ABