the relationship between context and the allegation or intervention type?

I conducted multinomial logistic regression to test whether family-level race moderated the relationship between contextual measures and the outcomes of interest. I ran a series of additive models, starting with the contextual-level measure, adding covariates of interest, and further, adding interactions between family-level race and contextual-level models.

B. Data and Sample

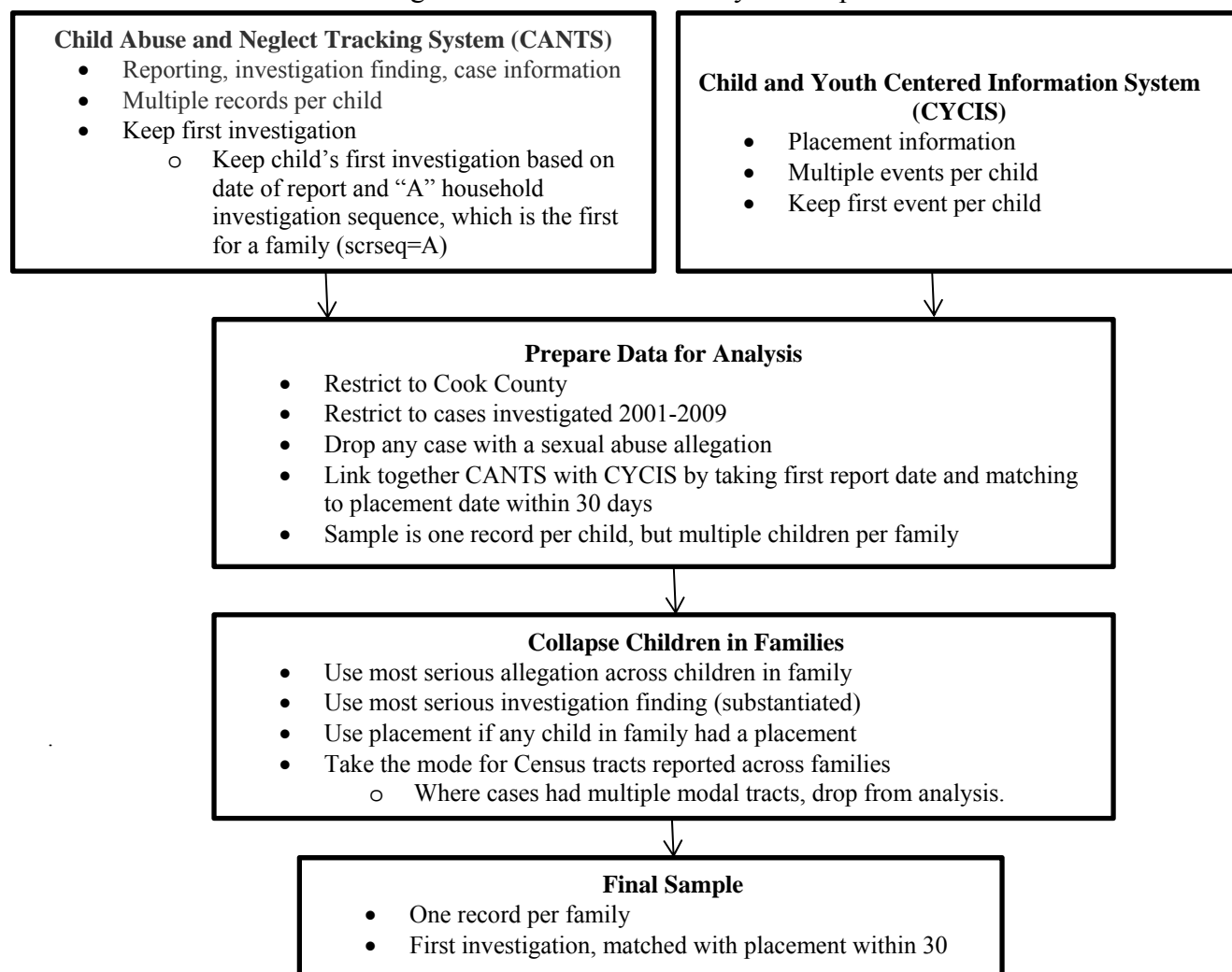
I used the Department of Children and Family Services' Child Abuse and Neglect Tracking System (CANTS) and Child and Youth Centered Information System (CYCIS) accessed through Chapin Hall at the University of Chicago. The CANTS data was pulled from the Statewide Automated Child Welfare Information System (SACWIS). The CANTS data included investigation and child case demographic information, and the CYCIS data included additional service and placement information. Chapin Hall used probabilistic record linkage techniques to link the databases together using multiple forms of identification, which can include the child's name, birthdate, gender, race, or place of residence (Goerge, Van Voorhis, and Lee 1994).

I leveraged Cook County case information from 2001 to 2009. Rather than beginning with the earliest DCFS data available in the database (1987), I started in the year 2001 because the Illinois DCFS underwent substantial system changes in the 1990s through early 2000s following national criticism in the early 1990s. In 1988, the American Civil Liberties Union sued DCFS for "reeling in chaos and failing to protect children" ("Reform in Action" 2004). The ACLU and DCFS made a reform plan to start in 1990; however, little progress was made—in 1994, Cook County alone had 58,000 children in state custody. The crack cocaine epidemic of the late 1980s and early 1990s as well as a few high profile neglect cases contributed to rising DCFS caseloads. Additionally, in 1993, the Chicago Tribune called DCFS the "poster child of government indifference and incompetence", and in 1994, Time Magazine criticized Illinois DCFS, calling the state of the child welfare system "Calcutta, Illinois" (Van Biema and Grace 1994; McDonald, Flower, and Sumski 2005).

As a result, DCFS incepted the Child Endangerment Risk Assessment Protocol (CERAP) to better assess child risk. Additionally, DCFS increased spending on family reunification, which significantly reduced the number of child in foster care. The Department also received full accreditation from the Council on Accreditation of Services for Families and Children in 2000 (“Reform in Action” 2004). Finally, I used cases through 2009 to capture cases prior to the most recent economic recession.

For my analytic sample, I focused on families that were newly investigated in the system by taking the family’s information from the first investigation and by dropping cases with any prior investigation into the system (of any year, including prior to 2001). My reasoning was that previous involvement with the child welfare system might influence where a family lives, and of most interest for this effort was understanding how context might influence initial child welfare involvement. The database had files organized by a variety of units, including the child, family, and event level. My unit of analysis for this dissertation was families within Census tracts. Therefore, based on the type of file, I collapsed the data based on the family identifier. Figure 6 shows key decision points made in compiling the data for this analysis.

Figure 6. Illinois DCFS Analytic Sample



Further, I collapsed child race into a set of dummies based on the children in the family. If a family had children from different racial groups, I included a mixed race category. However, cross tabulations revealed that there were very small cell sizes for the racial groups of "Other", "Asian", and the mixed group for my outcomes of interest. I combined these groups into one category, and still had small cell sizes (only 44 were in a placement and 113 in the neglect category). Therefore, I dropped cases with the racial groups of Asian, Other, or mixed from this analysis ($N=2,350$), and focused the analysis on White, Black, and Hispanic at the family level.

1. Individual measures

Allegation type. I pulled the allegation from the CANTS dataset, which was coded by the caseworker conducting the investigation. I recoded the measure into three categories: physical abuse, neglect, and aspects of abuse and neglect eligible for differential response.¹⁵ I removed families with allegations of sexual abuse as prior research on sexual abuse allegations has raised methodological and validity concerns for researchers. Sexual abuse research has largely focused on an individual approach by analyzing the psychology of the alleged perpetrators (Peterson 1993). Additionally, regarding neighborhood characteristics, Drake and Pandey (1996) found that, in comparison to physical abuse and neglect, sexual abuse was only moderately correlated with neighborhood factors. Since the data were organized by child, I collapsed the allegations into a set of binary variables based on the allegations for all the children in the family. If a family had allegations that spanned multiple categories, I took the most serious allegation for the family, treating sexual abuse as the most serious, then physical abuse, neglect, and considering aspects of abuse and neglect eligible for DR as the least serious. The specific allegation definitions that I used in this analysis are listed in Table VIII with the percentage of cases in each category:

¹⁵ Note. Under DR, cases would not have been investigated. However, using the allegation was the only way to approximate which cases may have been in the DR track using data prior to DR implementation.

Table VIII. Allegation Type Coding

Allegation Type	Categories
Physical abuse (47.39%)	Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.
Neglect (8.04%)	Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.
Aspects of abuse/neglect eligible for differential response (44.57%)	Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect) (Please see Appendix F for the specific definitions of these allegations). ¹⁶

Note. N=88,363 families

Investigation and placement. I combined the allegation type with the investigation finding and placement and created a series of outcomes to better understand the levels of risk facing a family—starting with cases that would fall under DR allegation codes as the lowest risk, then abuse or neglect cases that were unsubstantiated or substantiated, and finally, substantiated cases with placement as the highest risk.

First, I used the finding from the investigation. I sorted the data by the family identifier and took the family's most serious investigation finding (substantiated); therefore, if one child had a substantiated case, the whole family received a substantiated case finding. I also included a measure to understand abuse and neglect allegations eligible for DR in relation to the case finding, using the DR allegation codes as described above. Because DR cases do not get an initial investigation, they would not have a case finding (although the cases here that fall under

¹⁶ Note that the original DR allegations in Illinois did not include substantial risk of physical harm, but it was added 6 months into implementation. Additionally, lock out was included in the original DR allegations, but it was removed 6 months into the project. Therefore, I do not include it in this analysis (Personal correspondence with Womazetta Jones, 11-13-13).

the DR allegation codes have a case finding given that DR was not in place¹⁷). The outcome categories and percentage in each group are:

- Unsubstantiated with physical or neglect allegation (42.99%).
- Substantiated with physical or neglect allegation (12.45%).
- Unsubstantiated or substantiated with DR allegation (44.57%).

Next, I planned to conduct analysis on three distinct outcome measures on service use and placement. As previously stated, the CYCIS included additional service and child placement information. Specifically, I began with a measure of all opened cases in CYCIS, and whether the family had a case that resulted in placement or not. The CYCIS included follow-up service and placement information on a family, so if they had a case in CYCIS, they received additional DCFS services. Then, I used the CANTS and CYCIS linked data to include investigated cases in my period of interest to find out whether the family had no open case for additional services, an open case in CYCIS but no placement, or finally, a case with placement. However, upon merging the data, I found that there were few families that had cases opened in CYCIS that were not placement cases (89 out of 2,396), which did not give me enough variation to conduct analysis on the open cases in CYCIS with no placement. Therefore, I dropped this measure from my analysis. I used two measures that are described in Table IX.

¹⁷ I did not make this distinct since it was not important to my research question, but the data showed that around 77% of cases fall under DR allegations were unsubstantiated and 23% were substantiated.

Table IX. Intervention Decision Outcomes and Distribution

Measure	Categories
Placement	<ul style="list-style-type: none"> • No placement (97.60%) • Placement (2.40%)
Investigation and Placement	<ul style="list-style-type: none"> • Aspects of abuse/neglect eligible for DR (43.54%) Abuse/neglect allegations not eligible for DR: <ul style="list-style-type: none"> • Unsubstantiated, no placement (42.86%) • Substantiated, no placement (11.20%) • Substantiated, placement¹⁸ (2.40%)

Note. N=88,363 families

In order to discern the placement, the CANTS and CYCIS data were linked together. Chapin Hall developed a unique child identifier (CH_ID) to link the CANTS and CYCIS data. This measure was used to link child records together from the investigation to the type of intervention received. In order to match the type of intervention with the investigation, I used the report date for the allegation and the start date for the intervention type. If the start date for the intervention was prior to the report date or if the start date for the intervention was more than 30 days after the report date, the intervention was dropped from the analysis and the child was considered to have no CYCIS case or placement.

I sorted the data by family to determine if they had a CYCIS case.¹⁹ The family was coded as having a placement event if any children in the family had any of the following placements: foster home, community integrated living, detention facility, guardian successor, group home, adoption, home of a relative, institutions (such as mental health), job training program, nursing care facility, transitional living, or youth emergency shelter. I took the maximum finding for any placement or CYCIS case. For example, if a family had one child with a CYCIS case, the entire family would be coded as a “1” for having a CYCIS case.

¹⁸ Due to nuances in the administrative data, such as differences in intervention practices across the state, it was difficult to discern which cases received intact family services (services received in the home), a category I had proposed to use.

¹⁹ I dropped cases with the first event as “HMP: Home of Parent” and took the second placement type for the purposes of coding the first actual foster care placement in a spell of care.

Covariates. Covariates were available information from the case record and collapsed into a set of family measures. Specifically, I used a count of the number of children in the home by counting the number of children per family and creating three binary variables of one child (71.78%), two children (15.31%), or three or more children (12.91%) per family.²⁰ I also controlled for the report year, which were relatively evenly split across the years of interest: 2001 (9.98%), 2002 (11.39%), 2003 (10.79%), 2004 (11.44%), 2005 (11.16%), 2006 (11.19%), 2007 (11.41%), 2008 (11.51%), and 2009 (11.13%). I created two measures for child age: the minimum (mean=7.05) or maximum (mean=8.44) age for the children in the family. I used the aforementioned three racial groups: Black (58.27%), White (27.03%), and Hispanic (14.71%). Finally, for the type of reporter, I created a set of dummy variables including hospital staff/counselor (22.69%), school/child care worker (21.80%), social services/DCFS staff (10.94%), police (15.71%), family/victim (12.54%), landlord/neighbor (4.17%), and anonymous (12.16%).

2. Contextual measures

In this section, I describe the key contextual measures for this analysis. I matched the family's Census tract from the time of the first child welfare investigation with the following contextual measures. If there were multiple dates across children in families, I took the first dated information for the family. For the Census tract, I took the mode tract if there were multiple tracts listed across all children in the family for the first record. In my sample, there were 4,893 families with multiple modal tracts, which I then dropped from this analysis.

I linked the family's Census tract with measures from the American Community Survey, Chicago crime data, Chicago Public School performance ratings, and Chicago Community Adult

²⁰ I used the number of children per family and the minimum and maximum age of the children per family, which was a potential limitation because I used information from the first investigation.

Health Survey. I used each of these types of measures to attempt to look broadly at the neighborhood since there has been little work on neighborhood effects and child welfare system involvement and to attempt to identify similar geographic measures to the neighborhood and social support caregiver perception data used in the NSCAW-II. The American Community Survey items followed previous work on child maltreatment reporting and concentrated disadvantage (Coulton et al. 1995; South and Crowder 1998, 1999). The crime data was included to mirror the social order measures from the NSCAW-II. The school performance measures were included because schools are an important area for child maltreatment reporting, and schools are a social institution that could be a venue for child maltreatment prevention on a community level. Finally, the Chicago Community Adult Health Survey was included to understand measures of social capital and social support in the neighborhood. While these measures were related and more than likely co-occurring, analyzing these measures separately attempted to identify specific mechanisms in the neighborhood, rather than one broad total measure of social (dis)advantage.

American Community Survey. I compiled items from the 2005-2009 American Community Survey (U.S. Census Bureau 2005-2009). The items are outlined in Table X.

Table X. American Community Survey Measures: Definitions and Source

Variable	Definition
Poverty	Poverty status in the past 12 months
Male joblessness	Employment status (civilian population)
Families receiving welfare	Public assistance income from the past 12 months
Families without high incomes	Income in the past 12 months (in 2009 inflation-adjusted dollars)
Individuals without college education	Educational attainment (ages 25 and up)
Workers not in managerial/professional occupations	Workers in service, sales, farm, construction, Moving materials/transportation (Not managerial)
Vacant housing	Vacant housing units
Population Loss	Geographic mobility
Tenure less than 10 years	Total occupied who moved in 2000s
Lived in current house less than 1 year	Moved in 2005 or later
Renters versus owners	Occupied housing units
Single headed Female households	Female headed households

Variable	Definition
Non-white	Race classification
Immigrants	Calculated from citizenship (naturalized and non-citizens added together)
Proportion of people in family where no one speaks English (linguistic isolation)	Percent of people in family where no one speaks English (linguistic isolation)
Non-citizens	Citizenship
Child/adult ratio	Number of kids 19 and under; number of adults 20 and over
Elderly population	Percent over 65
Male/female ratio	Geographic chart for total—all ages included

I built from the work of Coulton and colleagues (1995) and South and Crowder (1998; 1999) by using a combination of the contextual measures cited in their work. I used both of these studies to fuse a child welfare perspective (Coulton et al.) with the sociological perspective (South and Crowder). I conducted an exploratory factor analysis (EFA) with the Census measures for Cook County, using principal factor analysis. I conducted an EFA rather than a CFA since I did not use the exact specification of the measures that Coulton and colleagues used, and I added in the measures from South and Crowder as well as immigration. The EFA yielded the following three factors: (For more information about the factor analysis, please see Appendix G).

- Impoverishment
 - Poverty
 - Male joblessness
 - Families receiving welfare
 - Families without high incomes
 - Individuals without college education
 - Workers not in managerial/professional occupations
 - Single headed female households
 - Nonwhite
- Residential Stability
 - Renters occupied housing units
 - Population loss (geographic mobility)
 - Tenure less than 10 years
 - Lived in current house less than 1 year
 - Vacant housing units

- Immigrant Populations
 - Immigrants (naturalized and non-citizens added together)
 - People in family where no one speaks English (linguistic isolation)
 - Non-citizens

Crime. Total crime data for the city of Chicago was compiled from the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) system (City of Chicago Data Portal 2001-2012). Data from 2001 through 2009 were combined to create a total crime measure. I used ArcGIS to spatially join the data points in the corresponding 2000 Census tract with the latitude and longitude of the crime locations provided from the CLEAR system.

Chicago Public School Performance Ratings. School performance ratings for the City of Chicago were operationalized by the percent of students who met or exceeded Illinois Standards Achievement Test (ISAT) composite scores from 2001 to 2009. The ISAT is a statewide assessment administered to students in grade three through grade eight and measures individual student achievement relative to the Illinois Learning Standards. The composite scores included student scores across reading, math, and science. I created a combined measure that included an average of the scores from 2001 to 2009. Data were compiled from the Chicago Public School's Website (Chicago Public Schools 2001-2012). I used ArcGIS to spatially join the data points in the corresponding 2000 Census tract with the latitude and longitude provided by CPS for each school.

Chicago Community Adult Health Study. Measures of social disorder were compiled from the Chicago Community Adult Health Study (CCAHS) 2001-2003. The Study was designed to extend the previous work of the Project on Human Development in Chicago Neighborhoods (PHDCN) in 1995 (House et al. 2011). Researchers conducted a community survey where respondents described their neighborhoods and performed a systematic social observation (SSO) of the neighborhoods where respondents resided. For the SSO measures, researchers created logit

scale scores for items at the geographic (tract) level using Hierarchical Linear Modeling (HLM).²¹ For the community survey data, researchers created person-level index scores using HLM. I combined the indices at the Census tract level by computing the mean score for each tract. A description of the items used to create each scale is included in Table XI.

²¹ Information on SSO logit scale development: SSO Scales were constructed through a procedure using Hierarchical Linear Modeling (HLM). The procedure was followed to create the scale score at each level for the following SSO scales: physical disorder, physical decay, physical deterioration, litter & graffiti, noisy streets, residential security, commercial building security, alcohol and tobacco advertising, bars and liquor stores, alcohol availability, and evidence of risk behavior. Because all scales are estimated as binary outcomes, the scale scores are given in the logit scale. 1. For each scale, a total of three 3-level HLM files were created from the SSO data, one at each of the three levels of geography: Census block group (group_id), Census tract (tract_id) and neighborhood cluster (nc_id). Each of these three files then contained a face level identifier that uniquely identified every face (cmbnum) or a street id that identified uniquely identified every street as the level-2 ID and item dummies indicating which items constituted the scale and the scale score y at level-1. 2. For each scale at each geographic level, an unconditional 3-level HLM model was run with the item dummies predicting the scale score y and no predictors at level-2 and level-3. A level-2 and level-3 residual file was produced for each scale at each geographic level.

Table XI. CCAHS Scale Items

Scale	Items
Systematic Social Observation	
Residential security	<ul style="list-style-type: none"> • Neighborhood or crime watch • Security warning signs
Risk behavior	<ul style="list-style-type: none"> • Needles, syringes, or drug-related paraphernalia on sidewalk, gutters or street
Physical condition	<ul style="list-style-type: none"> • Condoms on sidewalk, gutters or street • Condition of commercial buildings • Condition of residential buildings • Condition of recreational buildings • Condition of street
Litter/graffiti	<ul style="list-style-type: none"> • Garbage, litter or broken glass in street or sidewalks • Empty beer or liquor bottles in street, yard or alley • Gang graffiti on buildings, signs or walls • Other graffiti on buildings, signs or walls
Disorder	<ul style="list-style-type: none"> • Evidence of graffiti painted over • Garbage, litter or broken glass in street or sidewalks • Cigarette or cigar butts or discarded cigarette packages on the sidewalks or in gutters • Empty beer or liquor bottles in street, yard or ally • Gang graffiti on buildings, signs or walls • Other graffiti on buildings, signs or walls • Abandoned car • Needles, syringes, or drug-related paraphernalia on sidewalk, gutters or street • Condoms on sidewalk, gutters or street
Commercial security	<ul style="list-style-type: none"> • Commercial security blinds • Commercial security bars • Fencing • Residential security bars
Alcohol/Tobacco Advertising	<ul style="list-style-type: none"> • Signs advertising beer, whiskey or other alcohol • Signs advertising tobacco products
Community Survey	
Anomie	<ul style="list-style-type: none"> • Laws were made to be broken • It's okay to do anything you want as long as you don't hurt anyone • To make money, there are no right and wrong ways anymore, only easy ways and hard ways • Nowadays a person has to live pretty much for today and let tomorrow take care of itself
Cohesion	<ul style="list-style-type: none"> • This is a close-knit neighborhood • People around here are willing to help their neighbors • People in this neighborhood generally get along with each

Control	<p>other</p> <ul style="list-style-type: none"> • People in this neighborhood can be trusted • People in this neighborhood share the same values • If a group of neighborhood children were skipping school and hanging out on a street corner, how likely is it that your neighbors would do something about it? • If some children were spray-painting graffiti on a local building, how likely is it that your neighbors would do something about it? • If a child was showing disrespect to an adult, how likely is it that people in your neighborhood would scold that child? • If there was a fight in front of your house and someone was being beaten or threatened, how likely is it that your neighbors would break it up? • Suppose that because of city budget cuts the library or fire station closest to your home was going to be closed down by the city. How likely is it that neighborhood residents would organize to try to do something to keep the fire station or library open?
Intergenerational closure	<ul style="list-style-type: none"> • Adults in this neighborhood know who the local children are • There are adults in this neighborhood that children can look up to • You can count on the adults in this neighborhood to watch out that children are safe and don't get in trouble • Parents in this neighborhood know their children's friends • Parents in this neighborhood generally know each other
Reciprocal exchange	<ul style="list-style-type: none"> • About how often do you and people in your neighborhood do favors for each other? By favors we mean such things as watching each other's children, helping with shopping, lending garden or house tools, and other small acts of kindness. • When a neighbor is not at home or on vacation, how often do you and other neighbors watch over their property? • How often do you and other people in the neighborhood ask each other advice about personal things such as child rearing or job openings? • How often do you and people in this neighborhood have parties or other get-togethers where other people in the neighborhood are invited? • How often do you and other people in this neighborhood visit in each other's homes or on the street?
Friend/kin networks	<ul style="list-style-type: none"> • Not counting those who live with you, how many of your relatives or in-laws live in your neighborhood? • How many friends do you have who live in your

Perceived disorder	<p>neighborhood</p> <ul style="list-style-type: none"> • How much broken glass or trash on sidewalks and streets do you see in your neighborhood? • How much graffiti do you see on buildings and walls in your neighborhood? • How many vacant or deserted houses or storefronts do you see in your neighborhood? • How often do you see people drinking in public places in your neighborhood? • How often do you see unsupervised children hanging out on the street in your neighborhood?
Perceived violence	<ul style="list-style-type: none"> • During the past six months, how often was there a fight in this neighborhood in which a weapon was used? • During the past six months, how often was there a violent argument between neighbors? • Gang fights? • A sexual assault or rape? • A robbery or mugging?
Tolerance of deviance	<ul style="list-style-type: none"> • How wrong is it for teenagers around thirteen years of age to smoke cigarettes? • How about using marijuana? • Drinking alcohol?
Organizational participation	<ul style="list-style-type: none"> • Are you a member of any service, civic, or social/fraternal organizations, such as the Elks, Masons, Lions, Rotary Club, League of Women Voters, or a local women's club? • Are you a member of a group affiliated with your religion, such as the Knights of Columbus or B'Nai B'rith? • Do you belong to a church, synagogue, or other religious congregation? • Do you belong to a block group, tenant association, or community council? • Do you belong to any kind of neighborhood watch program? • Have you participated in any group that took local action for reform in the past 12 months? • Have you participated in an ethnic, nationality, or civil rights organization in the past 12 months?
Victimization	<ul style="list-style-type: none"> • While you have lived in this neighborhood, has anyone ever used violence, such as in a mugging, fight, or sexual assault, against you or any member of your household anywhere in your neighborhood? • While you have lived in this neighborhood, has your home ever been broken into? • While you have lived in this neighborhood, have you or another member of your household had anything stolen

	from your yard, porch, garage, or elsewhere outside your home (but on your property)?
	<ul style="list-style-type: none"> • While you have lived in this neighborhood, have you or another member of your household had property damaged, including damage to vehicles parked in the street, to the outside of your home or to other personal property?
Social cohesion	<ul style="list-style-type: none"> • Combines control and cohesion items

Note. Measures from the Chicago Community Adult Health Survey (House et al. 2011).

3. Analytic sample

Across the measures from the CANTS and CYCIS, the number of missing values varied across covariates. The full sample size was 95,605 families, and the measures varied in missing values from 0.05% to 4.21%. I dropped cases that had missing data on the outcome measures, which resulted in 7,242 families dropped from the analysis, resulting in a sample size of 88,363 families. Table XII shows the percent missing in more detail.

Table XII. Item Level Percent Missing Across Covariates (Post-Collapse)

Measure	Percent Missing
Allegation type	0.05
Investigation finding	0.33
Number of children in family	0.05
Report year	0.05
Child age	0.40
Family race	4.21
Reporter type	3.07

After I dropped missing values across the aforementioned covariates, the contextual-level variables still varied in sample size based on the Census tract-level information that was available. However, in order to capture the full extent of the geographic data available, I did not drop missing values across the contextual measures. Therefore, the sample size varied across the various models based on the tract-level data available in the contextual measures. The DCFS data included 1,337 unique tracts. There were 1,344 tracts in the Census measures (88,140 families), 917 tracts represented in the crime data (59,703 families), 436 tracts (31,016 families)

for the school ISAT score, and 712 tracts for the CCAHS data (53,179 families for the systematic social observation measures and 52,059 families for the community survey items).

The contextual measures were dichotomized based on the median in order to define treatment and control groups for the propensity score models; in order to be consistent for the multinomial logistic regression, the measures were defined the same (dichotomized, median split). Table XIII includes descriptives for the continuous versions to show the variation across the measures. Appendix H includes descriptives for the dichotomous versions of the contextual measures.

The contextual measures varied in how correlated they were with one another, ranging from -0.64 to 0.80. Therefore, each measure was included in the propensity score models and multinomial logistic regressions in separate models. Table XIII provides the descriptive statistics for the covariates of interest, as previously discussed.

Table XIII. IL DCFS Descriptive Statistics

Variable	<i>M</i> or %	SD	Min	Max
Outcome measures (<i>N</i> =88,363 families)				
Allegation type				
Physical abuse	47.39			
Neglect	8.04			
Aspects of abuse/neglect eligible for DR	44.57			
Investigation finding				
Unsubstantiated	42.99			
Substantiated	12.45			
Aspects of abuse/neglect eligible for DR	44.57			
Placement				
No placement	97.60			
Placement	2.40			
Investigation and placement				
Aspects of abuse/neglect eligible for DR	43.54			
Physical abuse/neglect, unsubstantiated, no placement	42.86			
Physical abuse/neglect, substantiated, no placement	11.20			
Physical abuse/neglect, substantiated placement	2.40			

Variable	<i>M</i> or %	<i>SD</i>	Min	Max
Demographic measures				
Number of children in family				
One child	71.78			
Two children	15.31			
Three or more children	12.91			
Report year				
2001	9.98			
2002	11.39			
2003	10.79			
2004	11.44			
2005	11.16			
2006	11.19			
2007	11.41			
2008	11.51			
2009	11.13			
Child age in family				
Min age	7.05	5.42	0	18
Max age	8.44	5.43	0	18
Children racial group in family				
Black	58.27			
White	27.03			
Hispanic	14.71			
Type of reporter across family				
Hospital staff/counselor	22.69			
School/child care worker	21.80			
Social services/DCFS staff	10.94			
Police	15.71			
Family/victim	12.54			
Landlord/neighbor	4.17			
Anonymous	12.16			
Contextual measures¹				
Census factors (<i>N</i> =88,140 families)				
Impoverishment	0.46	0.76	-2.46	2.27
Residential stability	0.11	0.89	-2.13	2.82
Immigrant populations	-0.02	1.08	-1.46	3.37
Crime (<i>N</i> =59,703)				
Proportion of crime	0.23	0.34	0.00	29.05
Schools (<i>N</i> =31,016)				
School ISAT score	57.73	19.23	5.89	99.59
CCAHS social observation (<i>N</i> =53,179 families)				
Residential security	-0.65	1.07	-4.41	3.16
Risk behavior	-4.79	2.47	-7.45	0.94
Physical condition	2.66	0.26	1.63	3.70
Litter/graffiti	-0.99	1.65	-6.19	4.25
Disorder	-1.38	1.49	-8.26	1.98

Variable	<i>M</i> or %	SD	Min	Max
Commercial security	2.20	0.67	0.00	3.76
Alcohol/tobacco advertising	-3.66	1.23	-4.82	0.64
Community survey items (<i>N</i> =52,059)				
Anomie	2.27	0.40	1.25	4.00
Cohesion	2.96	0.33	1.52	4.00
Control	3.10	0.40	1.38	4.00
Intergenerational closure	2.95	0.29	1.25	4.00
Reciprocal exchange	2.82	0.43	1.37	4.00
Friend/Kin networks	2.61	0.55	1.42	5.00
Perceived disorder	2.75	0.54	1.27	4.00
Perceived violence	1.99	0.49	1.19	4.00
Tolerance of deviance	-7.25	1.54	-8.39	4.29
Organizational participation	-0.22	1.08	-2.59	4.03
Victimization	-0.84	1.05	-3.02	3.41
Social cohesion	3.12	0.34	1.54	4.29

¹ *Note.* The continuous versions of the measures were included here to show the distribution; however, the analysis used the binary versions, which dichotomized the measures at their medians. Descriptives for the dichotomous versions are in Appendix H.

Prior to discussing the results, I would like to reiterate the population under study for this analysis with the DCFS administrative data. Specifically, my sample includes families *investigated* by the child welfare system. While living in a higher risk neighborhood may elevate the likelihood of maltreatment, this analysis is unable to test for risk in terms of maltreatment because I do not have a comparison group of non-investigated children. This analysis tests whether contextual measures associate with the type of allegation (and as discussed, the most severe allegation documented for the family) and/or type of intervention received. And, as such, the allegation and type of intervention outcomes are conditioned upon having a report, and further, an investigation in the system.

C. Propensity Score Analysis

Among families newly investigated by DCFS between 2001 and 2009, do their neighborhood characteristics predict the type of maltreatment? Do the same neighborhood characteristics predict the child welfare intervention decision?

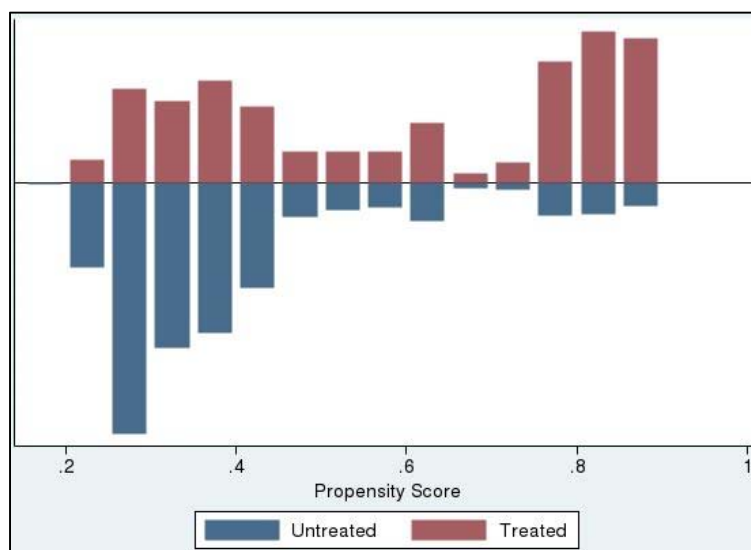
1. Analysis plan

The propensity score analysis answered my first set of research questions. A variety of individual, family, and organizational factors were likely to influence neighborhood characteristics, the type of child welfare allegation, and the intervention decision. Analytically, I addressed selection on observed characteristics by using propensity score weighted regression, an approach that is becoming more widely used in non-experimental evaluation to account for selection bias than simply conducting a standard regression analysis (see Imbens and Wooldridge 2009; Williamson, Morley, Lucas, and Carpenter 2012). Propensity score analysis allows researchers to match a control group to a treatment group on observable characteristics, and test the effect of a given treatment (Barth, Guo, and McCrae 2008). For this approach, my “treatment” was living in a neighborhood with higher advantage, and therefore, I dichotomized each neighborhood measure of interest (the Census factors, school ISAT scores, crime proportion, and CCAHS measures). (For a similar application, please see Harding 2003.) I ran the propensity score analysis *separately* for each of the identified factors from the Census factor analysis, the total school ISAT scores, and the measures from the CCAHS outlined in Table XI.

Propensity score weighted regression has the ability to match children in the treatment and control groups based on specified covariates. The procedure created a weight to apply to the data that allowed the covariates to be balanced so that children in the treatment and control groups had a similar distribution across the measures. One of the assumptions of propensity score analysis was to create matched groups between the treated and untreated groups based on the identified covariates. Due to the limited amount of controls in the administrative data, I used Stata’s `psmatch2` and `pstest` commands to preliminarily test whether the groups were balanced (Leuven and Sianesi 2003). The `pstest` command provided the standardized bias before and after matching, which should be less than 5% (Grilli and Rampichini 2011). The `psmatch2` command

included the treatment (neighborhood characteristic) and the covariates of interest and took into account the outcomes of interest. I ran the command for each of my neighborhood treatment measures. Across the neighborhood treatments, the groups were relatively balanced across covariates; the only measure that had a bias above five percent was the binary variable identifying whether the family had one child in the family (versus three or more children). I tried multiple specifications of this measure and did not achieve a bias lower than 10% across the outcomes. Therefore, I removed this measure from the propensity score analysis. Figure 7 includes a histogram comparing the treated to the untreated groups on the treatment of impoverishment to show that there were common areas of support across the untreated and treated groups.

Figure 7. Histogram of Untreated and Treated Groups



Then, using the covariates discussed, I estimated the predicted probability of being in the outcome category (better neighborhood condition) using logistic regression. Thus, the propensity score was the probability of receiving the treatment. A regression model was then estimated to model the impact of the neighborhood on each of the child welfare system-related outcomes. For

the regression, the predicted probability of being in the treatment group, referred to as the propensity score, was used as a weight for children in the control group. In order to calculate the propensity score, observations for the “better” category were given a weight of one, and those in the low category were given a weight of the inverse of the probability ($p/1-p$). For each case in the control group, p was the predicted probability of being in the treatment group computed from the logistic regression (Imbens and Wooldridge 2009; Hirano and Imbens 2002). I used the same set of covariates in the outcome regressions as I had in the regressions used to estimate propensity weights. In all models, standard errors were robust and adjusted for clustering at the Census tract level. Note that I used the language of “neighborhood” throughout, which was a proxy for the Census tract.

2. Hypotheses

In following the trajectory of child maltreatment research that finds abuse and neglect reports clustered in neighborhoods with higher levels of disadvantage, I expected that families with allegations of neglect would reside in neighborhoods with more disadvantage than those experiencing other types of abuse allegations, namely physical abuse. This might be because families in more resource poor areas do not have access to certain supports that neighborhoods might provide, including formal institutions or informal social networks, and therefore, more likely to have allegations of neglect. Research has shown that families experiencing neglect were more clustered together than other types of abuse in more impoverished areas (Drake and Pandey 1996).

I expected that the neighborhood structure may also predict the intervention decision. Disadvantaged neighborhoods can increase environmental vulnerability for families, which could lead to child maltreatment reports and more severe outcomes (Wilson 1987, 1998; Pattillo-

McCoy 1999). The child welfare intervention type was also based on a caseworker's decision. If children live in neighborhoods with higher disadvantage (e.g., higher crime, higher disorder), caseworkers may be biased in placing children outside of the home or prescribing a more intensive intervention. Additionally, the lack of resources within a neighborhood may lead caseworkers to believe removal is necessary as support services cannot be provided while maintaining the child at home. Previous work has shown that more disadvantaged neighborhood structure leads to a higher likelihood of child removal (Lery 2009). Thus, children residing in neighborhoods with the most disadvantage may be the most likely to be initially removed from the home.

This work was exploratory and built on previous work by adding the outcome of aspects of abuse or neglect that were eligible for DR and including a wide range of neighborhood measures not previously explored in this context, such as the immigrant population, school ISAT score, and items from the CCAHS SSO and Community Survey.

3. Results

For the propensity score analysis, 96 models were completed: one model for each of the 24 neighborhood characteristics of interest for each of the four outcomes for the sample of newly investigated cases by DCFS from 2001 to 2009. In order to discuss the results parsimoniously, I discuss statistically significant findings below. The results compared families across neighborhood characteristics based on their allegation or intervention decision, and as such, the rates reported are not neighborhood rates, but family rates- based on investigated families.

Overall, I did not find any statistically significant results for the school ISAT score, the following CCAHS SSO measures: risk behavior, residential security, commercial security, and alcohol/tobacco advertising, and the following CCAHS Community Survey measures: cohesion,

control, intergenerational closure, reciprocal exchange, friend/kin networks, deviance tolerance, perceived violence, and organizational participation. I discuss reasons for why this might be the case in the concluding chapter. My hypothesis is that the CCAHS community perceptions and systematic social observation may not fully capture neighborhood resources related to child welfare involvement in an area or the perceptions of the individuals who were involved with the child welfare system.

I included the results for all four outcomes and the 24 neighborhood measures in Appendix H, which provides the conditional marginal effects from the propensity score weighted multinomial logistic regressions.

Allegation type. Table XIV provides the conditional marginal effects from the propensity score weighted regressions and includes a summary of the statistically significant findings at the $p < 0.05$ level for the allegation type. I begin this discussion with the outcome that includes the allegation codes making a family eligible for DR (throughout this discussion, I refer to this group as “DR allegations”), since that was my key area of interest for this dissertation.

Table XIV. Conditional Marginal Effects for Allegation Type: Propensity Score Weighted Multinomial Logistic Regression

	Census Factors		Crime	CCAHS SSO		CCAHS Community Survey
	Impoverishment	Immigrant Population (high)	Crime Proportion (high)	Physical Condition (better)	Disorder	Perceived Disorder
Allegation type						
Aspects of abuse/neglect eligible for DR ¹	-0.01 ^a	-0.00 ^a	-0.01 ^a	0.00 ^a	0.01	0.01 ^a
Physical abuse ²	-0.00	0.02 [*]	-0.00	-0.01	-0.01	-0.01
Neglect ³	0.01 ^{*a}	-0.01 ^{*a}	0.01 ^{*a}	0.01 ^{*a}	0.01 [*]	0.01 ^{*a}
Sample Size (families)	88,140	88,140	59,703	53,179	53,179	52,059

Note. This table includes results from seven regression models; the outcome was run separately for each neighborhood factor of interest (7). The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^a Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < 0.10$. I only included significant differences with the DR outcome category since that was my area of interest.

^{*} $p < 0.05$

¹Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect) (Please see Appendix F for the specific definitions of these allegations).

²Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.

³Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.

When predicting the allegation type, many of the neighborhood findings were not statistically significant for DR allegations. These non-significant findings were surprising, given that one might expect that the highest proportion of families investigated by child welfare with DR allegations (e.g., inadequate food, shelter, clothing) would reside in areas with the highest poverty, disorder, and crime and face more structural risk than families with other types of allegations that may be less tied to structural risk. For example, it was my hypothesis that families in more resource poor areas would not have access to a support system that neighborhoods might provide, such as nearby child care or other supportive institutions, and therefore, would have difficulty providing for their children's basic needs, such as food, shelter, and clothing. In comparison to families with physical abuse and neglect allegations, the neighborhood structure did not appear to affect the likelihood of a family to have a DR allegation. Perhaps this was because DR cases are lower risk than the other types of abuse and neglect reported, and as such, more likely to be found in neighborhoods with less structural risks, which may make such cases more likely to meet the DR inclusion criteria rather than those of neglect or physical abuse.

However, there were statistically significant findings when predicting the proportion of neglect allegations. A higher proportion of families with neglect allegations resided in places with higher poverty, crime, disorder, and perceived disorder, but also in places with better physical conditions (condition of buildings and street) and lower immigrant populations than families with physical abuse or DR allegations. The marginal effects reported in Table XIV show the probability of being in each outcome category between being high or low on each neighborhood outcome of interest. In order to measure the size of the effects, I benchmarked the marginal effect against a comparison group, which was investigated families in the neighborhood

group with the worse characteristics throughout this results section (which was completed by running a tabulation of the outcome and the neighborhood dummy and using the cell percentage). For impoverishment, 4.59% of investigated families in the sample reside in areas with high poverty and have allegations of neglect (and 3.45% live in areas with low poverty and have allegations of neglect), and Table XIV shows that residing in high poverty areas increased the proportion of families with neglect allegations by one percentage point- whereas the proportion that are DR-eligible allegations decreases by one percentage point. Thus, the effect of neighborhood poverty was moderate as it increased the proportion of a neglect allegation (versus DR allegations) by 22% ($0.01/0.0459$). Similar effect sizes were also apparent for crime, disorder, and perceived disorder, whereas the worse condition increased the likelihood of the share of neglect allegations by around 20%. Families with neglect allegations (e.g., injury due to neglect, malnutrition, failure-to-thrive) resided in neighborhoods with the most risk compared to families with physical abuse and DR allegations. This was consistent with the literature that found neighborhood poverty as a significant factor in predicting child neglect reports, more so than child physical abuse reports (Zuravin 1989; Drake and Pandey 1996) although the previous literature did not separate neglect allegations, as done here (distinguishing DR allegations from neglect allegations) or use multiple neighborhood indicators, such as crime and disorder. Areas with higher poverty, crime, and disorder increased the proportion of a neglect allegation, rather than a DR allegation. Perhaps these areas prevented parents from making critical connections with neighbors, which caused increased social isolation for these families, leading to child neglect allegations, such as malnutrition or failure-to-thrive. Additionally, without an active parent present, child injury could occur as a result of parental neglect in areas with more disorder. Further, social disorganization in communities may be at play for families with

allegations of neglect, more so than families with DR allegations or physical abuse allegations. Social disorganization occurs due to a lack of social capital built from networks, social relationships, and social institutions (Sampson 1997; Coleman 1988). Social support can be defined through both informal (neighbors to help with child care) and formal (presence of social institutions) mechanisms, and as such, the measures used here do not fully extrapolate the formal and informal—while they are obviously linked, it is important to identify the key mechanisms at play. Social ties created through formal institutions give individuals the opportunity to build collective efficacy to build trust, social control and mutual support (Sampson 2001). The ability to create social ties for families experiencing neglect versus DR allegations may be a way to explain these results as families with neglect allegations may reside in places with lower social organization. However, more work is needed in this area to understand the role of the informal versus formal mechanisms at play in the neighborhood.

Despite the aforementioned four neighborhood factors showing that investigated families with allegations of neglect were more likely to reside in worse areas than families with physical abuse or DR allegations, investigated families with allegations of neglect were more likely to live in neighborhoods with better physical conditions than families with DR allegations. This finding does not fit with the theory discussed above. This measure, from the CCAHS SSO, included the condition of commercial, residential, and recreational buildings and the condition of the street. One might expect neighborhoods with high poverty, high crime, and high disorder, to have buildings in poor repair. However, this may not be the case. It may be that families with allegations of neglect (versus physical abuse or neglect) were residing in areas with a wider range of housing options (as opposed to a housing project in disrepair), meaning there were

buildings in better repair, despite disorder (such as trash on the street) or crime. Although, this was a finding that might be also expected with DR allegations, as well, which was not seen here.

It is also worth mentioning the statistically significant findings for the abuse allegation type and the immigrant factor. Investigated families residing in neighborhoods with a higher incidence of immigrants were more likely to have reported allegations of physical abuse than neglect. Around 25% of investigated families resided in areas with high immigrant populations and had allegations of physical abuse (and 22.54% lived in areas with low immigrant populations and had allegations of physical abuse), and Table XIV shows that residing in high immigrant areas increased the proportion of the most severe allegations that were physical abuse by two percentage points. Thus, across investigated families, the effect of the immigrant population increased the likelihood of a physical abuse allegation by 8% (0.02/0.2485). The effect of immigrant population decreased the likelihood of a neglect allegation by 29% (0.01/0.0342) across investigated families. I hypothesize that this may be because families residing in areas with higher immigrant populations may have higher social support due to family members or acquaintances of the same ethnicity in their neighborhood, which in turn, would reduce the likelihood of neglect allegations versus physical abuse allegations. I discuss this finding in more detail below, as it aligns with the intervention decision findings, as well as in the concluding chapter.

Overall, neighborhood characteristics did not predict physical abuse or DR allegations, in comparison to neglect allegations, which might speak to the fact that such allegations may be less influenced by outside neighborhood characteristics, or that the reporting of physical abuse and DR allegations operates through different mechanisms.

Investigation and placement. The four-category investigation and placement outcome is included Table XV. The investigation finding, placement, and the investigation and placement outcomes showed consistent results in terms of marginal effect sizes and significance levels, so I focused on the four category outcome in this section. This outcome included the report/allegation type, as it related to DR, with the investigation finding and placement. Again, the reason was to create a proxy for risk—starting with cases that would fall under DR allegation codes, then abuse or neglect cases that were unsubstantiated or substantiated, and finally, substantiated cases with placement.

Table XV. Conditional Marginal Effects for Investigation and Placement: Propensity Score Weighted Multinomial Logistic Regression

	Census Factors			Crime	CCAHS SSO		CCAHS Community Survey			
	Impoverishment	Residential Stability	Immigrant Population (high)	Crime Proportion (high)	Physical Condition (better)	Litter/Graffiti	Anomie	Perceived Violence	Victimization	Social Cohesion
Investigation and placement										
DR										
Aspects of abuse/neglect eligible for DR	-0.01 ^{*ab}	-0.00 ^a	-0.00 ^a	-0.01 ^a	0.00 ^a	-0.01 ^{ab}	-0.00 ^a	0.00 ^a	0.01 ^a	0.00 ^a
Not DR (physical abuse or neglect allegations)										
Unsubstantiated, no placement	0.00	0.01 [*]	0.01	-0.01	-0.01	-0.01	-0.01	-0.01 [*]	-0.01	-0.01
Substantiated, no placement	0.00 ^a	-0.01 [*]	-0.01 [*]	0.01	0.01 ^{*a}	0.01 ^{*a}	0.01 ^{*a}	0.01	0.01	0.00
Substantiated, placement	0.01 ^{*b}	-0.00 ^{*a}	-0.00 ^a	0.01 ^{*a}	0.00	0.00 ^{*b}	0.00	0.00 ^{*a}	-0.00 ^{*a}	0.00 ^{*a}
Sample Size (families)	88,140	88,140	88,140	59,703	53,179	53,179	52,059	52,059	52,059	52,059

Note. This table includes results from 10 regression models; the outcome was run separately for each neighborhood factor of interest (7). The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^{a,b}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < .10$. I only include significant differences with the DR outcome category since that was my area of interest.

^{*} $p < 0.05$

By including DR allegations with the investigation decision and placement in this outcome, the results did not further illuminate possible neighborhood mechanisms contributing to why a family might be reported with a DR allegation versus other allegations, as the only statistically significant measure was quite small. More specifically, the tabulation revealed that 22.81% of families investigated by DCFS resided in areas with high poverty and had DR allegations. The propensity score analysis showed that residing in higher areas of impoverishment decreased the likelihood of a DR allegation by one percentage point, versus having a substantiated case and as such, the effect of impoverishment decreased the likelihood of a DR allegation by only 4% (0.01/0.2281) in comparison to other investigated families, which was quite small.

Investigated families with unsubstantiated cases and no placement were more likely to reside in neighborhoods with higher residential stability and less likely to reside in places with lower perceived violence than families with substantiated cases or DR allegations. Among investigated families, the effect of residential stability increased the likelihood of an unsubstantiated case with no placement by 5% (0.01/0.2026), and perceived violence decreased the likelihood by 5% (0.01/0.1964). The effects were relatively small, but in the expected direction; one might expect that families with unsubstantiated cases would reside in lower risk places. Residential stability and low perceived violence may serve as protective factors for families who are reported and then have unsubstantiated cases.

Conversely, investigated families with substantiated cases and no placements were less likely to reside in places with higher residential stability and immigrant populations, and more likely to reside in places with more litter/graffiti and anomie, but better physical conditions than families with the other intervention types. The effect of residential stability, litter/graffiti, and

anomie decreased the likelihood of a substantiated case by around 16 to 17% for investigated families. The effect of better physical condition increased the likelihood of a substantiated case by 18% (0.01/0.0547), when compared to the other intervention decisions. As discussed previously with the neglect finding, the physical condition finding was in the opposite direction of the other statistically significant findings and against prior theory. Coupled with the neglect findings (higher neglect in areas with better physical conditions), I question whether such findings may be due to the way that the measure was collected from the CCAHS systematic social observation. Another possible explanation might be that while my geographic measure was Census tracts, the SSO was completed at the block level, and the conditions of buildings may vary greatly from block to block. As such, there may be variability on this measure within tracts that is causing this finding that is in opposition to the other findings. Thus, this measure may be inappropriate to use at the tract level. There has been no literature on the differences between tract impoverishment and disorder in relation to building physical condition to further explain this finding, nor published findings from the CCAHS using this measure.

Additionally, the immigrant population factor also showed some interesting findings. The effect of immigrant populations decreased the likelihood of a substantiated case without placement by 18% (0.01/0.0552) among investigated families. This finding may be because of the cultural support in areas with higher immigrant populations, which may serve as a protective factor for child maltreatment risk as families were less likely to have substantiation. There has not been any prior work on immigrant neighborhoods, but there has been literature that shows foreign-born immigrant families have a greater range of protective factors than U.S. born immigrant families that reduce maltreatment risk, which aligns with the neighborhood findings shown here (Dettlaff, Earner, and Phillips 2009; Dettlaff and Johnson 2011; Putnam-Hornstein,

Needell, King, and Johnson-Motoyama 2013). With that being said, the immigrant factor used here was not based on ethnicity, but based on citizenship and linguistic isolation.

Finally, in comparison to the other intervention types, families with a placement were more likely to reside in areas with higher impoverishment, crime, litter/graffiti, perceived violence, and social cohesion and less likely to reside in places with higher residential stability and high victimization than families with the other types of interventions. There were very small marginal effects predicting placement, as five of the seven statistically significant effects rounded to zero, but they are worth a brief mention since five out of the seven statistically significant effects were in the expected direction—that families with placement cases versus the other investigation decisions resided in the highest risk neighborhoods. The marginal effects for impoverishment and crime were both 0.01, but the proportion of families with a placement was relatively low. Residing in an area with higher impoverishment increased the likelihood of a placement by 70% (0.01/0.0143), and crime increased the likelihood by 57% (0.01/0.0175). This was consistent with the literature, and with what one might expect, that families involved in the child welfare system with placement cases resided in neighborhoods with higher instability and poverty (Lery 2009). Areas with higher poverty and higher crime may foster multiple structural deficits for families. Impoverished areas (with high public assistance use, low proportion of managerial jobs, etc.) may not provide families with social support or the ability to acquire social capital. Additionally, crime may exacerbate maltreatment as it may isolate families from being able to go outside and interact with their neighbors and/or neighborhood institutions. As caseworkers were making decisions about placement, evident crime in an area might have influenced their decision to place the child outside of the home.

Summary. This analysis added to the literature on understanding investigated families with aspects of abuse/neglect eligible for DR, in comparison to families with physical abuse or neglect allegations. They appeared to reside in areas with less risk than families with allegations of neglect, but without much statistical significance. The preliminary Chicago data showed that families with DR allegations were concentrated across neighborhoods (McEwen 2010), and this analysis found few statistically significant relationships in predicting DR when compared to other allegations based on neighborhood risk factors. While these families may be clustered together, it appeared as though residing in the most at-risk Census tracts did not predict DR allegations, including impoverishment, residential stability, crime, and measures of disorder and violence. As such, neighborhoods may, to some extent, serve as a protective factor, as families with lower risk DR allegations did not reside in the most at-risk areas. Perhaps the higher risk areas provide additional risk, which leads to more serious neglect allegations, rather than DR. Or, reporting in the higher risk areas is more targeted on serious neglect allegations, rather than DR.

Overall, the allegation outcome showed that investigated families with neglect resided in neighborhoods with the highest risk factors versus DR and physical abuse allegations, and the intervention and placement outcome showed that investigated families with substantiated cases and placements also resided in the areas with the highest risk factors when compared to other families reported and investigated by the system. In building interventions, a potential first step would be to better understand how families with similar allegations and intervention types are clustered together in neighborhoods. Then, more structural neighborhood interventions could be put into place in these areas—such as improving disorder, which may, in turn, improve family well-being in these areas as it relates to involvement with the child welfare system.

D. Multinomial Logistic Regression

Among families newly investigated by DCFS between 2001 and 2009, does family-level race moderate the relationship between context and the allegation or intervention type?

1. Analysis plan

I conducted multinomial logistic regression to test whether family-level race moderated the relationship between contextual measures and the outcomes of interest. I first ran a series of additive models where the contextual factors (separate models for each of the identified factors from the Census factor analysis, crime, the total school ISAT scores, and the measures from the CCAHS) served as predictors for the outcomes of interest. In all models, standard errors were robust and adjusted for clustering at the Census tract level. The series of models are listed below:

- Model 1: Neighborhood factor
- Model 2: Neighborhood factor with full set of controls
- Model 3: Model 2, adding family-level race
- Model 4: Model 3, interacting family-level race and neighborhood factor

Separate models were completed for each of the neighborhood measures. I completed this set of additive models to understand how the neighborhood effects changed by adding control measures, and further, ran Model 4 with interactions between neighborhood and race to answer my second set of research questions. Across all models, there were a total of 576 interactions, and 181 were statistically significant (31.4%), but many were small in effect size.²² In order to discuss the results parsimoniously, in this chapter, I discuss the statistically significant interactions between family-level race and neighborhood when the main neighborhood effect was significant, and only if the predicted probabilities between groups were four percent or more²³; however, I also discuss overall trends seen across the statistically significant interactions.

2. Hypotheses

²² I initially completed the models with Blacks as the reference group, but re-ran the models to test the difference between Whites and Hispanics. (For Whites versus Hispanics, 28.5% of the interactions were significant).

²³ Note. This was a researcher chosen arbitrary cutoff in an attempt to highlight the largest interactions.

The multinomial logistic regression tested whether family race-ethnicity moderated the relationship between contextual measures and abuse allegation type or the intervention decision. I expected that when I accounted for neighborhood disadvantage, families with the lowest structural position (African-American and poor), would have the most allegations of neglect/failure-to-provide (following the work of Massey and Denton 1993, Pattillo-McCoy 1999, and theory on “double jeopardy” per Sampson and Sharkey 2008). However, I also expected that race might confound the relationship between context and the intervention decision. Families in more disadvantaged neighborhoods may be more likely to have a child placed in out of home care; however, this may only be the case for minority families, as race may also confound this relationship, since racial minorities, and especially African-Americans, are subject to additional bias in the child welfare system (Kaufmann 2011; Kim, Chenot, and Ji 2011). This work was exploratory in nature as there was no literature on the moderation between race and neighborhood effects in predicting child welfare involvement.

3. Results

In this section, I provide a high level overview of the findings from Models 1, 2, and 3. Appendix H provides the full conditional marginal effects from the multinomial logistic regressions for the full sample for each outcome in Models 1, 2, and 3. The findings from Model 3 included the same specifications as the propensity score weighted regression. Overall, the results were relatively consistent, although the propensity score weighted regression results included fewer statistically significant results, which was expected. (For allegation type, there were seven statistically significant marginal effects for the propensity score analysis as opposed to 18 in the multinomial logistic regression, and for the investigation and placement outcome, the propensity score results revealed 14 statistically significant marginal effects and the multinomial

logistic regression revealed 26.) The propensity score weighted regression revealed non-statistically significant findings for the DR allegation outcome, while the multinomial logistic regression found slight statistically significant findings—although with small effect sizes—that families with DR allegations resided in areas with higher risk factors, in comparison to families with other allegation types.

Since propensity score analysis relied on matching a treatment and control group, one was not able to test for differences across models by running a series of additive models, as done in the multinomial logistic regression analysis. Additionally, the use of propensity score methods for understanding moderation is not well established as few studies have attempted causal moderation analysis (Dong 2012). The use of interaction terms in the matching model can create further complication and create unbalanced groups when matching. Thus, the information garnered from the multinomial logistic regression contributed to the literature in terms of interacting family-level race and neighborhood characteristics.

As for the neighborhood estimates from the full model with all covariates, the propensity score weighted regressions provided a more precise estimate. This raised an important point about using more sophisticated analysis methods, such as propensity score analysis in understanding causal relationships. Propensity score weighting matched the covariates across children who received the “treatment” (better neighborhoods) and those who did not. It also helps with choosing the correct model specification. Additionally, propensity score weighting has advantages of propensity score matching, which relies on matching one to one based on a nearest neighbor. Propensity score weighted regression “down-weights” observations in the control group that are less likely to be in the treatment group to create a weight for the analysis (for an example, see Korenman et al. 2013). In conclusion, both propensity score weighted

regression and multinomial logistic regression were required to answer my research questions, but it was important to understand the strengths and limitations of each method in interpreting the results.

Allegation type. The allegation type included the categories of physical abuse, neglect, and aspects of abuse and neglect eligible for differential response. I first discuss the findings from Models 1, 2, and 3. Then, I overview the neighborhood and family-level race interaction effects.

a. Neighborhood effects

Model 1 included the basic model with no covariates. The results were mostly consistent across the 24 neighborhood factors of interest and some included relatively large marginal effects (as high as 0.08 for crime predicting physical abuse). Overall, when comparing families across allegations, investigated families with physical abuse allegations were the most likely to reside in areas with better conditions, families with neglect were slightly more likely to live in areas with worse conditions, and families with DR allegations were the most likely to reside in areas with worse conditions.²⁴ Model 1 revealed 43 statistically significant findings for the allegation type. Model 2 added the covariates of the year of report, type of reporter, and maximum and minimum age for each child in the family. The patterns and statistically significant findings described in Model 1 still held, although the marginal effects were smaller (38 of the significant marginal effects decreased in size from Model 1 to Model 2) and 32 marginal effects were still statistically significant (for example, 0.05 for crime and physical abuse).²⁵ When family-level race was included as a covariate in Model 3,²⁶ some marginal effects became smaller (21 marginal effects decreased in size from Model 2 to Model 3), and 18

²⁴ For the complete list of marginal effects from Model 1, see Appendix H.

²⁵ See Appendix H.

²⁶ See Appendix H.

marginal effects were still statistically significant (0.02 for physical abuse and crime). The neglect findings were consistent with the propensity score results and prior literature that found families with allegations of neglect were more likely to reside in higher risk areas as compared against families with allegations of physical abuse (Drake and Pandey 1996; Zuravin 1989).

b. Neighborhood and family-level race interaction effects

Model 4 included interactions between family-level race-ethnicity and the neighborhood dummies. Separate models were completed for each neighborhood measure. The goal was to answer the second set of research questions: whether race-ethnicity moderated the relationship between neighborhood and child welfare involvement. Here, I discuss the findings related to the allegation outcome- and again, the allegation was the most severe allegation recorded for the family. Overall, investigated Black families had a higher proportion of physical abuse allegations in areas with better neighborhood conditions and a higher proportion of DR allegations in areas with worse neighborhood conditions, when comparing across allegation types. Investigated White families had a higher proportion of have physical abuse allegations in areas with worse conditions, but DR allegations in areas with better conditions. And finally, investigated Hispanic families showed mixed results across the neighborhood items.

Specifically, investigated Black families had a higher proportion of DR allegations if they resided in: higher poverty areas (versus investigated White families and Hispanic families and Black families in lower poverty areas), areas with lower residential stability (versus White families), and areas with worse social control, higher perceived disorder, and higher perceived violence (versus White families). As alluded to above, there may be double jeopardy occurring for Black families who resided in higher risk areas (Acevado-Garcia, Osypuk, McArdle, and Williams 2008). The structural disadvantage for being a racial minority coupled with living in a

higher risk neighborhood was worse for investigated Black families because they may not have access to supports and services in such areas, causing a higher likelihood of such families having failure to provide (DR) allegations.

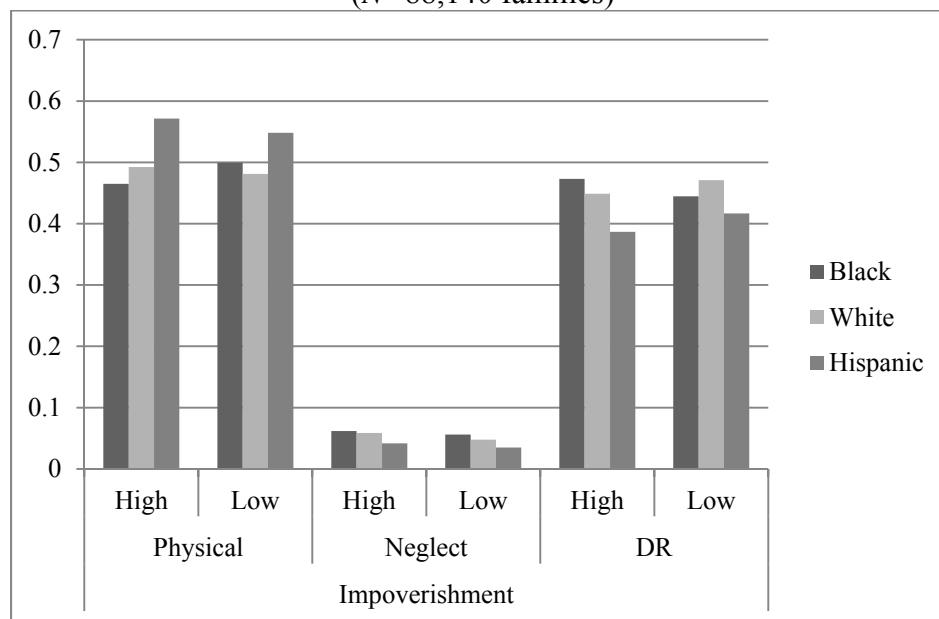
When comparing across allegation types, investigated Black families had a higher likelihood of physical abuse allegations with better/lower risk neighborhood factors, but a lower likelihood of DR allegations in such areas. This may speak to the fact that Black families were more likely to be investigated for physical abuse in areas with lower risk, perhaps by people of other racial groups, signifying that there could be racial discrimination occurring in terms of reporting. On the other hand, investigated White families had a higher proportion of physical abuse allegations in neighborhoods with worse/higher risk factors, and were more likely to have allegations of DR in areas with better/lower risk factors. This may be because Whites residing in areas with better neighborhood protective factors may be investigated for DR allegations at a higher rate when neighbors (or doctors or teachers) see the family experiencing extreme poverty.

Investigated Hispanic families showed mixed results across neighborhood risk factors when predicting the allegation type. Hispanic families had a higher likelihood of physical abuse allegations in areas with lower risk factors—including social control, perceived disorder, and perceived violence (versus White families)—but also if they resided in higher poverty areas (versus White families and Black families) and areas with higher immigrant populations (versus Hispanic families in areas with lower immigrant populations). Hispanic families were more likely to have allegations of DR in areas with higher victimization (versus White families) and in areas with lower immigrant populations (versus Hispanic families in areas with higher immigrant populations). The immigrant finding goes back to the theory discussed around cultural support networks that may arise for families in areas with high immigrant populations, as this was

especially pronounced for Hispanics. Hispanics may be more likely to have DR allegations in areas with lower immigrant populations because they have less access to family and friends from their ethnic background. Although, it would be interesting to tease this finding out by using a measure of the percent Hispanic in the Census tract.

Of specific interest were the interactions between White and Hispanic families versus Black families predicting DR allegations versus neglect and physical abuse allegations for the factor of neighborhood impoverishment. Figure 8 graphically depicts the predicted probabilities across the interactions for family-level race and impoverishment, which shows the relative share across the allegation types.

Figure 8. Predicted Probabilities of the Interaction between Family Race-Ethnicity and Impoverishment on Allegation Type from Multinomial Logistic Regression (Model 4) ($N=88,140$ families)



Specifically, there was a gradient pattern where investigated Black families (the black bar to the far left) had the lowest relative share of having physical abuse allegations if they lived in higher poverty areas (46.5%), followed by White families (49.2%), with Hispanic families (57.1%) having the highest relative share. However, the pattern shifted for neglect and DR, where Black families in higher poverty areas had a higher proportion of DR cases (47.3%), followed by White families (44.9%), and Hispanic families (38.7%). This suggested a structural “double jeopardy” occurring for investigated Black families in higher poverty areas. I discuss this in more detail below. Investigated White families had the highest relative share of DR allegations if they lived in lower poverty areas (47.1%) (light gray bar), then Black families (44.4%), followed by Hispanic families (41.7%). Investigated Hispanic families had a higher proportion of DR allegations if they resided in low poverty areas (41.7%) than high poverty areas (38.7%). Black families in areas with high poverty had a higher proportion of DR allegations

(47.3%) than Black families in low poverty areas (44.5%). It is my presumption that individual income as a control would help to disentangle such findings.

Investigation and placement. The outcomes of investigation finding, placement, and the investigation finding with placement showed consistent results in terms of marginal effect sizes and statistical significance levels, so I will discuss the effects for the four category outcome measure of investigation finding and placement for simplicity. I first review the findings from Models 1, 2, and 3. Then, I overview the neighborhood and family-level race interaction effects.

a. Neighborhood effects

For Model 1, the basic model with no covariates, the results were consistent across the 24 neighborhood factors. Specifically, the share of investigated families with DR cases was higher in the worst neighborhoods, followed by substantiated and placement cases; families with unsubstantiated cases were the most likely to reside in neighborhoods with fewer risk factors.²⁷ In Model 1, 51 of the neighborhood results were significant. Model 2 added the covariates of the year of report, type of reporter, and maximum and minimum age for each child in the family. The patterns and statistically significant findings described in Model 1 still held, although the marginal effects were smaller (40 marginal effects decreased in size from Model 1 to Model 2) and the statistically significant marginal effects reduced to 43.²⁸ When family-level race was included as a covariate in Model 3,²⁹ the marginal effects further reduced (23 marginal effects decreased in size from Model 2 to Model 3), and 29 of the marginal effects were still significant.

b. Neighborhood and family-level race interaction effects

Overall, comparing across intervention decisions, investigated Black families were more likely to have DR cases in areas with higher risk factors, and White families presented the

²⁷ For the complete list of marginal effects for Model 1, see Appendix H.

²⁸ For the complete list of marginal effects for Model 2, see Appendix H.

²⁹ See Appendix H.

opposite findings. Additionally, Black families had a higher proportion of unsubstantiated cases in lower risk areas, while White families and Hispanic families had a higher proportion of unsubstantiated cases in higher risk areas. Finally, it appeared as though White families had a higher proportion of substantiated and placement cases in areas with higher risk factors.

The DR group mirrored the findings from the allegation outcome; Black families had a higher proportion of DR cases in areas with worse characteristics than Black families residing in areas with better conditions versus White or Hispanic families. Specifically, Black families had a higher proportion of DR allegations in places with higher disorder, lower residential stability, higher perceived disorder, higher victimization, lower social control, and lower social cohesion. White families, on the other hand, had a higher proportion of DR allegations when they lived in areas with better characteristics, including lower perceived disorder, higher residential stability, lower perceived disorder, lower victimization, higher social control, higher social cohesion, and lower perceived violence. Hispanic families had mixed findings: they had a higher proportion of DR allegations when they lived in places with lower immigrant populations, lower litter/graffiti, lower disorder, but higher victimization and higher perceived violence. These findings lend support to the fact that the neighborhood interacts differently for Black, White, and Hispanic families. Perhaps the racial make-up of the neighborhood was driving some of these findings. For example, the findings may be different for Black families residing in White neighborhoods versus Black neighborhoods. This could be an important area for future work to understand how individual or family race and neighborhood race interact to influence child maltreatment allegations and intervention decisions. Additionally, fully understanding the juxtaposition between individual race and neighborhood race may be able to shed light on this story, as being White but residing in a Black neighborhood or vice versa may be influencing both the likelihood

of a report into child protection and also the ability of families to access supports within their neighborhood.

Black families were had a higher proportion of unsubstantiated cases if they lived in areas with lower risk factors. However, in comparison, White and Hispanic families, for the most part, had a higher proportion of unsubstantiated cases if they lived in areas with higher risk factors. As referenced in the NSCAW findings, this may speak to the fact that Black families were investigated at a higher rate in areas with lower risk factors due to racial discrimination. However, Black families may be lower risk since the cases were more likely to be unsubstantiated, or caseworkers were influenced by better neighborhood context when making the decision on whether to substantiate or not for Black families—and the opposite occurs for White and Hispanic families.

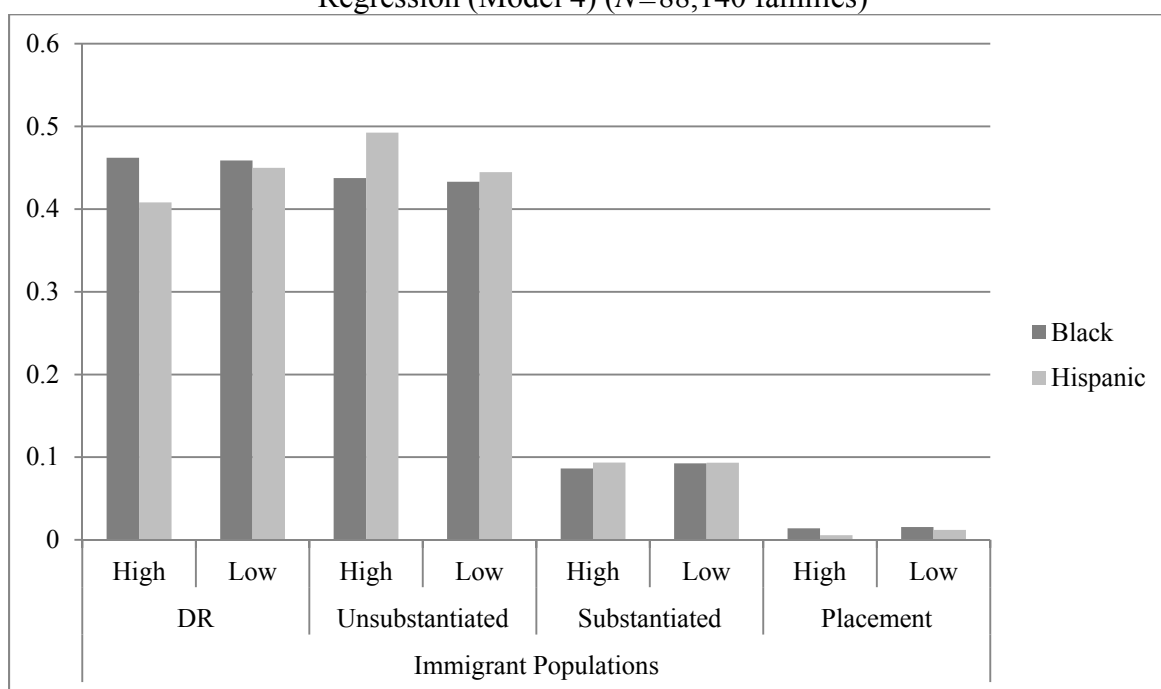
For substantiated cases without a placement, Black families in areas with higher disorder had a higher proportion of substantiated cases than Black families in areas with lower disorder. White families showed a similar pattern wherein White families in areas with higher poverty were had a higher proportion of substantiated cases than White families in areas of lower poverty. Finally, Hispanic families had a higher proportion of substantiated cases if they lived in areas with lower risk factors—lower disorder and lower victimization—than Hispanic families in areas with higher risk factors.

For placement, White families had a higher proportion of placements in areas with higher crime, higher perceived disorder, and higher perceived violence. But, both Black families and White families had a higher proportion of placements in areas with lower residential stability. While there has been very little literature interacting neighborhood and race, Jantz et al. (2011) showed that Black families residing in more disorganized counties were more likely to have

removal rates, which was not found here; however, the unit of analysis in Jantz et al. was counties, rather than Census tracts as used in this analysis.

Finally, the immigrant population findings warrant specific discussion. Figure 9 shows the relationship between family race-ethnicity and neighborhood immigrant populations and the relative share of intervention types.

Figure 9. Predicted Probabilities of the Interaction between Family Race-Ethnicity and Immigrant Populations on Investigation Finding with Placement from Multinomial Logistic Regression (Model 4) ($N=88,140$ families)



Hispanic families were had a higher relative share of unsubstantiated cases if they resided in neighborhoods with higher immigrant populations (49.3%) than Hispanic families in neighborhoods with lower immigrant populations (44.5%) and Black families in either neighborhood category (high: 43.7%; low: 43.3%). Hispanic families had a higher share of DR and placement cases in areas with lower immigrant populations (DR: 45.0%; placement: 1.2%) than Hispanic families in areas with high immigrant populations (DR: 40.8%; placement: 0.6%), but Black families, overall, had a higher share of a DR or placement case. As referenced in the

allegation outcome, perhaps these findings speak to cultural differences for Hispanic families and whether they reside in areas with other immigrants nearby, which could provide an important support system to increase the likelihood that the case was unsubstantiated. Additionally, Hispanic families in areas with lower immigrant populations may be at a higher risk to experience extreme poverty with few supports, which could include a church or even Hispanic grocery store, which may be driving the finding that Hispanic families were more likely to have DR allegations in areas with lower immigrant populations.

Summary. Overall, the multinomial logistic regression results complemented the propensity score results wherein investigated families with physical abuse allegations resided in neighborhoods with lower risk factors and families with neglect allegations appeared to reside in places with higher risk factors, when comparing investigated families. Additionally, families with unsubstantiated cases resided in areas with better neighborhood characteristics, and not surprisingly, families with substantiated and placement cases resided in areas with worse conditions, when comparing investigated families. The findings for DR allegations were, for the most part, not significant, but did show that families with DR allegations were more likely to reside in higher risk areas, than investigated families with other allegations/intervention decisions. Such findings were not statistically significant in the propensity score analysis.

Across the multinomial logistic regression models, the large effects for the neighborhood measures shown in the model with no controls (Model 1) decreased when the control measures were added (in Models 2 and 3), which spoke to the fact that mapping families across Census tracts to understand the context in which families reside might not tell the entire story. The family-level controls—including the year of report, type of reporter, child age, and race-ethnicity— did mitigate the effect of the neighborhood, and as shown by the differences between

Models 2 and 3, race also accounted for some change across neighborhood factors and the outcomes of interest.

The interactions showed that there was moderation by race between neighborhood characteristics and child welfare involvement. Black families had a higher proportion of physical abuse allegations in areas with better neighborhood conditions and more likely to have DR allegations in areas with worse neighborhood conditions. White families had a higher proportion of physical abuse allegations in areas with worse conditions, but DR allegations in areas with better conditions. Finally, Hispanic families showed mixed results across the neighborhood items. It also appeared that Black families had a higher proportion of unsubstantiated cases in neighborhoods with lower risk factors, and White and Hispanic families had a higher proportion of unsubstantiated cases in areas with higher risk factors. And White families had a higher proportion of substantiated and placement cases in areas with higher risk factors.

These findings speak to the fact that the neighborhood interacts differently for Black, White, and Hispanic families based on the race of the family and resources available. While there is no doubt that this is a complex issue, I discuss possible reasons for such findings in the concluding chapter.

V. CONCLUSIONS

I first review connections and disconnections between the two analyses before discussing limitations across each dataset. Then, I conclude with implications for future research and implications for policy and practice.

A. Intersections across NSCAW-II and Illinois DCFS

Overall, I found varying results across the NSCAW-II and Illinois DCFS analyses and, as discussed, within each analysis.

The NSCAW-II found children with more blatant neglect were more likely to have parents that reported higher social support than did those with allegations of neglect failure-to-provide and physical abuse. The Illinois data showed that, for the most part, families with neglect allegations were more likely to reside in neighborhoods with worse conditions than families with physical abuse allegations.

For the intervention decision, the NSCAW-II data showed that caregivers reporting higher social support were more likely to have substantiated cases with services. And caregivers reporting better neighborhood conditions were more likely to have placement cases. The NSCAW-II did not include a category for differential response, which may have helped to reconcile some of the inconsistencies. In contrast, the Illinois data found that families with substantiated cases and placement were more likely to reside in places with higher risk factors. Again, I feel compelled to reiterate that social desirability bias in the questionnaire may have been at play with the NSCAW-II, among possible other issues, including the area parents perceive as their neighborhood as opposed to researcher-identified boundaries.

Overall, I suggest three explanations for my findings, although more work is needed to understand what is driving the inconsistencies: (1) social disadvantage related to race and

neighborhood structure, (2) caseworker decision making, and (3) reporting as a mechanism that fosters inequality.

1. Social disadvantage related to race and neighborhood structure

The ecological and sociological literature has argued that neighborhoods are important venues for child development as well as stratification in our society. The sociological literature has specifically referenced social inequality and how a double jeopardy may occur by multiple inequalities interacting together in a multiplicative effect. Thus, there may be multiplicative disadvantage that families face from being poor and a racial-ethnic minority and residing in a disadvantaged neighborhood (Acevado-Garcia, Osypuk, McArdle, and Williams 2008). This is especially apparent in the finding from the Illinois analysis where Black families were more likely to have DR allegations in areas with worse conditions. Blacks in higher risk areas may be more likely to face more structural disadvantage and, as such, more likely to have DR allegations (failure to provide, etc.). Thus, the child welfare and social service system may be positioned to help reduce racial stratification by recognizing how disadvantage occurs from being a racial-ethnic minority and from residing in a disadvantaged neighborhood, and based on that understanding, providing targeted interventions.

2. Caseworker decision making

Social work researchers have cited the “decision making ecology” as a way to justify how child welfare caseworkers make decisions (Baumann, Dalgeish, Fluke, and Kern 2011). While child welfare case decisions are made based on characteristics of the case (such as risk, prior reports, etc.), they are also a function of the decision maker and the process used by the decision maker. Factors that may influence decision making outside of case characteristics include organizational factors, external factors, and individual characteristics of the decision maker

themselves (Baumann, Dalgeish, Fluke, and Kern 2011). Thus, the decision making process is complex—and the caseworker is influenced by a multitude of factors, which can include external neighborhood factors. Some of the differences in my findings may be due to caseworker discretion. For the most part, DR cases are filtered based on the initial report into the system and, therefore, are not based on caseworker discretion—unlike the decision to place a child. These ideas are grounded in the organizational sociological literature, whereas individual decision-making is influenced by both formal and informal organizational structures (Scott and Davis 2007). The decision making process in child welfare is an area for future research to help understand how caseworkers might be influenced by not only individual factors, like race, but also contextual factors, like the surrounding residential area.

3. Reporting as a mechanism that fosters inequality

The child welfare system is based on reporting, which may not be a measurement of actual child maltreatment. It is well documented that Blacks are the most likely racial group to be reported into the child welfare system, which may be a result of socioeconomic disadvantage from being a minority racial group, or could also be a function of racial discrimination and bias on behalf of reporters. As such, Black children may not be at a higher risk for maltreatment, but a higher risk for maltreatment *reports*. The neighborhood may also be a mechanism for reporting disparity across racial groups, where different types of reports may be a function of the type of neighborhood. This research did not consider the income or racial heterogeneity in the neighborhood, which may also be mechanisms at play in terms of reporting. Future work may be able to flesh out differences between the types of reporters, as well, including mandated (teachers, police) versus non-mandated (neighbors, family members) reporters.

B. Limitations

1. NSCAW-II

Overall, there were a few limitations of using the NSCAW-II data. The NSCAW-II is considered a nationally representative sample of child welfare investigated cases. However, some agencies had to be excluded because of state laws requiring that the state must first receive consent from their clients before giving their information to researchers. Additionally, the response rate was 55.8% for the baseline of the NSCAW-II, which was collected from March 2008 to September 2009. However, sampling weights do adjust for differential sampling probabilities. Because the NSCAW-II is a national sample, but child welfare services are state- or county-administered, there is a local policy context that cannot be adjusted. Some states may have been going through child welfare system reform between March 2008 and September 2009. However, due to the secure, de-identified nature of the data, it is not possible to adjust for different policy contexts. Additionally, previous NSCAW-II researchers have noted that the caregiver self-report and caseworker assessment have not been aligned to make sure that they match (Dettlaff and Johnson 2011) and that the data are consistent. Thus, there may be reliability and validity concerns with the reports of caregivers as well as caseworkers.

An additional potential limitation is the *ex post facto* nature of the NSCAW. This study is *ex post facto* in nature because the child's caregiver was asked the Community Environment Scale and Duke-UNC Functional Social Support Questionnaire items post-investigation. While it would be ideal to have the child's neighborhood characteristics and caregiver social support prior to an investigation, such data are improbable to collect. The NSCAW-II began survey outreach to families 45 days after the close of an investigation, so caregivers could potentially be reacting to the experience of their system involvement when answering questions on their neighborhood.

Caregivers may also report more positive aspects of their neighborhood or more positive social support because they are fearful of future involvement with child protective services. Thus, children who are abused or neglected without involvement with child protective services may have different results than those seen in this dissertation.

Additionally, the items in the abridged version of the CES and DUFSSQ might not include all items relevant for understanding child maltreatment risk factors. Additional contextual and individual factors may contribute to child maltreatment risk. Future research should attempt to control for such additional risk.

It is also important to note here that the NSCAW-II is a study of investigated child welfare cases, which is a disadvantaged population. While the NSCAW-II is a nationally representative sample, it does not capture all cases of child maltreatment as the study only uses cases that are reported and investigated.

2. Illinois DCFS

A major strength of administrative data is the ability to capture the entire population of interest, and unlike the NSCAW-II, the Illinois DCFS data is based on the case information, so it is not biased by survey reports of the caregiver or caseworker. While the Illinois DCFS data is comprehensive of the population of interest, the administrative data does have some limitations. Because it is administrative data, the data lack a robust set of control measures, such as level of harm, agency structure, and caseworker measures. As such, there may be additional controls to take into account, such as individual and family covariates; of most interest for this analysis would be family income. Additionally, unlike the NSCAW-II with a large number of additional covariates, there is not a way to conduct multiple imputation to account for the missing data in

the Illinois data. The data are also limited because they rely on DCFS to have completed case information. Thus, there may be inconsistencies due to data entry or reporting errors.

Additionally, as Coulton (2008) notes, there are problems with using predefined geographic boundaries, such as the Census tract as a neighborhood measure, and conclusions on geographic units can be affected based on those boundaries. Coulton (2008) also notes that “rare events” in smaller areas can affect the findings. In this case, placement is a relatively rare event in DCFS, which may have affected the results.

As always with neighborhood data, self-selection bias and aggregation effects have been cited as possible limitations with studying contextual effects, as people with similar attitudes self-sort into similar neighborhoods. Aggregation effects occur when, for example, neighborhood poverty is viewed as a structural component of child maltreatment rates, but it actually operates at the family level or block level. Census tract units may be too large of a unit of analysis for child maltreatment research. The non-significant neighborhood findings may be a product of Census tract variability. This may be what is occurring with the CCAHS physical condition finding. If possible, future work could attempt smaller neighborhood units, like the block level.

Additionally, in order to define treatment and control groups for the propensity score analysis, the contextual measures were dichotomized based on a median split. This raises an important concern around arbitrary cutoffs for creating “high” and “low” groups. Future research may focus on thresholds for neighborhood measures, like poverty, for example.

Another concern was how the data were aggregated. With administrative data, there were multiple records per family and in some cases, multiple records per child. This concern is also noted by Coulton (2008). Thus, the conclusions drawn from this analysis may be affected by the

way the data were aggregated. Additional analysis could test if similar results would arise if one child per family was randomly chosen as opposed to aggregating the family data.

It is also important to raise the issue of power and sample size. Because the effects are small, especially with the CCAHS data, it may be that the large sample size of cases is inflating the results. However, the representative nature of the sample helps to deal with this issue. Future work may include separate analyses for each year or an even smaller allotment of time.

C. Implications

1. Future research

Deconstruct latent classes and factors. Future work is needed to understand membership in the NSCAW-II latent classes from the Community Environment Scale and what additional individual and neighborhood characteristics might predict membership into each group. Additional work could analyze how child outcomes—both in terms of child well-being and reoccurrence in the system—might vary across each latent class, neighborhood, and social support factor. Such research would help show how community interventions might be developed based on the differing contexts in which families reside.

Compare maltreated population to non-maltreated. This research compared the child welfare investigated population across allegation types and case outcomes. However, in order to fully test for risk and protective factors, more research is needed in analyzing maltreated children versus non-maltreated children. Polansky and colleagues (1985) noted that neglectful mothers viewed their environment as less supportive than non-neglectful mothers, and others have pointed to more social isolation among the maltreated population (Corse, Schmidt, and Trickett 1990; Beeman 1997; Salzinger et al. 1983). A comparison group of non-maltreated families may be a way to identify differences across neighborhoods and social support networks to identify

possible protective factors (across both the Illinois DCFS administrative data and the NSCAW-II).

Adding measures that understand neighborhoods are multi-faceted. It is evident from this dissertation that neighborhood and contextual research should take into account multiple contextual factors—not only measures that take into account disadvantage and poverty, but measures of social capital (as evident from the NSCAW-II analysis) and disorder (as evident from the DCFS analysis). A combination of caregiver perceptions, coupled with geographically defined boundaries and possibly caseworker perceptions, could help to understand how child welfare involved families interact with their neighborhood. And such measures included together in a multivariate analysis could help better understanding the findings. The inconsistent findings speak to the need for additional research to fully understand how individuals perceive their neighborhood in relation to geographic boundaries. This aligns with Small's work (2004) in terms of understanding the mechanisms of social capital acquisition with poor neighborhoods, and specifically, the variation of such acquisition across resource poor neighborhoods.

Research the role of neighborhoods with high immigrant populations. The population of immigrants has been understudied in the child welfare literature. Here, I find that families with unsubstantiated cases were more likely to reside in places with a higher immigrant population. This may be resulting from cultural social support systems—a case may be unsubstantiated due to the increased social supports around the family. Additionally, Hispanics were more likely to have physical abuse allegations and, further, unsubstantiated cases in areas with higher immigrant populations. Hispanics were also more likely to have DR allegations in areas with a lower immigrant population—which might mean that Hispanics in areas with a lower immigrant population area are lacking social supports to provide for their children. This finding fits with the

recent child welfare literature that shows immigrant caregivers with higher resources are more likely to report having a difficult time providing for their children than White caregivers (Johnson-Motoyama 2013). Thus, Hispanics in areas without access to Spanish-speaking organizations, for example, may have a harder time providing for their children.

Other studies on immigrants in the child welfare system have shown that U.S.-born Hispanic families face higher risk factors in the child welfare system compared to foreign-born immigrant families—including higher rates of reports and substantiation (Dettlaff et al. 2009; Dettlaff and Johnson 2011; Putnam-Hornstein et al. 2013). Thus, it may be important for future research to attempt to distinguish parental nativity among Hispanic families involved in the child welfare system, as well as to understand how the neighborhood might also provide protective or risk factors for such families.

Address the reporting “issue.” Neighborhoods and contexts should be compared to understand reporting—in particular, it may be that neighborhoods with more police may have lower incidence of reported child maltreatment due to the increased police presence, or increased police presence might raise the incidence of reported maltreatment due to police reporting. In any case, larger-scale community interventions may be a way to prevent child maltreatment that goes unreported.

Understand child outcomes. My research focuses on identifying individual and neighborhood correlates of child maltreatment and the system’s subsequent intervention. It is also important to understand how the type of child welfare intervention and service delivery relates to child outcomes. Removed children may have access to better neighborhoods and services. However, the disruption caused by removal may override any potential benefits of substitute care. Multiple intervening factors influence child placement as a result of a child

welfare investigation. Certain risk factors, such as the child's race, income, or neighborhood context, may increase the likelihood of removal, and subsequently, reunification. There is a knowledge gap in understanding which contextual factors predict placement and how they might predict future outcomes. Additionally, little work has examined the relationship between DR and child outcomes (Conley and Berrick 2010). Yet, assessing outcomes from DR involvement could improve our understanding of how DR impacts children and families (Berrick et al. 2009).

Revise measures of neighborhood perceptions specifically related to child maltreatment.

Some researchers have raised concerns around using measures of resident perceptions, like social control, in measuring given phenomena. And this might be the reason why many of the CCAHS measures are not significant in this analysis. For example, neighbors may state that they would intervene if there were a fight in front of their house, but it is important to measure how they would intervene in relation to child maltreatment or family violence. Specifically measuring physical abuse, researchers found that informal social control of child maltreatment was a protective factor against severe physical abuse (Emery, Trung, and Wu 2013). Identifying additional measures, such as the likelihood of neighbors to intervene if they notice a child without a coat or one that lacks supervision, could help build child maltreatment interventions.

Despite having Census tract community measures, it is still difficult to disentangle these results. Further fleshing out these findings may reveal where informal mechanisms or formal mechanisms could be put into place. It may be interesting to put measures into one model to help identify co-occurring protective or risk factors to prioritize intervention building. There may also be interactions between some of the neighborhood items used in this study.

2. Policy and practice

Now what? Regarding differential response. Given these findings that neighborhoods and social support clearly influence the trajectory of child maltreatment service delivery, the question of whether differential response makes sense arises. The Illinois evaluation found children were as safe in DR as in investigations based on re-reports and removals (Fuller, Nieto, and Zhang 2013); however, does the initial upfront cost of DR make sense given that DR does not show *increased* child safety? Longitudinal data, including multi-generational family data, is not available yet to determine long-term benefits of such a program.

Specifically, DR is a move toward child maltreatment prevention, but would it make more sense to have a program built targeted to neighborhoods? Additional work should consider the role of social institutions in neighborhoods as protective factors, the neighborhoods' capacity to support residents and maintain child safety in a differential response context, and the residential differences between families with allegations of DR versus neglect. A recent study found that a higher concentration of organizations serving youth and adults in neighborhoods lead to lower youth aggression (Molnar, Cerda, Roberts, and Buka 2008). Targeted organizational capacity-building in neighborhoods at risk for DR may be a way to help prevent child maltreatment. The Illinois evaluation raised additional questions around which components for DR (services and practices) produced the most beneficial results for families involved with DR (Fuller et al. 2013).

Given the results from this dissertation, it is difficult to prescribe contextual recommendations. The statistically significant findings in the multinomial logistic regression across the CCAHS measures may be important to qualitatively analyze the neighborhoods where DR families are clustered to further understand the area of residence in terms of measures of

disorder and social control. It is also worth reiterating that Blacks were more likely to have DR allegations in areas with higher risk factors than Blacks in areas with lower risk factors; this may be a finding to explore further. Specifically targeting this population may reduce some disproportionality in the system as there would, presumably, be less reporting for this population—although there is still much work to be done in disproportionality, discrimination, and bias in child welfare decision-making.

Implementing community-based prevention initiatives. The findings shown in this dissertation have implications for social work policy and practice in helping to identify specific contextual risks and benefits facing families. State and local agencies may be able to develop community, place-based approaches to prevent child maltreatment before it starts, rather than working with families on an individual basis when they are reported into the system. For example, the federal government's education initiative *Promise Neighborhoods* is intended to target neighborhoods with high poverty rates and build support systems to help children succeed in school. Some community-level prevention initiatives have been implemented and evaluated, showing promise for child maltreatment prevention, specifically Triple P, Durham Family Initiative, and Strong Communities.

Community-level prevention efforts are not without challenges, which can include building a relationship with the community, working with culturally diverse populations, financial and time barriers, and sustainability (Molnar and Beardslee 2014). This research speaks to Molnar and Beardslee's recommendation to understand the community and their needs. Specifically, this work helps to show the risk and protective factors that contribute to child maltreatment involvement and adds to the argument that neighborhood interventions should not have a "one size fits all" approach.

Information from this study may help states better target neighborhoods to build place-based child maltreatment prevention initiatives, as similar risk factors might be contributing to maltreatment for multiple families in a neighborhood, which might make a community approach both cost-effective and successful. Such place-based approaches must be targeted to build interventions—in some areas, it may be helpful for residents make social connections and build their networks, and in others, it may be helpful to increase police activity to reduce crime.

As a first step, targeted child maltreatment prevention campaigns could be tailored to address these types of abuse/neglect based on where they occur. As an example, the Illinois propensity score analysis showed that families with more blatant neglect allegations came from higher risk neighborhoods, but DR and physical abuse allegations came from lower risk areas. Messaging, such as community flyers or billboards, could be tailored in certain areas to the specific types of abuse and resources that families can access.

Of most relevance for the current findings (pulling from the NSCAW-II analysis), neighborhoods with higher social order but lower social capital might be important places for practitioners to intervene in providing social supports such as community support groups to help families build social capital. The advent of community support groups might lead to more informal ways of protecting children (rather than formally through child protective services), where neighbors provide support to one another to help mitigate parental stress, for example. Also, other higher risk neighborhoods with low social order and low social capital might need additional police or neighborhood watchmen.

With regard to the NSCAW-II propensity score and multinomial logistic regression analyses, while some of the results were surprising, it was evident that using the total score for neighborhood perceptions or social support did not tell the full story. Understanding what

specific types of neighborhood conditions and social support protected children from risk may be a way to build prevention initiatives. And the Illinois DCFS analysis revealed that it is important to take into account multiple facets of neighborhoods—including measures of disorder, social control, and neighborhood organizational structure. Thus, it is important to explore the nature of risk and protective factors for children in the child welfare system. Propensity score analysis may be a way for future research to further investigate differences in these factors by creating matched groups of respondents for comparison, similar to that of a randomized controlled trial or experiment.

Integrating poverty prevention and child welfare services. The original mission of the Children’s Bureau was to address poverty and child and maternal labor; however, there exists a separation between income supports and services. There are some current models where Temporary Assistance for Needy Families (TANF) programs are integrated with child welfare services, but there is a need for more programs that address poverty as a child maltreatment prevention strategy. Berns, Briar-Lawson, and Kim (2013) argue that poverty alleviation should be a “centerpiece” of child welfare policy and practice. This work, especially the Illinois analysis, shows how neighborhood poverty significantly impacts child welfare allegations and intervention decisions. While this relationship is complex, coupled with multi-faceted aspects of neighborhood structure, neighborhood poverty may be a way to begin to address child maltreatment as a result of structural poverty. This is an additional consideration for DR programming moving forward.

Concluding thoughts. This work begins to analyze the patterns of neighborhood and social support risk factors that are facing families investigated by the child welfare system. The sociological and ecological literatures situate child maltreatment as a social problem—one that

requires multi-faceted, multi-disciplinary action. This dissertation builds work in this arena by using sociological foundations of neighborhood and social support to better understand child welfare involvement.

The neighborhood is an important venue for child development and, more specifically, child welfare prevention efforts. Contextual, concentrated disadvantage occurs among the child welfare-reported and -investigated populations, interacting with individual-level inequalities of poverty and race. This research leaves child maltreatment stakeholders with an important question: How can community child maltreatment prevention efforts be built in already distressed areas to best support families? Although this work is a step in understanding where and what types of services are needed, there is much more work to be done in this area. In conclusion, considering how structural disadvantages can interact and influence child abuse allegations and intervention decisions can help researchers and practitioners fully understand protective and risk factors of the child welfare system in order to build place-based initiatives to better serve families.

APPENDICES

APPENDIX A

Definition of Key Terms

Child Maltreatment: “Child maltreatment includes all types of abuse and neglect of a child under the age of 18 by a parent, caregiver, or another person in a custodial role (e.g., clergy, coach, teacher). There are four common types of abuse: Physical Abuse; Sexual Abuse; Emotional Abuse; and Neglect” (<http://www.cdc.gov/violenceprevention/childmaltreatment/>).

Service Delivery: Refers to the family’s receipt of public assistance or additional social services, to include assistance in locating and securing housing, cash assistance, food, clothing, furniture, and other goods and services, child care, emergency caretakers, advocacy with public and community agencies providing such services, homemaker services, and Department of Human Services benefits such as TANF, food stamps, WIC (Lecture Notes, 9-13-2011, Advanced Child Welfare Practice, A. Dettlaff).

The following terms have been compiled from the 325 ILCS 5/ Abused and Neglected Child Reporting Act -- <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1460&ChapterID=32>:

Neglect: "Neglected child" means any child who is not receiving the proper or necessary nourishment or medically indicated treatment including food or care not provided solely on the basis of the present or anticipated mental or physical impairment as determined by a physician acting alone or in consultation with other physicians or otherwise is not receiving the proper or necessary support or medical or other remedial care recognized under State law as necessary for a child's well-being, or other care necessary for his or her well-being, including adequate food, clothing and shelter; or who is abandoned by his or her parents or other person responsible for the child's welfare without a proper plan of care; or who has been provided with interim crisis intervention services under Section 3-5 of the Juvenile Court Act of 1987 and whose parent, guardian, or custodian refuses to permit the child to return home and no other living arrangement agreeable to the parent, guardian, or custodian can be made, and the parent, guardian, or custodian has not made any other appropriate living arrangement for the child; or who is a newborn infant whose blood, urine, or meconium contains any amount of a controlled substance as defined in subsection (f) of Section 102 of the Illinois Controlled Substances Act or a metabolite thereof, with the exception of a controlled substance or metabolite thereof whose presence in the newborn infant is the result of medical treatment administered to the mother or the newborn infant. A child shall not be considered neglected for the sole reason that the child's parent or other person responsible for his or her welfare has left the child in the care of an adult relative for any period of time. A child shall not be considered neglected for the sole reason that the child has been relinquished in accordance with the Abandoned Newborn Infant Protection Act. A child shall not be considered neglected or abused for the sole reason that such child's parent or other person responsible for his or her welfare depends upon spiritual means through prayer alone for the treatment or cure of disease or remedial care as provided under Section 4 of this Act. A child shall not be considered neglected or abused solely because the child is not

attending school in accordance with the requirements of Article 26 of The School Code, as amended.”

Abuse: "Abused child" means a child whose parent or immediate family member, or any person responsible for the child's welfare, or any individual residing in the same home as the child, or a paramour of the child's parent:

- (a) inflicts, causes to be inflicted, or allows to be inflicted upon such child physical injury, by other than accidental means, which causes death, disfigurement, impairment of physical or emotional health, or loss or impairment of any bodily function;
- (b) creates a substantial risk of physical injury to such child by other than accidental means which would be likely to cause death, disfigurement, impairment of physical or emotional health, or loss or impairment of any bodily function;
- (c) commits or allows to be committed any sex offense against such child, as such sex offenses are defined in the Criminal Code of 1961, as amended, or in the Wrongs to Children Act, and extending those definitions of sex offenses to include children under 18 years of age;
- (d) commits or allows to be committed an act or acts of torture upon such child;
- (e) inflicts excessive corporal punishment; (f) commits or allows to be committed the offense of female genital mutilation, as defined in Section 12-34 of the Criminal Code of 1961, against the child;
- (g) causes to be sold, transferred, distributed, or given to such child under 18 years of age, a controlled substance as defined in Section 102 of the Illinois Controlled Substances Act in violation of Article IV of the Illinois Controlled Substances Act or in violation of the Methamphetamine Control and Community Protection Act, except for controlled substances that are prescribed in accordance with Article III of the Illinois Controlled Substances Act and are dispensed to such child in a manner that substantially complies with the prescription; or
- (h) commits or allows to be committed the offense of involuntary servitude, involuntary sexual servitude of a minor, or trafficking in persons for forced labor or services as defined in Section 10-9 of the Criminal Code of 1961 against the child.

Child Protective Service Unit: "Child Protective Service Unit" means certain specialized State employees of the Department assigned by the Director to perform the duties and responsibilities as provided under Section 7.2 of this Act.

Temporary Protective Custody: "Temporary protective custody" means custody within a hospital or other medical facility or a place previously designated for such custody by the Department, subject to review by the Court, including a licensed foster home, group home, or other institution; but such place shall not be a jail or other place for the detention of criminal or juvenile offenders.

Differential Response: (a-5) Beginning January 1, 2010, the Department of Children and Family Services may implement a 5-year demonstration of a "differential response program" in accordance with criteria, standards, and procedures prescribed by rule. The program may provide that, upon receiving a report, the Department shall determine

whether to conduct a family assessment or an investigation as appropriate to prevent or provide a remedy for child abuse or neglect.

For purposes of this subsection (a-5), "family assessment" means a comprehensive assessment of child safety, risk of subsequent child maltreatment, and family strengths and needs that is applied to a child maltreatment report that does not allege substantial child endangerment. "Family assessment" does not include a determination as to whether child maltreatment occurred but does determine the need for services to address the safety of family members and the risk of subsequent maltreatment.

For purposes of this subsection (a-5), "investigation" means fact-gathering related to the current safety of a child and the risk of subsequent abuse or neglect that determines whether a report of suspected child abuse or neglect should be indicated or unfounded and whether child protective services are needed.

Under the "differential response program" implemented under this subsection (a-5), the Department:

- (1) Shall conduct an investigation on reports involving substantial child abuse or neglect.
- (2) Shall begin an immediate investigation if, at any time when it is using a family assessment response, it determines that there is reason to believe that substantial child abuse or neglect or a serious threat to the child's safety exists.
- (3) May conduct a family assessment for reports that do not allege substantial child endangerment. In determining that a family assessment is appropriate, the Department may consider issues including, but not limited to, child safety, parental cooperation, and the need for an immediate response.
- (4) Shall promulgate criteria, standards, and procedures that shall be applied in making this determination, taking into consideration the Child Endangerment Risk Assessment Protocol of the Department.

Once it is determined that a "family assessment" will be implemented, the case shall not be reported to the central register of abuse and neglect reports. During a family assessment, the Department shall collect any available and relevant information to determine child safety, risk of subsequent abuse or neglect, and family strengths.

Information collected includes, but is not limited to, when relevant: information with regard to the person reporting the alleged abuse or neglect, including the nature of the reporter's relationship to the child and to the alleged offender, and the basis of the reporter's knowledge for the report; the child allegedly being abused or neglected; the alleged offender; the child's caretaker; and other collateral sources having relevant information related to the alleged abuse or neglect. Information relevant to the assessment must be asked for, and may include:

- (A) The child's sex and age, prior reports of abuse or neglect, information relating to developmental functioning, credibility of the child's statement, and whether the

information provided under this paragraph (A) is consistent with other information collected during the course of the assessment or investigation.

(B) The alleged offender's age, a record check for prior reports of abuse or neglect, and criminal charges and convictions. The alleged offender may submit supporting documentation relevant to the assessment.

(C) Collateral source information regarding the alleged abuse or neglect and care of the child. Collateral information includes, when relevant: (i) a medical examination of the child; (ii) prior medical records relating to the alleged maltreatment or care of the child maintained by any facility, clinic, or health care professional, and an interview with the treating professionals; and (iii) interviews with the child's caretakers, including the child's parent, guardian, foster parent, child care provider, teachers, counselors, family members, relatives, and other persons who may have knowledge regarding the alleged maltreatment and the care of the child.

(D) Information on the existence of domestic abuse and violence in the home of the child, and substance abuse.

Nothing in this subsection (a-5) precludes the Department from collecting other relevant information necessary to conduct the assessment or investigation. Nothing in this subsection (a-5) shall be construed to allow the name or identity of a reporter to be disclosed in violation of the protections afforded under Section 7.19 of this Act.

After conducting the family assessment, the Department shall determine whether services are needed to address the safety of the child and other family members and the risk of subsequent abuse or neglect.

Upon completion of the family assessment, if the Department concludes that no services shall be offered, then the case shall be closed. If the Department concludes that services shall be offered, the Department shall develop a family preservation plan and offer or refer services to the family.

At any time during a family assessment, if the Department believes there is any reason to stop the assessment and conduct an investigation based on the information discovered, the Department shall do so.

The procedures available to the Department in conducting investigations under this Act shall be followed as appropriate during a family assessment.

The Department shall arrange for an independent evaluation of the "differential response program" authorized and implemented under this subsection (a-5) to determine whether it is meeting the goals in accordance with Section 2 of this Act. The Department may adopt administrative rules necessary for the execution of this Section, in accordance with Section 4 of the Children and Family Services Act.

The demonstration conducted under this subsection (a-5) shall become a permanent program on January 1, 2015, upon completion of the demonstration project period.

(b) (1) The following procedures shall be followed in the investigation of all reports of suspected abuse or neglect of a child, except as provided in subsection (c) of this Section.

(2) If, during a family assessment authorized by subsection (a-5) or an investigation, it appears that the immediate safety or well-being of a child is endangered, that the family may flee or the child disappear, or that the facts otherwise so warrant, the Child Protective Service Unit shall commence an investigation immediately, regardless of the time of day or night. All other investigations shall be commenced within 24 hours of receipt of the report. Upon receipt of a report, the Child Protective Service Unit shall conduct a family assessment authorized by subsection (a-5) or begin an initial investigation and make an initial determination whether the report is a good faith indication of alleged child abuse or neglect.

(3) Based on an initial investigation, if the Unit determines the report is a good faith indication of alleged child abuse or neglect, then a formal investigation shall commence and, pursuant to Section 7.12 of this Act, may or may not result in an indicated report. The formal investigation shall include: direct contact with the subject or subjects of the report as soon as possible after the report is received; an evaluation of the environment of the child named in the report and any other children in the same environment; a determination of the risk to such children if they continue to remain in the existing environments, as well as a determination of the nature, extent and cause of any condition enumerated in such report; the name, age and condition of other children in the environment; and an evaluation as to whether there would be an immediate and urgent necessity to remove the child from the environment if appropriate family preservation services were provided. After seeing to the safety of the child or children, the Department shall forthwith notify the subjects of the report in writing, of the existence of the report and their rights existing under this Act in regard to amendment or expungement. To fulfill the requirements of this Section, the Child Protective Service Unit shall have the capability of providing or arranging for comprehensive emergency services to children and families at all times of the day or night.

(4) If (i) at the conclusion of the Unit's initial investigation of a report, the Unit determines the report to be a good faith indication of alleged child abuse or neglect that warrants a formal investigation by the Unit, the Department, any law enforcement agency or any other responsible agency and (ii) the person who is alleged to have caused the abuse or neglect is employed or otherwise engaged in an activity resulting in frequent contact with children and the alleged abuse or neglect are in the course of such employment or activity, then the Department shall, except in investigations where the Director determines that such notification would be detrimental to the Department's investigation, inform the appropriate supervisor or administrator of that employment or activity that the Unit has commenced a formal investigation pursuant to this Act, which may or may not result in an indicated report. The Department shall also notify the person

being investigated, unless the Director determines that such notification would be detrimental to the Department's investigation.

APPENDIX B

Differential Response: A Family Impact Analysis³⁰

Historically, the child protection system removed children from their families following an abuse or neglect substantiation. Most recently, some states have implemented a differential response approach to child protection, offering a non-investigatory approach for lower-risk families referred into the system. This represents a shift in child welfare practice away from viewing child maltreatment from an individual standpoint to recognizing that many families face structural barriers that put them at risk of contact with child protection. In this non-investigatory track, caseworkers evaluate reports of maltreatment on a case-by-case basis, provide assessments, and address family needs in order to prevent child removal. Differential response initiatives help support long-term family stability through tailored service delivery.

The goal of this paper is to conduct a *family impact analysis* (Bogenschneider, Little, Ooms, Benning, Cadigan, and Corbett 2011) of differential response to highlight strengths as well as considerations for future program development. A family impact analysis provides a systematic way to examine a program or policy from a family perspective in order to illuminate how it benefits families, where it has gaps in family support, and how it might be improved to support family well-being. The family impact lens is meant to provide a balanced, objective, and educational examination of how a program or policy affects families from a nonpartisan standpoint.

Background of Child Welfare Practice and Theoretical Shifts

An “unresolved tension” exists in the role of child protection between rescuing children from abusive or neglectful parents versus stabilizing vulnerable families and leaving children in

³⁰ Note. This paper was written in collaboration with Rachel A. Gordon. It was edited to include the findings from the Illinois DR evaluation that came out in October 2013. Dr. Gordon has given written permission for this chapter to be included in the dissertation.

the home (Schene 1998). Over time, government intervention in child protection has shifted following changes in understanding the underlying causes of child abuse and neglect. See Table XVI for an overview of key policy inception and theoretical shifts.

Table XVI. Timeline of Child Protection and Theoretical Paradigms in the United States³¹

Key Periods	Dates	Event
Child abuse as a social problem.	1874	⇒ Child abuse is recognized through “Mary Ellen” case.
	1875	⇒ The New York Society for the Prevention of Cruelty to Children is established. Child protection seen as part of law enforcement.
	1912	⇒ The National Children’s Bureau is established.
	1920s	⇒ Child protection shifts from law enforcement to rehabilitation.
	1935	⇒ The Social Security Act creates state agencies for child protection.
Human service system development.	1950s-1960s	⇒ Child abuse is seen as an individual problem from psychological and medical point of view.
	1962	⇒ Kempe and colleagues (1962) coin the term “battered child syndrome.”
	1967	⇒ All 50 states pass child abuse legislation.
	1974	⇒ The Child Abuse Prevention and Treatment Act (CAPTA) is signed by Congress as the first national legislation focused on child abuse and neglect.
Multi-dimensional theories on child abuse.	1970s-1980s	⇒ A shift occurs to understanding child abuse and neglect to a structural perspective, which is coupled with changes from medical professionals to government employed social workers serving maltreated children.
	1980s	⇒ The family preservation movement arises as a result of child welfare reporting increasing, but at the same time state budgets for child welfare decrease.
Family preservation arises.	1980	⇒ Congress passes the Adoption Assistance and Child Welfare Act of 1980, which created federal procedures on child welfare case management, requiring state plans for addressing child maltreatment; the Act requires states to make a “reasonable effort” to keep families together.
	1993	⇒ The Family Preservation and Family Support Service Program is authorized as part of the Omnibus Budget Reconciliation Act to address the increasing numbers of children in foster care.
	1994-1997	⇒ A taskforce of child welfare administrators and practitioners convenes at the Harvard Executive Session on New Paradigms for Child Protection to address shortcomings of child protection.
Differential response incepted.	1994	⇒ Missouri and Florida establish differential response programs.
	1997	⇒ The Adoption and Safe Families Act of 1997 refocuses child welfare on child safety but also encourages permanency, as concerns arise with the family preservation movement.
	2009	⇒ Eighteen states begin piloting or establish differential response programs.

³¹ Note. For detailed citations, please see the historical review section of this paper. Key citations include Nelson 1984 and Schene 1998.

In this section, we will discuss how child abuse first came to be conceptualized as a social problem. Then, we will provide an overview of the human service system's development and early theories on the cause and treatment of child abuse and neglect. From an individual perspective, child maltreatment has been viewed as a problem stemming from poor parenting, parental mental health, or child medical wellness. Then, theories arose around understanding the multidimensional nature of child maltreatment, adding structural perspectives to the causes of child maltreatment. From the structural perspective, child maltreatment is seen as a result of contextual factors facing families that impede effective parenting, such as poverty resulting from limited employment opportunities. We then explain the shift from child removal to family preservation, which focuses on keeping children in the home. Finally, we explain the shift to differential response, which represents a structural approach to child maltreatment.

Child abuse as a social problem. Child abuse first came to the public's attention in 1874 with the "Mary Ellen" case, which initiated the construction of child maltreatment as a social problem. This case led to the inception of laws and brought child abuse to the attention of the public, government, and media. A "friendly visitor" noticed that Mary Ellen Wilson was being physically abused at the hands of her stepmother. As there were no child protective service organizations or institutionalized ways to handle child abuse, the incident was reported to the American Society for the Prevention of Cruelty to Animals. The outcome sparked considerable public attention, and the New York Society for the Prevention of Cruelty to Children (SPCC) was subsequently established in 1875. The SPCC became the first national child protection association. Soon to follow, other SPCCs appeared throughout the country (Nelson 1984). In 1912, President Taft created the Children's Bureau, making child protection a federal priority, establishing a government role in taking responsibility for children, whereas

previously, the family was viewed exclusively in the private sphere (Nelson 1984). The role of the government in protecting child well-being is rooted in *parens patriae*, or “parent of the nation,” giving the state the right to intervene in families to protect children. The state had previously viewed families as outside of their jurisdiction, but the Children’s Bureau established the policy of state intervention when parents were unable to fulfill their duties of protecting children from harm (U.S. Department of Health and Human Services 2010).

The rise of a human service system. The early implementation of child protection took a law enforcement perspective, but between 1920 and 1950, a shift occurred toward rehabilitation. Child protection became part of the human service delivery system for vulnerable families, moving away from the regulatory and policing system. In 1935, the Social Security Act became the first federal legislation on child welfare, establishing state agencies for child protection. The Act authorized the Aid to Dependent Children (ADC) program, designed to help poor, single mothers keep children at home by providing material support (Schene 1998). This shift to a rehabilitative approach was embedded within the larger sociological, political, and cultural shifts of the time, which led to the establishment of human service systems, reflected in the changing landscape of government intervention as a result of the New Deal. However, with the World Wars, child protection received less government attention (Nelson 1984).

In the late 1950s and early 1960s, child abuse and neglect was “rediscovered” during the War on Poverty, which placed a renewed national emphasis on family well-being (Nelson 1984). It was during this time that child maltreatment was conceptualized as an individual problem at the parent level in both research and practice. Child maltreatment was attributed to parental psychological issues and understood as a relatively rare occurrence. Abusive parents were diagnosed with mental disorders, which medicalized their perpetration of child abuse and

neglect (Gelles and Maynard 1987). Between 1963 and 1967, all 50 states passed child abuse laws (Nelson 1984). In the 1960s, child abuse was understood from the individual perspective on the child level, as it was conceptualized as a medical disorder for children (Waldfoegel 1998). “Battered child syndrome” was first defined in the *Journal of the American Medical Association*, which situated child abuse and neglect in the psychological and medical fields (Gelles 1985; Gelles and Maynard 1987, Kempe, Silverman, Steele, Droegemuller, and Silver 1962). Battered child syndrome was defined as:

“A clinical condition in young children who have received serious physical abuse, is a frequent cause of permanent injury or death. The syndrome should be considered in any child exhibiting evidence of fracture of any bone, subdural hematoma, failure-to-thrive, soft tissue swellings or skin bruising, in any child who dies suddenly, or where the degree and type of injury is at variance with the history given regarding the occurrence of the trauma. Psychiatric factors are probably of prime importance in the pathogenesis of the disorder, but knowledge of these factors is limited” (Kempe et al. 1962, p. 17).

The medical field’s attention to child abuse put pressure on the federal government to authorize national legislation. In 1974, as the first national legislation focused on child abuse and neglect, the Child Abuse Prevention and Treatment Act (CAPTA) was signed by Congress. The Act provided funding to state agencies for child protection and created standards for responses to child maltreatment allegations (Schene 1998).

The inception of multidimensional theories on child abuse. In the late 1970s and early 1980s, another major shift occurred, this time toward understanding child abuse and neglect from a structural perspective. This shift resulted from the work of sociologists and developmental psychologists who examined the multidimensional nature of violence in the home. Sociologists argued that violence in the home occurred because of multiple social stressors and factors rather than individual mental wellness (Gelles and Maynard 1987). For example, from interviews with families, Gelles (1987) concluded that poor, minority families experience more violence in the

home because of the increased stress in their lives. Parents who abused their children were more likely to be socially isolated than nonabusive families as they had smaller social networks and were less likely to know their neighbors (Gelles 1987). Similarly, Urie Bronfenbrenner's work led developmentalists toward an ecological approach to child development, going beyond the individual (1974 1979). Bronfenbrenner argued that "human abilities and their realization depend in significant degree on the larger social and institutional context of individual activity" (Bronfenbrenner 1979, p. xv). According to Bronfenbrenner (1974), family research should consider multiple ecological levels, not only systems in which the child participates directly, but also systems that are in the surrounding layers of the child's environment. Understanding multidimensional barriers, this theoretical shift was also coupled with changes in child welfare practice as the community serving children shifted from medical professionals to government employed social workers to support families beyond their medical needs (Waldfoegel 1998).

The implementation of family preservation. Whereas theories on the role of child protective services existed previously, the goal of preserving families was not operationalized as a practice until the 1980s as child welfare reporting increased, but state budgets for child welfare decreased. The goal of family preservation was to serve as a preventative measure to reduce out of home placement, support permanency for children, and reunify families as quickly as possible (McCroskey 2001; Schuerman 1997).

Federal legislation around the time of the family preservation movement echoed the increasing call to keep families intact. In 1980, Congress passed the Adoption Assistance and Child Welfare Act, creating federal procedures on child welfare case management, requiring state plans for addressing child maltreatment and to make a "reasonable effort" to keep families together, although legislators did not specify a clear definition of a "reasonable effort" (Farrow

2001). The Act reduced the number of children in foster care in the early 1980s, but from 1986 to 1995 the number of children in foster care increased by 76 percent. In 1993, the Family Preservation and Family Support Service Program was authorized as part of the Omnibus Budget Reconciliation Act to address the increasing numbers of children in foster care. The Act allowed funding for community-based services to prevent child removal from the home (Murray and Gesiriech, n.d.). Evaluations of family preservation programs showed positive results; however, questions were raised on how families were targeted for family preservation, as families who were not at risk of child removal received the intervention (Schuerman 1997). Additionally, advocates and researchers became increasingly concerned that family preservation was putting child safety at risk as family preservation was blamed in a few high-profile child deaths (Ingrassia and McCormick 1994). Subsequently, the Adoption and Safe Families Act of 1997 refocused child welfare on child safety but also encouraged permanency (Murray and Gesiriech, n.d.).

The rise of differential response. The move to a differential response approach arose from dissatisfaction with Child Protective Services (CPS) investigation processes and a failure to provide services to families in a nonadversarial way. A taskforce of child welfare administrators and practitioners convened at the Harvard Executive Session on New Paradigms for Child Protection between 1994 and 1997, which was funded by the Annie E. Casey and Edna McConnell Clark Foundations (Barclay et al. 2002). The Taskforce cited key problems with the child welfare system, including the under-inclusion of families who were not reported but should be, capacity of the system to provide services to reported families, and tension within child protection between rescuing children and stabilizing families.

Also around the time of the taskforce, researchers and advocates began to note that the child protective services' dual mandate to rescue children and preserve families was not well suited to a broad, uniform treatment approach for families that experience differing risk levels (Conley 2007; Schene 1998). In particular, families experiencing lower risk were often investigated by child welfare caseworkers as a result of a report, but if the case was not formally opened, services were not offered (Conley 2007). From these concerns came the impetus for developing a differential response track that focused on the state and community sharing responsibility for families, giving caseworkers the ability to assess families at different risk levels to match appropriate services. By implementing differential response for lower-risk families, child abuse and neglect investigations can focus on the most severe cases (Conley 2007; Waldfogel 1998). Thus, the shift to differential response represents a movement in the field of understanding the importance of engaging lower-risk families, the role that informal social supports can play in stabilizing family life, and "recognizing the enormous challenges many families face in sustaining healthy lives" (Schene 2005, p. 6).

An Overview of Differential Response

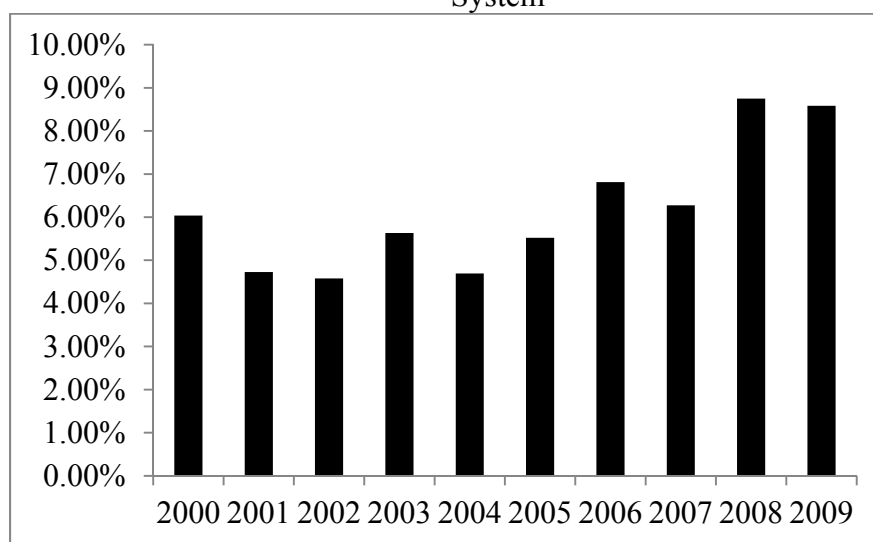
Differential response implementation differs across the country, but there is consensus on the core elements of differential response, which include the following:

- “(a) The use of two or more discrete responses of intervention;
- (b) The creation of multiple responses for reports of maltreatment that are screened in and accepted for response;
- (c) The determination of the response assignment by the presence of imminent danger, level of risk, number of previous reports, the source of the report, and or presenting case characteristics;
- (d) The ability to change original response assignments (either decreased or elevated) based on additional information gathered during the investigation or assessment phase;
- (e) The establishment of multiple responses is codified in statute, policy, and or protocols;
- (f) The ability of families who receive a non-investigatory response to accept or refuse

- the offered services after an assessment without consequences (i.e., services are voluntary);
- (g) The perpetrators and victims are not identified when alleged reports of maltreatment receive a non-investigation assessment response, and services are offered without a formal determination of child maltreatment (i.e. substantiation);
 - (h) The differential use of the central registry, depending on the type of response. The name of the alleged perpetrator is not entered into the central registry for individuals who are served through a non-investigation assessment response pathway” (Merkel-Holguin, Kaplan, and Kwak 2006, p. 10).

Differential response interventions began in 1994 in Missouri and Florida (Waldfoegel 2009). Since 1994, differential response programs have increased across the United States and also internationally in Canada, Australia, and New Zealand (Conley 2007). As of 2009, 18 states had implemented differential response programs (National Quality Improvement Center on Differential Response in Child Protection 2009a). Figure 10 shows the increase from 2000 to 2009 of the percent of child welfare reports that screened into differential response.

Figure 10. Percent of Children Subjects of a CPS Investigation or Assessment Given a Disposition of Differential Response from the National Child Abuse and Neglect Data System



Note. Differential response data were first collected by the NCANDS in 2000. Data were compiled from the Child Maltreatment Annual Reports, published from the NCANDS by the Children’s Bureau. (http://www.acf.hhs.gov/programs/cb/stats_research/index.htm).

Most states include policies that exclude the most serious cases from entering the

differential response track. These usually include a formal policy, which prevents cases that include serious physical injury or sexual abuse, serious mental injury, abandonment, or medical neglect (Kaplan and Merkel-Holguin 2008). The process for a case being referred into the differential response track differs across the country. For example, in Illinois, families were screened for the differential response track, as opposed to the child welfare investigative track, when a report of child abuse or neglect came into the Department of Children and Family Services' reporting hotline with any of the following allegations: lock out; inadequate food, shelter, or clothing; environmental neglect; mental and emotional impairment; medical neglect; or inadequate supervision. Within 6 months, lockout was removed as an allegation and substantial risk of physical injury/environment injurious to health and welfare was added.³²

Then, the family was assigned a differential response specialist and a community-based caseworker. Once the team determined that there are no immediate risks to the child by interviewing the reporter and conducting background checks, the family was visited within 24 hours of the report. The home visit included a child interview to assess the developmental level of the child, a Child Endangerment Risk Assessment Protocol (CERAP), a Home Safety Checklist, and a Drug Endangered Child Protocol. The team conducted additional assessments on five domains: child well-being, parental capabilities, family safety, family interaction, and the home environment. The community-based caseworker continued to contact the family daily, or as needed, to provide intensive strength-based support in the short-term. The caseworker helped the family identify its existing social support network, which was assessed in terms of its helpfulness, intensity, durability, accessibility, proximity, reciprocity, and size (Illinois Department of Children and Family Services 2010).

³² For this analysis, I use substantial risk of physical injury/environment injurious to health and welfare as DR, but not lockout.

As opposed to the investigative track, differential response calls for “informal and natural helpers, drawn from families and communities, to play a much more active role in child protection” (Waldfoegel 1998, p. 138). In this way, differential response provides a tailored response and intervention to families through collaboration with community-based organization partners and informal supports- in particular, neighbors and kin (Waldfoegel 1998). Caseworkers have significant discretion in offering services to the family depending on the level of risk. The extent to which services are voluntary varies across the country. Although there is no strong evidence of the effect of voluntary participation, some argue that if a family feels that they have a choice to participate, they become more engaged and build better relationships with service providers who can provide long-term support (Kaplan and Merkel-Holguin 2008). Hence, the differential response approach focuses on engaging parents as partners, assessing the needs of families, providing multiple services, and connecting families to community-based support services.

A 2009 study on differential response revealed the key services that states deliver to families (see Table XVII) (National Quality Improvement Center on Differential Response in Child Protection 2009b). Table XVII outlines that many states provide economic hardship support, substance abuse programs, family counseling, and parenting classes as part of their differential response program, and fewer states provide advocacy services, home cleaning, medical services, and dental services.

Table XVII. Differential Response Service Delivery Options Across States

Service Offerings	Number of States (N=14)
Economic Hardship Support (housing assistance, career services, and transportation)	13
Substance Abuse Programs	10
Family Counseling	10
Parenting Classes	8
Other Services (family conferencing, domestic violence counseling, mental health services, anger management)	5
Advocacy Services	5
Home Cleaning Assistance	4
Medical Services	3
Dental Services	1

Note: Citation: National Quality Improvement Center on Differential Response in Child Protection. (2009b). *Online survey of state differential response policies and practices findings report*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Administration for Children, Youth, and Families, Children's Bureau. Retrieved from <http://www.differentialresponseqic.org/assets/docs/qic-dr-findings-report-jun09.pdf>

In short, the inception of differential response could be explained as a result of a shift to using structural theory as a mechanism for understanding and addressing child maltreatment. Differential response represents movement toward a system that relies on social support and community interventions to stabilize families and keep children in their homes.

Methods

We conduct a family impact analysis of the differential response program, following procedures outlined by Bogenschneider and colleagues (2011). The family impact guiding principles for analyzing policy, programs, and services were first developed by the Consortium of Family Organizations in the 1980s and modified in 2000 by the Policy Institute for Family Impact Seminars (Bogenschneider 2006; Bogenschneider et al. 2011; Ooms 1995). The *Family Impact Checklist* provides detailed questions for each of five guiding principles, which include

family responsibility, family stability, family relationships, family diversity, and family engagement (Bogenschneider et al. 2011). We often ask about the economic or environmental impact of certain government policies, but it is similarly important to ask, “what is the impact of this policy, program, or practice for families?” (Bogenschneider et al. 2011).

A family impact analysis can involve empirical research, interviews with individuals, or a qualitative review of the available evidence. Differential response implementation is at different stages across the country, and therefore, for this analysis, we will draw on a review of the existing literature on differential response to conduct this family impact analysis in each of the guiding principles, often drawing on examples from Illinois.

Results: Family Impact Analysis

Bogenschneider and colleagues (2011) recommend first identifying what types of families are affected by the program or policy, which can include families at particular life stages, different income and education levels, different cultural or religious backgrounds, or special needs. Differential response affects many diverse families, but mostly involves families with socioeconomic disadvantages reported to child protective services. In an overview of state evaluations, Loman (2009) reported that most families who qualify for differential response cite economic circumstances as the main reason for the child protective services report. In the following sections, we conduct a family impact analysis of differential response using the general Family Impact Checklist proposed by Bogenschneider and colleagues (2011).

Principle 1: Family responsibility

- How well does the program help families build the capacity to fulfill their functions and avoid taking over family responsibilities unless absolutely necessary? How well does the program set realistic expectations for families to assume financial and or caregiving responsibilities for dependent family members depending on their family structure, resources, and life challenges?

From a family impact perspective, programs promoting family responsibility aim to support and empower families in ways that can include healthy parenting, family formation, and economic support. These supports require tackling underlying issues that may be impeding family economic success such as low literacy or unemployment (Bogenschneider et al. 2011). Coupled with the comprehensive assessment conducted by a social worker and community-based worker, differential response helps families to “build the capacity to fulfill their functions” (Bogenschneider et al. 2011), rather than treating individual problems on a short-term basis. Differential response is meant to foster family functioning and well-being, which aligns with this core family impact principle. The key to promoting family responsibility is allowing children to remain in the home so childrearing functions are not taken over by the state.

The voluntary nature of services may help participating families feel like they are helping themselves and promote longer term skills in self-sufficiency. By providing services ranging from economic support to house cleaning, differential response services are nonthreatening, where the family may be more likely to voluntarily accept services. Services are directed to promote family responsibility by tackling a wide range of barriers that impede family functioning, such as employment services to help parents provide economically for their children or relationship building to promote family formation maintenance. Little is known yet about how many families take up the voluntary services, but two pilots in California found low refusal rates (Berrick et al. 2009).

Differential response is built upon community involvement and service delivery that relies on the collaboration between child welfare agencies and community-based organizations. However, one of the biggest remaining challenges is identifying how service delivery can be improved in communities at the same time that state budgets are dwindling (Waldfogel 2009).

As a part of differential response, the responsibility of helping families is placed on the local government and community non-profit organizations, rather than the state or Federal government. But, not all local governments and community organizations have the capacity to meet the increased demand that may result from the increased demand for their services. In short, the program allows for families to take responsibility as children are left in the home, address multiple barriers to family functioning, and voluntarily opt into certain services to foster their well-being and stability.

Principle 2: Family stability

- How well does the program help families avoid problems before they become serious crises or chronic situations that erode family structure and function? How well does the program balance the safety and well-being of individuals with the rights and responsibilities of other family members and the integrity of the family as a whole?

From family impact perspective, family stability includes keeping intact parental, marital, and other familial relationships where children are involved. Promoting family stability includes helping families manage their problems before they escalate into serious crises (Bogenschneider et al. 2011). The philosophical roots of differential response are consistent with family stability, allowing for children to remain in the home. As discussed above, family stability is a clear goal of differential response as differential response programs economically stabilize families through support services and linking the families to employment and counseling programs, which may indirectly decrease changes in family structure. Not only do differential response interventions provide economic support, but workers also can refer families to other social service programs to help provide economic stability. For example, families receiving differential response in New York reported receiving more help from workers in accessing services to meet their basic needs through other public assistance programs than similar families who experienced the investigative track (Ruppel, Huan, and Haulenbeek 2011).

In addition to economically stabilizing the family, differential response helps to reduce the likelihood of future instability as, for the most part, evaluations of differential response on the state and county levels reveal that there are modest decreases in the rereporting of families from the differential response track (National Quality Improvement Center on Differential Response in Child Protection 2009a). The National Child Abuse and Neglect Data System (NCANDS) in 2005 show that 83 percent of differential response cases did not have a reoccurring report, six percent reentered into the differential response track, and 11 percent received an investigation (Ortiz, Shusterman, and Fluke 2008).

Similarly, using a nonexperimental design, Marshall, Charles, Kendrick, and Pakalniskiene (2010) compared children receiving differential response services to children placed into the traditional investigative track across Canada. There were no significant differences between groups in the rate of recidivism or the time between repeat cases. However, whereas few comprehensive studies have been completed on differential response, studies suggest that children in differential response were less likely to be removed at the end of the study than the comparison group, which suggests that services promoted family stability (Marshall et al. 2010).

In Illinois, it was found that families within the DR track had a higher rate of re-reports and substantiated re-reports than families who were randomly assigned to the investigations track – however, further review showed that this difference was highest among families who withdrew from DR services early or those who were moved to the investigation track by the DR workers. It was lower among families who completed services or who refused services after the initial in-home visit and safety assessment. Thus, as a result of the evaluation, researchers concluded that

children were just as safe in DR track as those who received investigations (Fuller, Nieto, and Zhang 2013).

Additional research is needed to understand which mechanisms, in particular, are driving the reduced rates of recidivism, whether it be certain types of services or the fact that the families screened into differential response already have certain supports in place. Overall, the goal of differential response is to stabilize families, recognizing the unique needs of families, in order to promote future family well-being.

Principle 3: Family relationships

- How well does the program recognize that individuals' development and well-being are affected by the quality of their relationships with close family members and family members' relationships with each other? How well does the program involve couples, immediate family members, and extended family when appropriate in working to resolve problems, with a focus on improving family relationships? How well does the program take steps to prevent family abuse, violence, or neglect?

From a family impact perspective, this principle focuses on how well the program helps support family members to enhance relationships and prevent violence or neglect in the home.

This principle focuses on how well a policy or program recognizes that relationships and family dynamics can shift as a result of various changing life situations (Bogenschneider et al. 2011).

The differential response program provides a safety net for families who are experiencing a crisis that led to their being reported for child abuse or neglect. Differential response programs seek to engage members with positive relationships, but also to intervene in the case of negative family relationships in order to promote family stability. Differential response aims to stabilize families not only economically but also in terms of building familial relationships through parenting workshops and family counseling (see Table XVII for more information). However, at this stage, there have not yet been studies regarding how differential response affects marriage and divorce rates.

Differential response programs promote a non-investigatory track for families, allowing caseworkers to draw on informal supports to help build family relationships, not only with supportive family members but also with neighbors. Less than ten percent of local child welfare agencies are taking the lead on providing differential response programs as they are contracting out differential response provision to community-based organizations (England, Fluke, and Ying-Ying 2003).

The role of informal supports, such as neighborhood networks, can help to reduce the social isolation of vulnerable families (Waldfogel 1998). The neighborhood context and local community where families reside are important in providing necessary supports in “their infrastructure, their capacity to provide resources, their level of safety, and their ability to instill a sense of collective identity and build social capital” (Berrick et al. 2009, p. 152). Early data from Illinois’ differential response implementation reveal that the city of Chicago has saturated areas where some neighborhoods have more than 50 eligible families per square mile (McEwen 2010). Thus, the concentration of families who qualify for differential response within the Chicago area suggests that systemic, contextual risk factors are influencing families in these areas. The irony of the focus on informal supports is that differential response cases tend to be clustered together geographically, so there may be relatively few neighborhoods with the capacity to help fully support the residents.

Additionally, studies to date have not determined how often caseworkers promote relationship building among family members, and even neighbors, to provide informal supports. A better understanding of how caseworkers are helping families to make these connections and build networks is needed. Overall, differential response has the potential to promote stable family relationships, but additional work is necessary to understand how this is occurring.

Principle 4: Family diversity

- How well does the program identify and respect the different attitudes, behaviors, and values of families from various cultural, economic, geographic, racial and ethnic, and religious backgrounds, structures, and stages of life? How well does the program ensure the accessibility and quality of programs and services for culturally, economically, geographically, racially or ethnically, and religiously diverse families?

From the family impact perspective, family diversity includes programs that acknowledge family diversity, do not discriminate based on race or ethnicity, understand economic situations, and acknowledge differences across geographic locations. Recognizing family diversity also takes into account that programs can rarely be “one size fits all,” as families have various cultural and religious beliefs that require programs to respect family differences (Bogenschneider et al. 2011). Differential response offers such a tailored approach to support the diverse needs of vulnerable families.

More work is required at this stage to understand how differential response affects families from different racial and ethnic groups, as well as service delivery for families residing in different geographic locations. It is well documented in the literature that racial and ethnic minorities and lower income populations have a disproportionate rate of child maltreatment reports (Osterling 2008). The National Quality Improvement Center on Differential Response in Child Protection (2009a) posits that information is needed on the effects of differential response across demographic differences- race or culture- of the population that is receiving the intervention. The tailored approach of differential response may be a way to reduce racial and ethnic disproportionality in the child welfare system.

In bridging the gap between differential response models and local areas, some researchers note the importance of neighborhoods in supporting families. Crain and Tonmyr (2008) argue that “it is critical to acknowledge that a weakness of some differential response systems is the assumption that community support services are available” (p. 22). As previously

discussed, differential response eligible cases in Chicago are clustered together in neighborhoods that may not have support services available. Similarly, it can be difficult to implement a differential response system in rural areas because of the lack of concentrated service delivery providers; however, there is some evidence to suggest the well-established and longstanding network ties between the child welfare agencies and community based organizations providers in rural areas could be a potential strength (Zielewski and Macomber 2008). Programs implementing differential response need to take the local area into account to assure that services are available for families, such as a public transportation infrastructure in urban areas or lack thereof in rural areas (Zielewski and Macomber 2008). Overall, differential response seeks to provide a diverse set of services, recognizing that families who come into contact with child protective services face a diverse set of needs.

Principle 5: Family engagement

- How well does the program provide full information and a range of choices to families, recognizing that the length and intensity of services may vary according to family need? How well does the program build on social supports that are essential to families' lives?

From a family impact perspective, family engagement includes encouraging partnership building between programs and the families they serve. Such programs allow families to make decisions about their potential service offerings, offer flexible service options that are easily accessible, and help build a social support network around the family (Bogenschneider et al. 2011). Because families work closely with caseworkers implementing the differential response assessment and service delivery plan, family engagement is an important part of the differential response model.

Caseworkers involve families as partners, rather than as clients, to help develop a service plan to support families and children. Families participate in case planning and in decision-making meetings (National Quality Improvement Center on Differential Response in Child

Protection 2009a). In Illinois, differential response workers were trained to facilitate meetings of “family support network teams” to help the family build a network. The team was made up of the parents, caregiver of the child (if different from the parent), service providers, as well as family-identified supportive individuals. The meeting not only built the group of people around the table as a team, but bolstered the family unit, itself, as a team with common goals (Illinois Department of Children and Family Services 2010). Differential response, as a policy, has the potential to better engage families than through traditional investigations. However, it is unclear on how caseworkers are actually implementing differential response on the ground or if this approach works well for promoting family engagement.

As a result of differential response, families and caseworkers report higher satisfaction with service delivery (National Quality Improvement Center on Differential Response in Child Protection 2009a). In Minnesota, families reported that they were more satisfied with the services provided and felt more involved. Also, Ohio reports reveal that families reported being offered more services and deemed their caseworker more helpful than families in the investigatory track (Loman 2009). In comparison to the investigative track, families in New York’s differential response track report their caseworker listened and respected them more than investigative track families. And, if the family had prior experience with child protective services, they noted a better experience when in the differential response track than prior experiences (Ruppel, Huan, and Haulenbeek 2011). The evaluation of Minnesota’s program is unique in that the state conducted an impact study with a quasi-experimental design. Because parents felt more control and involved in the process, they were more likely to access services than parents in the control group (Loman and Siegel 2005). Parents in Illinois who had received

DR reported a more positive experience and were more engaged than those in the investigations track (Fuller, Nieto, and Zhang 2013).

Strong state evaluations of differential response, using experimental designs have offered key insight into the differential response process, especially given the selection of lower risk families and voluntary participation. Overall, differential response programs have increased family satisfaction with the child welfare system, which is important for increasing family engagement in utilizing services and supports.

Discussion

The family impact lens guides researchers and practitioners in analyzing programs from a family perspective and illuminates how programs can support family well-being. Differential response programs have aspects that appeal to a bipartisan agenda, which speaks to its potential long-term viability. From the conservative agenda, differential response shifts the role of child protection from the Federal government to the local government and community-based organizations, thereby reducing the scope of the government. By offering voluntary services to families, it also promotes family responsibility and accountability. On the liberal side, differential response programs recognize that there are structural forces that account for inequality that contributes to families coming into contact with the child welfare system.

As previously outlined, differential response represents the latest shift in child welfare practice to support lower risk families experiencing a report of child maltreatment by addressing multiple barriers to family functioning. With the family impact lens, we have identified the strengths and challenges of current policy, which leads us to three main considerations and implications for differential response program development and implementation: (a) maintaining

child safety, (b) understanding voluntary service delivery, and (c) collaborating across human service silos.

Maintaining child safety

Differential response has the potential to foster family responsibility and stability, but child safety will always be a tension for this type of intervention. Children in the differential response track remain in their homes, which are potentially vulnerable environments.

Caseworkers and community partners must be able to develop trust and build a relationship with the family to ensure that child safety is a priority. Whereas leaving a child in a vulnerable home elicits safety concerns, the role of the community and the family's relationships and support networks can play a crucial role in promoting long-term child safety. An important consideration for future research is understanding the long-term impacts of helping families to build social support networks – not only with neighbors, but also to organizations where they reside. Differential response represents a shift in responsibility for families from state and Federal government to local organizations. It is as yet unclear whether this shift improves child safety.

Understanding voluntary service delivery

As previously discussed, families' participation in services is voluntary in the non-investigatory differential response track. If families refuse to participate in differential response, then the case is either closed or, in some states, consideration is made to allowing the family to move into the investigatory track. When in the investigatory track, families can be court-mandated to participate in services. However, gaps remain regarding our understanding of how workers follow-up with families to ensure participation, how often families move into investigatory track, and the length of time families receive services without the supervision of a

caseworker (Schene 2005). In Illinois, a differential response case remains open for 90 days, but families can extend services for an additional 90 days in 30-day increments. Questions remain on how well differential response engages families to voluntarily seek services and support in the long-term.

Collaborating across human service silos

Differential response requires that families are offered a wide range of services to best fit their needs, which speaks to the importance of collaboration between local and state government agencies and community-based providers. With the overall concern for child safety, differential response programs match a family's needs to appropriate services, but it is unclear how community-based differential response workers are connecting families to other human service systems, such as the Temporary Assistance for Needy Families (TANF, or welfare) program or the Supplemental Nutrition Assistance Program (SNAP, or food stamps). Program communication is critical to successful differential response implementation. As government interoperability is a priority of the Obama Administration, it is not without challenges. Obstacles remain in terms of where service providers are located in relation to the families they serve and how to co-locate staff from state and local agencies and community organizations. Fostering long-term organizational change and building communication among staff from different organizations by integrating computer systems and building networks are challenges to collaborative service delivery.

Conclusion

The review of differential response using the family impact lens illuminates the strengths of the program as well as areas for improvement. Representing the most recent shift in child welfare practice, the differential response approach aligns with sociological and ecological

theories that child maltreatment is embedded within multiple contexts and draws on the role of the local community and social support system in helping families. On paper, differential response aligns philosophically with the main family impact goals of promoting family responsibility, stability, relationships, diversity, and engagement; however, little is known yet about how well differential response achieves these goals in practice. Further illuminating the family impact of child welfare initiatives can bolster existing policy and foster the creation of new programs targeted to vulnerable families and neighborhoods. The family impact lens can serve as a continued way to analyze the stages of differential response implementation and identify key areas of future consideration.

APPENDIX C

Community Environment Scale: Latent Class Analysis³³

Unlike much of the previous work in this area that uses geographic-level indicators with factor analysis, I use parent perceptions of their neighborhood and social context to conduct a latent class analysis using an abridged version of the Community Environment Scale (CES) from the National Survey of Child and Adolescent Well-Being-II (NSCAW-II). Caregivers assessed risk and protective factors in their neighborhood, such as self-perceived crime, safety, neighborliness, and information about other families with children. The CES is theoretically grounded in the sociological literature and was designed to understand how parents and teenagers manage living in disadvantaged neighborhoods. Studies that focus on subjective measures of the neighborhood, such as asking parent's perceptions of their place of residence, are less frequent in this literature. Subjective perceptions depict aspects of the neighborhood that directly influence the family, rather than Census tract measures, such as poverty, for example. There may also be discrepancies between what an individual defines as their neighborhood and a researcher-defined boundary like a Census tract or ZIP code, and thus, individuals might have different perceptions of their neighborhoods (Coulton, Korbin, Chan, and Su 2001). While there are advantages and disadvantages for using either geographic boundaries or neighborhood perceptions, Korbin and Coulton (1997) note that "statistical analyses at the Census-tract level cannot elaborate the processes involved as neighborhood residents negotiate their living circumstances" (Korbin and Coulton 1997, p.66).

³³ A significant portion of this paper was published in the *Journal of Social Service Research*: Abner, Kristin S. 2014. "Dimensions of Structural Disadvantage: A Latent Class Analysis of a Neighborhood Measure in Child Welfare Data." *Journal of Social Service Research* 40(1): 121-134. Taylor and Francis allows authors the right to include an article in a thesis or dissertation that is not to be published commercially, provided that acknowledgment to prior publication in the journal is made explicit. For more information, please see: <http://journalauthors.tandf.co.uk/copyright/assignmentAndYourRights.asp>.

The CES was not designed with the child welfare population in mind. However, there is a need identify if there are patterns across the item distribution to determine how to stabilize and strengthen families where they live. This paper will attempt identify meaningful classes of caregiver responses to explain the distribution of neighborhood items from the abridged version of the Community Environment Scale. The next section will describe the importance for understanding neighborhood context for children and families, the background of the Community Environment Scale, and how prior child welfare studies have used the scale.

Community Environment Scale. The Community Environment Scale was adapted from the Philadelphia Family Management Study as a way to understand neighborhood context for disadvantaged families (Furstenberg 1990). The Philadelphia Management Study was designed to analyze how families with teens manage their lives in disadvantaged neighborhoods and how parents raise their children- taking into account the community in which they reside (Furstenberg 2001). As a result of this study, Furstenberg (1993) argues that neighborhoods and families have become disconnected, where parents feel an obligation to their own children and not the children of others, and that where parents reside influences how they manage their children. While parents might face challenges across all neighborhood contexts in raising children, neighborhoods with a shared collective responsibility and strong institutions give parents the best chance of promoting positive outcomes for their children (Furstenberg 1993, 2001). Thus, the CES has been used to understand neighborhood context in several large-scale studies. The *abridged* version of the CES was first used in the National Evaluation of Family Support Programs, and has since been used in the first and second iterations of the National Survey of Child and Adolescent Well-Being.

Previous Studies Using the CES. Only a handful of studies have used the Community Environment Scale from the NSCAW (i.e., Connelly et al. 2006; Dettlaff, Earner, and Phillips 2009; Grogan-Kaylor, Ruffolo, Ortega, and Clarke 2008; Liu 2011; Longoria 2005; McCarthy 2007). Most of the aforementioned studies use the total item sum score of the nine items. While a total score can give the overall high or low neighborhood context score, the total score does not give a full picture of how caregiver responses might be clustered together – for example, some caregivers might fall high on some items, but low on other items.

Only two prior studies have conducted factor analyses to identify subdimensions of the CES with the NSCAW (Liu 2011; Longoria 2005). Using a small subsample of grandparents with the general release data of the NSCAW, Longoria (2005) conducted principal components analysis to identify the best fitting model, and found two underlying factors of perceived neighborhood risk and the quality of neighborhood relations. Perceived neighborhood risk includes items relating to social order and safety: assaults and muggings, delinquent or drug gangs, drug use or dealing, unsupervised children, groups of teenagers hanging out in public places, the neighborhood as a good place to live, safety of neighborhood; and, the quality of neighborhood relations included the items: involvement of parents and neighbors that help each other. However, due to the nature of the small sample used by Longoria and the general release data (which does not include the NSCAW sampling weights), the results of Longoria (2005) should be interpreted with caution. Another study (Liu 2011) conducted principal components analysis combining data from this measure across all five waves of the NSCAW-I restricted release version, using a sample of children who had mental health scores (those over two years old), which resulted in only one dimension of the scale, and Liu subsequently summed the items together to provide a total score. Thus, the items did not form multiple factors (Liu 2011).

In sum, unlike the two previous principal components factor analyses, this study will use latent class analysis on the full sample of caregivers in the NSCAW-II. Unlike factor analysis where items are grouped together based on correlations, latent class analysis groups respondents based on similar patterns, which is ideal when considering contextual risk factors among the child welfare population. As a nationally representative sample of the child welfare investigated population, the NSCAW-II has the ability to provide the most comprehensive picture of caregiver perceptions of where they reside. By grouping the distribution of responses, patterns can be identified in the data to help understand the residential context of a national sample of child welfare involved families. This study will answer the questions: how many classes are needed to explain the distribution of neighborhood items reported by the caregiver from the abridged version of the Community Environment Scale? What are the patterns of the distribution of the identified classes among the caregivers in the NSCAW-II to understand the context in which these families reside? And, can the classes be validated by a covariate analysis?

Due to the lack of prior research in this area, this research is exploratory in nature. The CES is made of three types of items: social order: assaults and muggings; delinquent or drug gangs; drug use or dealing; neighborhood safety; social capital: unsupervised children; groups of teenagers hanging out in public places; fewer neighbors that help each other; fewer involved parents; satisfaction: the neighborhood is a good place to live. It is hypothesized that these items will “hang together” in the LCA in order to predict how respondents perceive their neighborhood. Specifically, caregivers who report higher incidence of assaults and mugging may also report high drug use. The number of latent classes needed to understand the neighborhood perceptions of parents cannot be predicted due to the lack of prior research in this area, especially with the child welfare population. It is expected that the covariate analysis will

validate that the caregivers reporting the most vulnerable family characteristics (lowest socioeconomic status, minority race-ethnicity, lowest social support) will reside in the neighborhoods with the highest perceived risk factors – that is, low social order, low social capital, and low satisfaction. This hypothesis aligns with prior work that has shown that poor, racial minorities are often segregated into neighborhoods with the highest risk factors (Massey and Denton 1993).

3. Analysis plan

Unlike previous studies, this study employed latent class analysis (LCA) using *Latent Gold* to identify how many classes were needed to categorize caregiver responses on the Community Environment Scale (CES). Latent class analysis was used to identify classes based on differences in response patterns using the items in the CES. To the author's knowledge, no study has completed a latent class analysis of the CES scale. Latent class analysis was ideal for this study to identify meaningful groups of respondents using neighborhood risk factors facing families involved with the child welfare system. Latent class analysis is considered a person-centered approach, in contrast to factor analysis, which relies on correlations among variables. In latent class analysis, constructs/classes are defined based on a set of indicators (Collins and Lanza 2010). Latent class analysis will provide the probability of being in each class for each observation (Roesch et al. 2010). Latent class analysis has been used in the social and behavioral sciences to identify patterns of child outcomes as well as protective and risk factors for vulnerable families and youth (Berzenski and Yates 2011; Nooner et al. 2010). But, such techniques are new to the field of child maltreatment, where only limited work has been completed using latent class analysis models (Roesch, Villodas, and Villodas 2010; Shin, Hong,

and Hazen 2010) and has focused on self-reported maltreatment and multiple maltreatment experiences (Berzenski and Yates 2011; Nooner et al. 2010).

4. Results

In this study, I employ latent class analysis to determine how caregivers might cluster together based on neighborhood items from the abridged version of the Community Environment Scale in the National Survey of Child and Adolescent Well-Being-II. Table XVIII outlines the items used in the Latent Class Analysis. I have grouped the items related to social order and items related to social capital.

Table XVIII. Latent Class Analysis Items

Social order items	
Please tell me if this issue is not a problem at all (1), somewhat of a problem (2), or a big problem in your neighborhood (3).	Assaults and muggings
	Gangs
	Drug use or dealing
	Unsupervised children
	Groups of teens hanging out
Social capital items	
Please think about how your neighborhood compares to most other neighborhoods: better (1), same (2), worse (3).	Neighbors that help
	Involved parents
	Better place to live
	Safe

As previously stated, in order to determine the best fitting model, I calculated a one-class solution through a ten-class solution. Since this work is exploratory, the number of classes that would emerge from the data could not be hypothesized. For each class solution (reporting one to five), Table XIX presents the Akaike information criterion (AIC) and Bayesian information criterion (BIC) for the full sample and the sample of biological caregivers.

Table XIX. Fit Indices for Latent Class Models

	Full Sample	
	BIC(LL)	AIC(LL)
1-Cluster	61,292.42	61,179.11
2-Cluster	53,009.76	52,833.5
3-Cluster	51,114.98	50,875.77
4-Cluster	50,220.29	49,918.13
5-Cluster	49,732.61	49,367.5

Note. The latent class analysis was weighted. N=4,004.

I chose the best fitting model based on a small AIC and BIC. While the four- and five-cluster model have slightly lower AIC and BIC than the three-cluster model, the three-cluster model was chosen based on model interpretability and parsimony for both samples. Based on my initial review, the one-cluster and two-cluster models did not show possible variation across the sample based on the CES items, which is why a three-cluster model was chosen for interpretability. Table XX provides the distribution of respondents in the three-cluster model. The full sample and biological caregiver samples showed similar results, and I will focus my interpretation on the full sample of caregivers.

Table XX. Distribution Across Clusters in Three Class Model

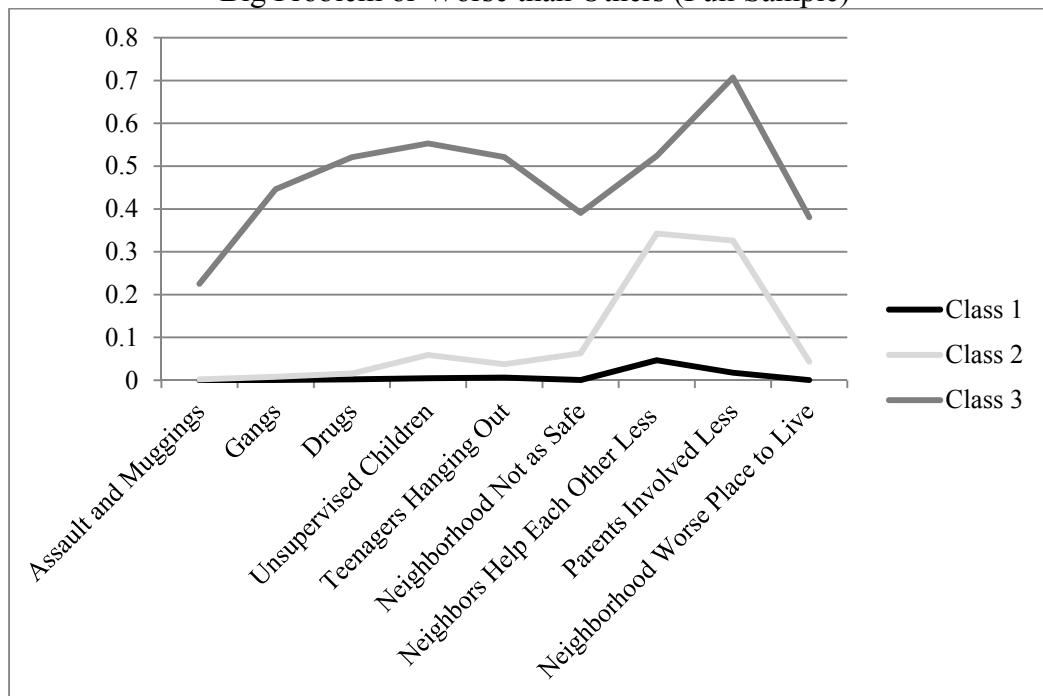
Cluster	Full Sample	
	%	N
Cluster 1: High social order, medium social capital	31.9	1,279
Cluster 2: High social order, low social capital	50.6	2,024
Cluster 3: Low social order, low social capital	17.5	701
Total	100	4,004

Note. The latent class analysis was weighted. N=4,004.

The LCA provides the probability of membership into each latent class. In order to understand the attributes of each cluster in the three-cluster model, I used the item response probabilities. I have labeled the three classes as: high social order, medium social capital (31.9% of respondents); high social order, low social capital (50.6% of respondents); and low social

order, low social capital (17.5% of respondents). Figure 11 shows the likelihood of responding more negative neighborhood attributes in the full sample within each class: worse social problems and lower social capital.

Figure 11. Item Response Probabilities by Latent Class, Likelihood to Report Neighborhood has Big Problem or Worse than Others (Full Sample)



In Class 1 (black line in Figure 11), “High Social Order, Medium Social Capital”, respondents were least likely to report that the social disorder items were a problem and least likely to report that their neighborhood was worse than most among the social capital measures. This class included 31.9% of respondents. In these neighborhoods, social order issues were not a problem, and respondents reported the most positive responses among the social capital items than respondents in class two and class three. Respondents in class one experience the most neighborhood privilege with the least crime and neighbors who are most likely to be involved and help each other.

Class two (light gray line in Figure 11), “High Social Order, Low Social Capital” included the highest number of respondents (50.6%). These respondents rated the social disorder

issues as not a problem in their neighborhood, but were more likely to rate their neighborhood as “worse than most” on the social capital items, in comparison to class 1 (“High Social Order, Medium Social Capital”). These respondents reported that their neighborhood was worse than others on social order, neighbors who help each other, parent involvement, and neighborhood satisfaction. Thus, in this class, respondents do not report much social disorder, but experience a lack of social capital.

Class three (dark gray line in Figure 11), “Low Social Order, Low Social Capital”, included respondents who rated neighborhood disorder as a big problem, and also, rated their neighborhood worse than others on the social capital items. Around 17.5% of respondents were in this class. Caregivers perceive multiple social problems that contribute to the high risk, such as drug use, gangs, and unsupervised children. For this class, parents might be afraid to go outside and converse with their neighbors, and thus, they report that parents are not as involved and neighbors do not help each other.

Thus, this exploratory research shows that simply understanding neighborhoods as “high” versus “low” risk may not fully illuminate contextual risk factors facing families investigated by the child welfare system. These results point to a cluster of families who reside in neighborhoods that might appear low risk based on social order, but have a lack of social capital, which might be an important measure for understanding family functioning and child development within the context of the child welfare investigated population (Jencks and Mayer1990).

5. Discussion

The goal of the latent class analysis was to determine how many classes were needed to explain the distribution of neighborhood items reported by the caregiver from the abridged version of the Community Environment Scale (CES) in the NSCAW-II. From this exploratory study, with the full weighted sample, using latent class analysis, three classes of respondents

were identified based on their responses to the nine CES items, including respondents in communities with high social order and medium social capital, respondents in communities with high social order and low social capital, and respondents in communities with low social order, but low social capital. Thus, these results show that classifying families based on either “high” or “low” risk across a multi-item scale may not fully capture the story for families reported to the child welfare system - especially given that a multi-item scale like the CES measures multiple dimensions of risk, including social order and social capital items.

The LCA revealed that there was a third group of respondents, who reside in places with high social order, but low social capital. Families who resided in neighborhoods that might appear lower risk based on social order, might have a lack of social capital. Social capital (such as having neighbors that help each other) might be an important factor in preventing child maltreatment. For example, a child might not be left alone if the mother had a neighbor she could call on to watch the child if she has to go to work, and thus not reported for neglect due to lack of supervision.

The LCA built on previous work to understand the patterns of item responses across the CES using latent class analysis to classify caregivers based on their neighborhood perceptions. Past studies that have used the NSCAW-II’s abridged Community Environment Scale have used factor analysis, as previously discussed. Factor analysis classifies items together based on correlations among items, and in this case, does not tell the whole story on how the items and respondents can be classified together.

And, the aforementioned analyses (Liu 2011; Longoria 2005) did not use the full sample of caregivers from the NSCAW and one of which did not use the sampling weights from the NSCAW, which are critical to generalizing to the population of investigated child welfare cases.

Longoria's study (2005), in particular, began to identify underlying dimensions of the scale – neighborhood risk and the quality of neighborhood relations. A major strength of the current study was using the full sample of caregivers from the NSCAW-II and using the sampling weights to account for differential sampling probabilities. Thus, this research was generalizable to the full population of child welfare investigated cases in the country.

APPENDIX D

Duke-UNC Functional Social Support Questionnaire: Factor Analysis

1. Background

The NSCAW-II includes an abridged version of the Duke-UNC Functional Social Support Questionnaire (DUFSSQ), which assesses the caregiver's quality of social support, including confidant support, affective support, and instrumental support. The Duke-UNC Functional Social Support Questionnaire (DUFSSQ) was developed in the field of epidemiology, designed to analyze aspects of social support with health outcomes in primary care settings. The impetus for the self-administered scale was that much of the research in epidemiology has not distinguished between structural and functional aspects of social support. In this literature, social support has been shown to have benefits for health, including health care use, diabetes, pregnancy, and mortality, to name a few (Broadhead, Gehlbach, DeGruy, and Kaplan 1988). Broadhead and colleagues (1988) argue that the quality of support is structurally different than the quantity of support, and thus, should not be combined in measures. The literature also shows that the quantity of support does not have an association to health and well-being. The desire to distinguish what measures of social support are important for positive health benefits motivated the development of the DUFSSQ.

The original DUFSSQ scale was based on a larger questionnaire (House and Kahn 1985) and a review of the literature (Broadhead et al. 1988; 1989). The scale included 11 items with a test-retest correlation of 0.66 (Broadhead et al. 1988). Factor analysis revealed that eight of the scale items load on two factors: confidant and affective social support. The three remaining items that did not load were considered distinct entities that still held importance for understanding social support in primary care settings.

The DUFSSQ has been used in a variety of studies related to health and medicine, including maternal and child health, mental health, and oncology, to name a few (Bovier, Chamot, and Perneger 2004; Brown, Harris, Woods, Buman, and Cox 2012; Bultz, Speca, Brasher, Geggie, and Page 2000). In the child welfare context, the scale has been used in large studies, including the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) and both iterations of the NSCAW.

The NSCAW scale includes a total of 11 items. However, the 11 items are not identical to the original 11 as identified by Broadhead and colleagues. The NSCAW does not include the items visits with friends and relatives or praise for a good job. However, the NSCAW does include two additional items, which are help with transportation and help taking care of children. NSCAW support staff do not have information on why the two items were switched out of the original survey for the NSCAW.

The NSCAW support staff do not have psychometric information on the NSCAW version of the scale, nor has there been any psychometric information published on this scale (this was also confirmed in Longoria 2010). Factor analysis has been completed on the Duke-UNC Functional Social Support Questionnaire in its full version, as described above, but not with the abridged version used in the NSCAW (Broadhead et al. 1988). Previous work using the NSCAW-I has typically combined the measures of social support into one measure (Martinez 2009; Martinez and Lau 2011; Simmons 2005) or separated responses by quartiles and created an overall social support scale by adding up the quartile scores for a total score,³⁴ and three subscale scores (confidant, affective, and instrumental support) (Shin and Lee 2011). (Note: the NSCAW-I data combines the DUFSSQ with measures from the Sarason Social Support Questionnaire,

³⁴ The authors stated they wanted to compare across race-ethnicities, and thus, quartiles were used for comparison.

which asks respondents how satisfied they are with support on each item, but these items were not included in the NSCAW-II.)

Table XXI shows the original items and factor structure as identified by Broadhead and colleagues (1988) as well as the structure of Shin and Lee's subscale scores in order to test if there is evidence for the subscale structure used.

Table XXI. Duke-UNC Functional Social Support Questionnaire and Proposed Factor Structure

Factor structure from the Duke-UNC Functional Social Support Questionnaire		
Confidant Support	Affective Support	Additional Items
<ul style="list-style-type: none"> • Invitations to go out and do things with other people • People to talk about money matters • People to who give useful advice about important things • Talk to someone about personal/family issues • Talk to someone I trust about problems at work or housework 	<ul style="list-style-type: none"> • People who care about what happens to me • Love and affection • Help when I am sick in bed 	<ul style="list-style-type: none"> • Help around the house • Visits with friends and relatives* • Praise for a good job*
Proposed factor structure (Shin and Lee 2011)		
Confidant Support	Affective Support	Instrumental Support
<ul style="list-style-type: none"> • Invitations to go out and do things with other people • People to talk about money matters • People to who give useful advice about important things • Talk to someone about personal/family issues • Talk to someone I trust about problems at work or housework 	<ul style="list-style-type: none"> • People who care about what happens to me • Love and affection • Help when I am sick in bed 	<ul style="list-style-type: none"> • Help around the house • Help with transportation • Help taking care of children

Note. *Denotes that this item is not in the NSCAW-II. The NSCAW-II includes "help with transportation" which was deleted from the Duke-UNC scale. It also includes "help taking care of children" which is not included in the scale.

I predict that the following factors may arise from abridged social support measure, which is based on the factors identified from the full scale development. Also, instrumental support was

not identified in Broadhead and colleagues' factor analysis but may arise in this child welfare population since many families that are reported into the child welfare system are lacking instrumental support (Shin and Lee 2011).

- Confidant support: invitations to go out and do things with other people; people to talk about money matters; people to who give useful advice about important things; talk to someone about personal/family issues; talk to someone I trust about problems at work or housework
- Affective support: love and affection; people who care about what happens to me; help when I am sick in bed.
- Instrumental support: help when I need transportation; help around the house; help taking care of my children.

Thus, this proposed structure adds the factor of “instrumental support” to the original factors of confidant and affective identified by Broadhead and colleagues.

2. Results

I completed confirmatory factor analysis (CFA) using Stata's <confa> command (Kolenikov 2010). This command uses listwise deletion of missing data by default, although by adding the “missing” option, <confa> uses full-information maximum-likelihood in its analysis, which I employ in this analysis. (However, the goodness of fit tests are not available if all observations are taken into account). Thus, I completed the CFA with all observations included. I accounted for any item-level correlation above 0.6 in the analysis.

I used guidelines from Brown (2006) to select the optimal factor structure: (1) the Non-normed Fit Index (NNFI), also known as Tucker-Lewis index (TLI), close to or above .95, (2) the comparative fit index (CFI) close to or above .95, and (3) the root mean square error of

approximation (RMSEA) around .06 and below. The fit statistics are based on the unweighted data because they are based on the likelihood, which is not defined when using the survey weights to adjust for the NSCAW-II's complex sampling design. The structure identified by Shin and Lee fits the criteria as defined above. The NNFI/TLI is 0.99; the CFI is 0.999; and, the RMSEA is 0.03.

Additionally, there is evidence that the addition of the items to the scale load well on the “instrumental” factor. Table XXII shows the weighted factor loadings across the proposed structure. Factor loadings of over 0.6 are considered a good fit. As Table XXII shows, the factor loadings for the proposed structure fit this criteria; and, the three additional items fit well under instrumental support. The parameters are estimated freely, except for loadings used for identification, which have a coefficient estimate of one and are missing standard errors (Kolenikov 2009). The models are estimated taking the valid responses across all items into account ($N=3,159$).

Table XXII. Weighted Factor Loadings

Confidant	
Talk to someone about personal/family issues	1.00
Talk to someone I trust about problems at work or housework	1.04
Invitations to go out and do things with other people	0.79
People to talk about money matters	1.07
People to who give useful advice about important things	1.03
Affective	
Love and affection	1.00
People who care about what happens to me	1.05
Help when I am sick in bed	1.26
Instrumental	
Help when I need transportation	1.00
Help around the house	0.97
Help taking care of my children	1.03

Note. $N=3,159$

Thus, based on this confirmatory factor analysis, I will use the proposed three factor structure of confident, affective, and instrumental, which adds instrumental support to Broadhead's structure.

APPENDIX E

NSCAW Tables for Biological Caregivers

Table XXIII. Conditional Marginal Effects for Allegation Type: Propensity Score Weighted Multinomial Logistic Regression for Biological Caregivers

	Total Neighborhood Perceptions	Neighborhood Latent Classes			Total Social Support	Social Support Factors		
	High versus Low	High/Medium versus High/Low	High/Medium versus Low/Low	High/Low versus Low/Low	High versus Low	High Confidant (versus Low)	High Affective (versus Low)	High Instrumental (versus Low)
Allegation type								
Physical abuse	-0.04 ^a	0.00	-0.03	-0.05 ^a	0.00	0.01	-0.01	-0.01
Blatant neglect ¹	0.05* ^{ab}	0.01	0.06	0.00	0.03	0.03 ^a	0.05* ^a	0.04 ^a
Neglect/failure-to-provide ²	-0.01 ^b	-0.02	-0.02	0.05 ^a	-0.03	-0.03 ^a	-0.04* ^a	-0.03 ^a
Sample Size	2,786	2,279	1,614	1,875	2,645	2,645	2,645	2,645

Note. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child’s age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver’s education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child’s level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver’s relationship to the child and whether the caregiver was the child’s legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

¹Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

²Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and supervision.

* $p < 0.05$

Table XXIV. Conditional Marginal Effects for the Intervention Decision: Propensity Score Weighted Multinomial Logistic Regression for Biological Caregivers

	Total Neighborhood Perceptions	Neighborhood Latent Classes			Total Social Support	Social Support Factors		
	High versus Low	High/Medium versus High/Low	High/Medium versus Low/Low	High/Low versus Low/Low	High versus Low	High Confidant (versus Low)	High Affective (versus Low)	High Instrumental (versus Low)
Intervention decision								
Unsubstantiated, no services	-0.02 ^a	-0.01 ^a	-0.01 ^a	-0.01 ^a	-0.02 ^{ab}	-0.02 ^{ab}	-0.02 ^a	-0.02 ^{ab}
Unsubstantiated, services	0.01 ^b	0.06* ^{abc}	-0.02 ^b	-0.07 ^{bc}	-0.01 ^c	0.02 ^c	-0.02 ^b	-0.03 ^{cd}
Substantiated, no services	-0.02 ^c	-0.04 ^b	-0.02 ^c	0.02 ^d	-0.05* ^{de}	-0.06* ^{cde}	-0.04 ^{cd}	-0.03 ^{ef}
Substantiated, services	-0.02 ^d	-0.03 ^c	-0.01 ^d	0.02 ^{ce}	0.08* ^{acd}	0.06* ^{ad}	0.07* ^{abc}	0.07* ^{ace}
Substantiated, out of home care	0.05* ^{abcd}	0.01	0.07* ^{abcd}	0.04* ^{abde}	0.01 ^{be}	0.01 ^{be}	0.01 ^d	0.01 ^{bd^f}
Sample Size	2,786	2,279	1,614	1,875	2,645	2,645	2,645	2,645

Note. Holding the covariates at their means, the marginal effect is the discrete difference in probability between each outcome category. Controls included the child's age, gender, race-ethnicity, whether the child was born in the U.S., whether the family has received a prior child welfare report, whether there was another adult in the home that was responsible for the child, the caregiver's education level, employment status, marital status, the number of children in the household, whether the family resided in an urban area, family income, whether the family received TANF, WIC, food stamps, housing assistance, or disability assistance. From the caseworker, controls included who made the initial report, the child's level of harm, whether the family experienced high stress, had low social support, whether the family had a lack of basic needs, or whether the caregiver used excess discipline or had poor parenting skills. From the local director, controls included whether the agency provided voluntary services to families or short-term services after an investigation for all cases or whether the agency had a local community board. For the full sample, I also controlled for the caregiver's relationship to the child and whether the caregiver was the child's legal guardian. All models controlled for the sampling weight and stratum weight as covariates, and accounted for clustering at the PSU level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differ significantly at $p < 0.10$.

¹Blatant neglect categories included abandonment, moral/legal neglect, educational neglect, exploitation, other, low birth weight, substance exposure, domestic violence, substance abusing parents, voluntary relinquishment, and children in need of services.

²Categories for neglect/failure-to-provide included emotional neglect, physical neglect (failure-to-provide), and supervision.

* $p < 0.05$

APPENDIX F

Definitions of Differential Response Allegations

(Source: <http://www.state.il.us/dcf/dcfwebresource/allegations/>)

Allegation	Definition
Mental and Emotional Impairment (67)	Injury to the intellectual, emotional or psychological development of a child as evidenced by observable and substantial impairment in the child's ability to function within a normal range of performance and behavior, with due regard to his or her culture.
Inadequate supervision (74)	<p>The child has been placed in a situation or circumstances which are likely to require judgment or actions greater than the child's level of maturity, physical condition, and/or mental abilities would reasonably dictate. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> · leaving children alone when they are too young to care for themselves; · leaving children who have a condition that requires close supervision alone. Such conditions may include medical conditions, behavioral, mental, or emotional problems, developmental disabilities or physical disabilities; · being present but unable to supervise because of the caregiver's condition (This includes (1) the parent or caregiver who repeatedly uses drugs or alcohol to the extent that it has the effect of producing a substantial state of stupor, unconsciousness, intoxication or irrationality; and (2) the parent or caregiver who cannot adequately supervise the child because of his or her medical condition, behavioral, mental, or emotional problems, developmental disability or physical disability.); · leaving children unattended in a place which is unsafe for them when their maturity, physical condition, and mental abilities are considered; or · leaving children in the care of an inadequate or inappropriate caregiver, as indicated by the caregiver factors.
Inadequate food (76)	<p>Lack of food adequate to sustain normal functioning. It is not as severe as Malnutrition or Failure-to-thrive, both of which require a medical diagnosis. Examples include:</p> <ul style="list-style-type: none"> · the child who frequently and repeatedly misses meals or who is frequently and repeatedly fed insufficient amounts of food; · the child who frequently and repeatedly asks neighbors for food and other information substantiates that the child is not being fed; and · the child who is frequently and repeatedly fed unwholesome foods when his age, developmental stage, and physical condition are considered.
Inadequate shelter (77)	Lack of shelter which is safe and which protects the child(ren) from the elements. Examples of inadequate

	<p>shelter include, but are not limited to:</p> <ul style="list-style-type: none"> · no housing or shelter; · condemned housing; · exposed, frayed wiring; · housing with structural defects which endanger the health or safety of the child; · housing with indoor temperatures consistently below 50 degrees F; · housing with broken windows in sub-zero weather; · housing which is a fire hazard obvious to the reasonable person; and · housing with an unsafe heat source that poses a fire hazard or threat of asphyxiation.
Inadequate clothing (78)	Lack of appropriate clothing to protect the child from the elements.
Medical neglect (79)	Lack of medical or dental treatment for a health problem or condition which, if untreated, could become severe enough to constitute a serious or long-term harm to the child; lack of follow-through on a prescribed treatment plan for a condition which could become serious enough to constitute serious or long-term harm to the child if the plan goes unimplemented.
Environmental neglect (82)	The child's person, clothing, or living conditions are unsanitary to the point the child's health may be impaired. This may include infestations of rodents, spiders, insects, snakes, etc., human or animal feces, rotten or spoiled food or rotten or spoiled garbage that the child can reach.
Substantial risk of physical injury (neglect) (60)	Substantial risk of physical injury means that the parent, caregiver immediate family member, other person residing in the home, or the parent's paramour has created a REAL AND SIGNIFICANT DANGER of physical injury by placing a child in an environment which is injurious to their health and welfare. (NEGLECT)

APPENDIX G

Census Measures: Factor Analysis

1. Background

I built from the work of Coulton and colleagues (1995) and South and Crowder (1998; 1999) by using a combination of the contextual measures cited in their work. I used both of these studies to fuse a child welfare perspective (Coulton et al.) with the sociological perspective (South and Crowder). Coulton and colleagues (1995) used principal components analysis to determine three factors: 1) impoverishment including poverty, unemployment, population loss, female-headed households, vacant housing, and race³⁵; 2) child care burden, including the ratio of children to adults, male to female, and the percent elderly in the tract; and 3) instability in the neighborhood including tenure for ten years, moved in the last five years, and the percent of people who have lived in the current residence for less than a year. South and Crowder (1999) developed the Multi-Item Neighborhood Disadvantage Index, which included the following measures: the poverty rate, the percentage of families receiving public assistance, the male joblessness rate, the percentage of families without high incomes, the percentage of persons age 25 and older without a college education, and the percentage of workers who are not in managerial or professional occupations. South and Crowder (1998) also used home ownership (and specifically renters versus owners) as a measure of mobility, or lack thereof.

2. Analysis plan

I added to Coulton's model by including measures from South and Crowder's index: the percentage of families receiving public assistance, male joblessness in replace of employment, families without high incomes, individuals without a college education, and workers not in managerial or professional occupations. I appended these items to Coulton's model in order to

³⁵ Coulton uses percent black, I use percent non-white to better capture additional racial groups.

more fully understand disadvantage in this population. In addition to these measures, I also added measures of immigrants, linguistic isolation, and citizens versus non-citizens to attempt to capture information about immigrant families. The literature on immigrant families in the child welfare system was scarce, but an important area for understanding as Latinos are the fastest growing minority group and the ratio of Latino child maltreatment victims has been increasing since 2000 (Dettlaff and Johnson 2011). I did not use the CPS data in the factor analysis due to the large number of tracts without schools, but leveraged the CPS data individually in the analysis. I also did not use the crime data in the factor analysis because I only had crime data for the city of Chicago, rather than Cook County, which created a large number of missing data.

I conducted an exploratory factor analysis (EFA) with the Census measures for Cook County, using principal factor analysis. I conducted an EFA, rather than a CFA since I did not use the exact specification of the measures that Coulton and colleagues used, and I added in the measures from South and Crowder and immigration.

3. Results

I used the eigenvalues and a screeplot to find the ideal number of factors. When including the Census measures, the analysis yielded five factors. However, unlike Coulton and colleagues, the measures under “child care burden” did not load together. The percent elderly population and male-to-female ratio loaded in factors by themselves and the child-to-adult ratio loaded with the impoverishment measures. Thus, I removed these three variables from the factor analysis, and reran the EFA, which yielded the following three factors that made conceptual sense, with eigenvalues over one:

- Impoverishment
 - Poverty
 - Male joblessness
 - Families receiving welfare
 - Families without high incomes

- Individuals without college education
- Workers not in managerial/professional occupations
- Single headed female households
- Nonwhite
- Residential Stability
 - Percent of renters occupied housing units
 - Population loss (geographic mobility)
 - Tenure less than 10 years
 - Lived in current house less than 1 year
 - Vacant housing units
- Immigrant Population
 - Immigrants (naturalized and non-citizens added together)
 - Percent of people in family where no one speaks English (linguistic isolation)
 - Percent of non-citizens

APPENDIX H

Supplemental Illinois DCFS Tables

Table XXV. Descriptive Statistics for Binary Contextual Measures

Variable	%
Contextual measures ¹	
Census factors (<i>N</i> =88,140 families)	
Impoverishment	
Low	49.65
High	50.35
Residential stability	
Low	50.01
High	49.99
Immigrant populations	
Low	50.69
High	49.31
Crime (<i>N</i> =59,703)	
Proportion of crime	
Low	50.90
High	49.10
Schools (<i>N</i> =31,016)	
School ISAT score	
Low	50.47
High	49.53
CCAHS social observation (<i>N</i> =53,179 families)	
Residential security	
Low	50.29
High	49.71
Risk behavior	
Low	49.05
High	50.95
Physical condition	
Low	49.83
High	50.17
Litter/graffiti	
Low	49.83
High	50.17
Disorder	
Low	49.93
High	50.07
Commercial security	
Low	50.40
High	49.60
Alcohol/tobacco advertising	

Low	49.88
High	50.12
Community survey items (<i>N</i> =52,059 families)	
Anomie	
Low	47.62
High	52.38
Cohesion	
Low	50.54
High	49.46
Control	
Low	50.10
High	49.90
Intergenerational closure	
Low	51.83
High	48.17
Reciprocal exchange	
Low	50.37
High	49.63
Friend/Kin networks	
Low	50.03
High	49.97
Perceived disorder	
Low	50.74
High	49.26
Perceived violence	
Low	50.16
High	49.84
Tolerance of deviance	
Low	50.50
High	49.50
Organizational participation	
Low	50.13
High	49.87
Victimization	
Low	50.44
High	49.56
Social cohesion	
Low	50.55
High	49.45

Note. ¹The continuous versions of the measures are included in Table 5-5 in the text.

Table XXVI. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Propensity Score Weighted Multinomial Logistic Regression (Conditional Marginal Effects)

	Lack of Impoverishment	High Residential Stability	Low Immigrant Population	High School ISAT Score	Low Total Crime Proportion
Allegation type					
Aspects of abuse/neglect eligible for DR ¹	0.01 ^b	0.00	0.00 ^b	0.00	0.01 ^b
Physical abuse ²	0.00 ^a	0.01 ^a	-0.02 ^{*a}	0.00	0.00 ^a
Neglect ³	-0.01 ^{*ab}	-0.00 ^a	0.01 ^{*ab}	0.00	-0.01 ^{*ab}
Investigation finding					
Aspects of abuse/neglect eligible for DR	0.01 ^b	-0.00 ^{bc}	0.00 ^b	0.00	0.01 ^b
Unsubstantiated	-0.00 ^a	0.01 ^{*ab}	-0.01 ^a	0.00	0.01 ^a
Substantiated	-0.01 ^{*ab}	-0.01 ^{*ac}	0.01 ^{*ab}	0.00	-0.02 ^{*ab}
Placement					
Placement	-0.01 ^{*a}	-0.01 ^{*a}	0.00 ^a	0.00	-0.01 ^a
No placement	0.01 ^{*a}	0.01 ^{*a}	-0.00 ^a	0.00	0.01 ^{*a}
Investigation and placement					
DR					
Aspects of abuse/neglect eligible for DR	0.01 ^{*bd}	-0.00 ^d	0.00 ^c	0.00	0.01 ^c
Not DR (physical abuse or neglect allegations)					
Unsubstantiated, no placement	-0.00 ^a	0.01 ^{*ab}	-0.01 ^{ab}	0.00	0.01 ^a
Substantiated, no placement	-0.00 ^{bc}	-0.01 ^{*ac}	0.01 ^{*a}	0.00	-0.01 ^b
Substantiated, placement	-0.01 ^{*acd}	-0.00 ^{*bcd}	0.00 ^{bc}	0.00	-0.01 ^{*abc}
Sample size (families)	88,140	88,140	88,140	31,016	59,703

(continued)

Table XXVI. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Propensity Score Weighted Multinomial Logistic Regression (Conditional Marginal Effects) (continued)

	High Residential Security	Low Risk Behavior	Better Physical Condition	Low Litter/Graffiti	Low Disorder	Low Commercial Security	Low Alcohol/Tobacco Advertising
Allegation type							
Aspects of abuse/neglect eligible for DR ¹	-0.01	0.00	0.00 ^b	0.00	-0.01	0.00	-0.01
Physical abuse ²	0.00	0.00	-0.01 ^a	0.00	0.01 ^a	0.00	0.01
Neglect ³	0.00	0.00	0.01 ^{*ab}	0.00	-0.01 ^{*a}	0.00	0.00
Investigation finding							
Aspects of abuse/neglect eligible for DR	-0.01	0.00	0.00 ^b	0.00 ^b	-0.01	0.00	-0.01
Unsubstantiated	0.00	0.00	-0.01 ^a	0.01 ^a	0.01 ^a	0.00	0.01
Substantiated	0.00	0.00	0.01 ^{*ab}	-0.01 ^{*ab}	-0.00 ^a	0.00	0.00
Placement							
Placement	-0.00 ^a	0.00	0.00	-0.00 ^{*a}	0.00	-0.00 ^a	0.00
No placement	0.00 ^a	0.00	0.00	0.00 ^{*a}	0.00	0.00 ^a	0.00
Investigation and placement							
DR							
Aspects of abuse/neglect eligible for DR	-0.00 ^c	0.00	0.00 ^b	0.01 ^{cd}	-0.01	0.00	-0.01
Not DR (physical abuse or neglect allegations)							
Unsubstantiated, no placement	0.00 ^a	0.00	-0.01 ^a	0.01 ^{ab}	0.01	0.00	0.01
Substantiated, no placement	0.00 ^b	0.00	0.01 ^{*ab}	-0.01 ^{*ac}	0.00	0.00 ^a	0.00
Substantiated, placement	-0.00 ^{abc}	0.00	0.00	-0.00 ^{*bd}	0.00	-0.00 ^a	0.00
Sample size (families)	53,179	53,179	53,179	53,179	53,179	53,179	53,179

(continued)

Note. This table includes results from 96 regression models; the outcome was run separately for each neighborhood factor of interest (24) across the 4 outcomes. The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < 0.10$. I only included significant differences with the DR outcome category since that was my area of interest.

* $p < 0.05$

¹Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect)

²Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.

³Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.

Table XXVII. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 1, Neighborhood Factor

	Lack of Impoverishment	High Residential Stability	Low Immigrant Population	High School ISAT Score	Low Total Crime Proportion
Allegation type					
Aspects of abuse/neglect eligible for DR	-0.04* ^{bc}	-0.03* ^{bc}	0.04* ^{bc}	0.00	-0.06* ^{bc}
Physical abuse	0.06* ^{ab}	0.04* ^{ab}	-0.06* ^{ab}	0.00	0.08* ^{ab}
Neglect	-0.02* ^{ac}	-0.02* ^{ac}	0.02* ^{ac}	0.00	-0.02* ^{ac}
Investigation finding					
Aspects of abuse/neglect eligible for DR	-0.04* ^b	-0.03* ^{bc}	0.04* ^b	0.00	-0.06* ^b
Unsubstantiated	0.05* ^{ab}	0.05* ^{ab}	-0.05* ^{ab}	0.00	0.08* ^{ab}
Substantiated	-0.01* ^a	-0.02* ^{ac}	0.01* ^a	0.00	-0.01* ^a
Placement					
Placement	-0.01* ^a	-0.01* ^a	0.01* ^a	0.00	-0.01* ^a
No placement	0.01* ^a	0.01* ^a	-0.01* ^a	0.00	0.01* ^a
Investigation finding with placement					
DR					
Aspects of abuse/neglect eligible for DR	-0.04* ^{bc}	-0.02* ^{bdf}	0.03* ^{bdf}	0.00	-0.06* ^{bdf}
Not DR (physical abuse or neglect allegations)					
Unsubstantiated, no placement	0.05* ^{abc}	0.05* ^{abc}	-0.05* ^{abc}	0.00	0.08* ^{abc}
Substantiated, no placement	-0.01* ^{ad}	-0.01* ^{ade}	0.00 ^{ade}	0.00	-0.01 ^{ade}
Substantiated, placement	-0.01* ^{cde}	-0.01* ^{cef}	0.01* ^{cef}	0.00	-0.01* ^{cef}
Sample size (families)	88,140	88,140	88,140	31,016	59,703

(continued)

Table XXVII. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 1, Neighborhood Factor (continued)

	High Residential Security	Low Risk Behavior	Better Physical Condition	Low Litter/Graffiti	Low Disorder	Low Commercial Security	Low Alcohol/Tobacco Advertising
Allegation type							
Aspects of abuse/neglect eligible for DR	0.00	-0.02* ^{bc}	0.01 ^{bc}	-0.01 ^b	-0.03* ^{bc}	0.03* ^b	0.00
Physical abuse	0.00	0.03* ^{ab}	-0.02* ^{ab}	0.01 ^a	0.04* ^{ab}	-0.03* ^{ab}	0.00
Neglect	0.00	-0.01* ^{ac}	0.01* ^{ac}	-0.01* ^{ab}	-0.01* ^{ac}	0.01 ^a	0.00
Investigation finding							
Aspects of abuse/neglect eligible for DR	0.00	-0.02* ^b	0.01 ^{bc}	-0.01 ^{bc}	-0.03* ^b	0.03* ^b	0.00
Unsubstantiated	0.00	0.02* ^{ab}	-0.02* ^{ab}	0.02* ^{ab}	0.04* ^{ab}	-0.03* ^{ab}	0.00
Substantiated	0.00	-0.01 ^a	0.01* ^{ac}	-0.02* ^{ac}	-0.01* ^a	0.00 ^a	0.00
Placement							
Placement	-0.00* ^a	-0.00	0.00	-0.01* ^a	-0.01* ^a	0.00	0.00
No placement	0.00* ^a	0.00	0.00	0.01* ^a	0.01* ^a	0.00	0.00
Investigation finding with placement							
DR							
Aspects of abuse/neglect eligible for DR	-0.00 ^c	-0.02* ^b	0.01 ^{bd}	-0.00 ^{bdf}	-0.02* ^{be}	0.03* ^b	0.00
Not DR (physical abuse or neglect allegations)							
Unsubstantiated, no placement	0.00 ^a	0.02* ^{abc}	-0.02* ^{abc}	0.02* ^{abc}	0.04* ^{abc}	-0.03* ^{abc}	0.00
Substantiated, no placement	0.00 ^b	-0.00 ^a	0.01* ^{ad}	-0.01* ^{ade}	-0.01* ^{ad}	0.00 ^a	0.00
Substantiated, placement	-0.00* ^{abc}	-0.00 ^c	0.00 ^c	-0.01* ^{cef}	-0.01* ^{cde}	0.00 ^c	0.00
Sample size (families)	53,179	53,179	53,179	53,179	53,179	53,179	53,179

(continued)

Note. This table includes results from 96 regression models; the outcome was run separately for each neighborhood factor of interest (24) across the 4 outcomes. The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < 0.10$. I only included significant differences with the DR outcome category since that was my area of interest.

* $p < 0.05$

¹Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect)

²Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.

³Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.

Table XXVIII. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 2, Neighborhood Factor with All Controls (minus Race)

	Lack of Impoverishment	High Residential Stability	Low Immigrant Population	High School ISAT Score	Low Total Crime Proportion
Allegation type					
Aspects of abuse/neglect eligible for DR	-0.01 ^{bc}	-0.01 ^{bc}	0.01 ^{*bc}	0.00	-0.04 ^{*bc}
Physical abuse	0.02 ^{*ab}	0.01 ^{*ab}	-0.03 ^{*ab}	0.00	0.05 ^{*ab}
Neglect	-0.01 ^{*ac}	-0.00 ^{*ac}	0.01 ^{*ac}	0.00	-0.01 ^{*ac}
Investigation finding					
Aspects of abuse/neglect eligible for DR	-0.01 ^{bc}	-0.01 ^{bc}	0.01 ^{*bc}	0.00	-0.04 ^{*b}
Unsubstantiated	0.01 ^{*ab}	0.02 ^{*ab}	-0.02 ^{*ab}	0.00	0.05 ^{*ab}
Substantiated	-0.01 ^{*ac}	-0.01 ^{*ac}	0.01 ^{*ac}	0.00	-0.01 ^{*a}
Placement					
Placement	-0.00 ^{*a}	-0.00 ^{*a}	0.01 ^{*a}	0.00	-0.00 ^{*a}
No placement	0.00 ^{*a}	0.00 ^{*a}	-0.01 ^{*a}	0.00	0.00 ^{*a}
Investigation finding with placement					
DR					
Aspects of abuse/neglect eligible for DR	-0.00 ^{bdf}	-0.01 ^{bdf}	0.01 ^{*bdf}	0.00	-0.03 ^{*be}
Not DR (physical abuse or neglect allegations)					
Unsubstantiated, no placement	0.01 ^{*abc}	0.02 ^{*abc}	-0.02 ^{*abc}	0.00	0.04 ^{*abc}
Substantiated, no placement	-0.01 ^{*ade}	-0.01 ^{*ade}	0.01 ^{*ade}	0.00	-0.01 ^{*ad}
Substantiated, placement	-0.00 ^{*cef}	-0.01 ^{*cef}	0.01 ^{*cef}	0.00	-0.01 ^{*cde}
Sample size (families)	88,140	88,140	88,140	31,016	59,703

(continued)

Table XXVIII. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 2, Neighborhood Factor with All Controls (minus Race) (continued)

	High Residential Security	Low Risk Behavior	Better Physical Condition	Low Litter/Graffiti	Low Disorder	Low Commercial Security	Low Alcohol/Tobacco Advertising
Allegation type							
Aspects of abuse/neglect eligible for DR	-0.01	-0.01	0.01 ^b	0.00	-0.01 ^{*b}	0.01 ^b	-0.00 ^a
Physical abuse	0.00	0.01 ^a	-0.01 ^a	0.00	0.02 ^{*ab}	-0.01 ^{ab}	0.00
Neglect	0.00	-0.00 ^{*a}	0.00 ^{*ab}	0.00	-0.01 ^{*a}	0.00 ^a	0.00 ^a
Investigation finding							
Aspects of abuse/neglect eligible for DR	-0.01	-0.01	0.01 ^{bc}	0.00 ^b	-0.01 ^{*b}	0.01 ^b	0.00
Unsubstantiated	0.00	0.01	-0.02 ^{*ab}	0.01 ^a	0.02 ^{*ab}	-0.01 ^{*ab}	0.00
Substantiated	0.00	0.00	0.01 ^{*ac}	-0.01 ^{*ab}	-0.01 ^{*a}	0.00 ^a	0.00
Placement							
Placement	-0.00 ^a	0.00	0.00	-0.00 ^{*a}	0.00	0.00	0.00
No placement	0.00 ^a	0.00	0.00	0.00 ^{*a}	0.00	0.00	0.00
Investigation finding with placement							
DR							
Aspects of abuse/neglect eligible for DR	-0.01	-0.01	0.01 ^{bc}	0.00 ^{ce}	-0.01 ^{*b}	0.01 ^b	0.00
Not DR (physical abuse or neglect allegations)							
Unsubstantiated, no placement	0.00 ^a	0.01	-0.02 ^{*ab}	0.01 ^{ab}	0.02 ^{*abc}	-0.01 ^{*ab}	0.00
Substantiated, no placement	0.00 ^b	0.00	0.01 ^{*ac}	-0.01 ^{*acd}	-0.00 ^a	0.00 ^a	0.00
Substantiated, placement	-0.00 ^{ab}	0.00	0.00	-0.00 ^{*bde}	-0.00 ^c	0.00	0.00
Sample size (families)	53,179	53,179	53,179	53,179	53,179	53,179	53,179

(continued)

Table XXVIII. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 2, Neighborhood Factor with All Controls (minus Race) (continued)

	Low Anomie	High Cohesion	High Control	High Intergenerational Closure	High Reciprocal Exchange	High Friend/Kin Networks	Low Perceived Disorder	Low Perceived Violence	Low Tolerance of Deviance	High Organizational Participation	Low Victimization	High Social Cohesion
Allegation type												
Aspects of abuse/neglect eligible for DR	0.00	-0.02* ^b	-0.02* ^a	0.00	0.00	0.01	-0.02* ^{bc}	-0.02* ^{bc}	-0.01	0.02* ^{bc}	-0.01* ^{ab}	-0.02* ^a
Physical abuse	0.00	0.02* ^{ab}	0.02* ^a	0.00	0.00	-0.01	0.03* ^{ab}	0.03* ^{ab}	0.01	-0.02* ^{ab}	0.02* ^a	0.02* ^{ab}
Neglect	0.00	-0.00 ^a	0.00	0.00	0.00	0.00	-0.01* ^{ac}	-0.01* ^{ac}	0.00	0.01* ^{ac}	-0.00 ^b	-0.00 ^b
Investigation finding												
Aspects of abuse/neglect eligible for DR	-0.00 ^b	-0.02* ^b	-0.02* ^{ab}	0.00	0.00	0.01	-0.02* ^b	-0.02* ^b	-0.01	0.01* ^a	-0.01* ^a	-0.02* ^b
Unsubstantiated	0.01 ^a	0.02* ^{ab}	0.02* ^{ab}	0.00	0.00	-0.01	0.02* ^{ab}	0.03* ^{ab}	0.01	-0.01* ^a	0.01* ^a	0.02* ^{ab}
Substantiated	-0.01* ^{ab}	-0.00 ^a	-0.00 ^a	0.00	0.00	0.00	-0.00 ^a	-0.01* ^a	0.00	-0.01	0.00	-0.00 ^a
Placement												
Placement	0.00	-0.00* ^a	-0.00* ^a	-0.00* ^a	0.00	0.00	-0.00* ^a	-0.00* ^a	0.00	0.00	0.00 ^a	-0.00* ^a
No placement	0.00	0.00* ^a	0.00* ^a	0.00* ^a	0.00	0.00	0.00* ^a	0.00* ^a	0.00	0.00	-0.00 ^a	0.00* ^a
Investigation finding with placement												
DR												
Aspects of abuse/neglect eligible for DR	-0.00 ^b	-0.02* ^{bc}	-0.02* ^{ad}	-0.00 ^c	0.00	0.01	-0.02* ^{bc}	-0.02* ^{bc}	-0.01	0.01* ^a	-0.01* ^{bd}	-0.02* ^{bc}
Not DR (physical abuse or neglect allegations)												
Unsubstantiated, no placement	0.01 ^a	0.02* ^{abc}	0.02* ^{ab}	0.00 ^a	0.00	-0.01	0.02* ^{abc}	0.03* ^{abc}	0.01	-0.01* ^a	0.01* ^{ab}	0.02* ^{abc}
Substantiated, no placement	-0.01* ^{ab}	-0.00 ^{ad}	-0.00 ^c	-0.00 ^b	0.00	0.00	-0.00 ^{ad}	-0.01* ^{ad}	0.00	0.00	-0.00 ^{ac}	-0.00 ^{ad}
Substantiated, placement	0.00	-0.00* ^{cde}	-0.00* ^{bcd}	-0.00* ^{abc}	0.00	0.00	-0.00* ^{cde}	-0.00* ^{cde}	0.00	0.00	0.00 ^{dc}	-0.00* ^{cde}
Sample size (families)	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059

Note. This table includes results from 96 regression models; the outcome was run separately for each neighborhood factor of interest (24) across the 4 outcomes. The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was

the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < 0.10$. I only included significant differences with the DR outcome category since that was my area of interest.

* $p < 0.05$

¹Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect)

²Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.

³Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.

Table XXIX. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 3, Neighborhood Factor with All Controls (including Family-Level Race)

	Lack of Impoverishment	High Residential Stability	Low Immigrant Population	High School ISAT Score	Low Total Crime Proportion
Allegation type					
Aspects of abuse/neglect eligible for DR	-0.01 ^{bc}	-0.01 ^{*b}	-0.00 ^b	0.00	-0.01 ^{*bc}
Physical abuse	0.02 ^{*ab}	0.01 ^{*ab}	-0.01 ^a	0.00	0.02 ^{*ab}
Neglect	-0.01 ^{*ac}	-0.00 ^a	0.01 ^{*ab}	0.00	-0.01 ^{*ac}
Investigation finding					
Aspects of abuse/neglect eligible for DR	-0.01	-0.01 ^{*bc}	-0.00 ^b	0.00	-0.01 ^{*bc}
Unsubstantiated	0.01	0.02 ^{*ab}	-0.00 ^a	0.00	0.02 ^{*ab}
Substantiated	0.00	-0.01 ^{*ac}	0.01 ^{*ab}	0.00	-0.01 ^{*ac}
Placement					
Placement	0.00	-0.00 ^{*a}	0.00 ^{*a}	0.00	0.00
No placement	0.00	0.00 ^{*a}	-0.00 ^{*a}	0.00	0.00
Investigation finding with placement					
DR					
Aspects of abuse/neglect eligible for DR	0.00	-0.01 ^{*bdf}	-0.00 ^c	0.00	-0.01 ^{*b}
Not DR (physical abuse or neglect allegations)					
Unsubstantiated, no placement	0.01 ^a	0.02 ^{*abc}	-0.00 ^a	0.00	0.02 ^{*ab}
Substantiated, no placement	-0.00 ^a	-0.01 ^{*ade}	0.00 ^b	0.00	-0.01 ^{*a}
Substantiated, placement	0.00	-0.00 ^{*cef}	0.00 ^{*abc}	0.00	0.00
Sample size (families)	88,140	88,140	88,140	31,016	59,703

(continued)

Table XXIX. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 3, Neighborhood Factor with All Controls (including Family-Level Race) (continued)

	High Residential Security	Low Risk Behavior	Better Physical Condition	Low Litter/Graffiti	Low Disorder	Low Commercial Security	Low Alcohol/Tobacco Advertising
Allegation type							
Aspects of abuse/neglect eligible for DR	-0.01	0.00	0.01 ^b	0.01	-0.01* ^a	0.00	-0.01
Physical abuse	0.00	0.00	-0.01 ^a	0.00	0.02* ^{ab}	0.01	0.01
Neglect	0.00	0.00	0.00* ^{ab}	0.00	-0.00* ^b	0.00	0.00
Investigation finding							
Aspects of abuse/neglect eligible for DR	-0.01	0.00	0.01 ^{bc}	0.00 ^b	-0.01* ^b	0.00	-0.01
Unsubstantiated	0.00	0.00	-0.01* ^{ab}	0.01 ^a	0.02* ^{ab}	0.00	0.01
Substantiated	0.00	0.00	0.01* ^{ac}	-0.01* ^{ab}	-0.00 ^a	0.00	0.00
Placement							
Placement	-0.00* ^a	0.00	0.00	-0.00* ^a	0.00	0.00	0.00
No placement	0.00* ^a	0.00	0.00	0.00* ^a	0.00	0.00	0.00
Investigation finding with placement							
DR							
Aspects of abuse/neglect eligible for DR	-0.01 ^c	0.00	0.00 ^{bc}	0.01 ^{cd}	-0.01* ^b	0.00	-0.01
Not DR (physical abuse or neglect allegations)							
Unsubstantiated, no placement	0.00 ^a	0.00	-0.01* ^{ab}	0.01 ^{ab}	0.02* ^{ab}	0.00	0.01
Substantiated, no placement	0.00 ^b	0.00	0.01* ^{ac}	-0.01* ^{ac}	-0.00 ^a	0.00	0.00
Substantiated, placement	-0.00* ^{abc}	0.00	0.00	-0.00* ^{bd}	0.00	0.00	0.00
Sample size (families)	53,179	53,179	53,179	53,179	53,179	53,179	53,179

(continued)

Table XXIX. Effects of Residing in a Lower Risk Neighborhood on Child Welfare Involvement: Multinomial Logistic Regression (Conditional Marginal Effects): Model 3, Neighborhood Factor with All Controls (including Family-Level Race) (continued)

	Low Anomie	High Cohesion	High Control	High Intergenerational Closure	High Reciprocal Exchange	High Friend/Kin Networks	Low Perceived Disorder	Low Perceived Violence	Low Tolerance of Deviance	High Organizational Participation	Low Victimization	High Social Cohesion
Allegation type												
Aspects of abuse/neglect eligible for DR	0.00	-0.01 ^a	-0.01 ^a	0.00	0.00	0.01 ^a	-0.02* ^a	-0.01 ^a	-0.01	0.00	-0.01 ^a	-0.01
Physical abuse	0.00	0.01 ^a	0.01 ^a	0.00	0.00	-0.01 ^a	0.02* ^{ab}	0.01* ^{ab}	0.01	-0.01	0.01* ^a	0.01
Neglect	0.00	0.00	0.00	0.00	0.00	0.00	-0.00* ^b	-0.00* ^b	0.00	0.00	0.00	0.00
Investigation finding												
Aspects of abuse/neglect eligible for DR	0.00 ^b	-0.01 ^a	-0.01 ^a	0.00	0.00	0.01	-0.01* ^a	-0.01 ^b	-0.01	0.00	-0.01 ^a	-0.01 ^a
Unsubstantiated	0.01 ^a	0.01* ^a	0.01* ^a	0.00	0.00	-0.01	0.02* ^a	0.02* ^{ab}	0.01	0.00	0.01* ^a	0.01* ^a
Substantiated	-0.01* ^{ab}	0.00	0.00	0.00	0.00	0.00	0.00	-0.01* ^a	0.00	0.00	0.00	0.00
Placement												
Placement	0.00	0.00	-0.00* ^a	-0.00* ^a	0.00	0.00	0.00	-0.00* ^a	0.00	0.00	0.00* ^a	-0.00* ^a
No placement	0.00	0.00	0.00* ^a	0.00* ^a	0.00	0.00	0.00	0.00* ^a	0.00	0.00	-0.00* ^a	0.00* ^a
Investigation finding with placement												
DR												
Aspects of abuse/neglect eligible for DR	0.00 ^b	-0.01 ^a	-0.01 ^{ad}	-0.00 ^c	0.00	0.01	-0.01* ^a	-0.01 ^{bd}	-0.01	0.00	-0.01 ^{bc}	-0.01 ^{ad}
Not DR (physical abuse or neglect allegations)												
Unsubstantiated, no placement	0.01 ^a	0.01* ^{ab}	0.01* ^{ab}	0.00 ^a	0.00	-0.01	0.02* ^{ab}	0.02* ^{abc}	0.01	0.00	0.01* ^{abc}	0.01* ^{ab}
Substantiated, no placement	-0.01* ^{ab}	0.00	0.00 ^c	-0.00 ^b	0.00	0.00	0.00	-0.01* ^a	0.00	0.00	-0.00 ^{ad}	-0.00 ^c
Substantiated, placement	0.00	-0.00 ^b	-0.00* ^{bcd}	-0.00* ^{abc}	0.00	0.00	-0.00 ^b	-0.00* ^{cd}	0.00	0.00	0.00* ^{cde}	-0.00* ^{bcd}
Sample size (families)	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059	52,059

Note. This table includes results from 96 regression models; the outcome was run separately for each neighborhood factor of interest (24) across the 4 outcomes. The neighborhood measures were coded as dummy variables in terms of high or low on the item. The conditional marginal effects measured the effect on the conditional mean of the outcome of a one unit change on the predictor. Holding the covariates constant at their means, the marginal effect was

the discrete difference in probability between each outcome category. Controls included the report year, the race of children in each family, the minimum and maximum child age in each family, and the type of reporter. All models accounted for clustering at the tract level.

^{a,b,c,d}Within outcome categories and the contextual variable of interest, marginal effects with the same superscript letter differed significantly at $p < 0.10$. I only included significant differences with the DR outcome category since that was my area of interest.

* $p < 0.05$

¹Mental/emotional impairment, inadequate supervision, inadequate food, inadequate shelter, inadequate clothing, medical neglect, environmental neglect, and substantial risk of physical injury (neglect)

²Death due to physical abuse, brain damage/skull fracture, subdural hematoma, internal injuries, burns/scalding, poison/noxious substances, wounds, bone fractures, substantial risk of physical injury (abuse), cuts/bruises/welts, human bites, sprains/dislocations, tying/close confinement, substance misuse/alcohol, torture.

³Death due to neglect, head injuries, internal injuries, burns, poison/noxious substances, wounds, bone fractures, cuts/bruises/welts, human bites, sprains/dislocations, substance misuse, abandonment/desertion, failure-to-thrive, malnutrition, medical neglect of disabled infants.

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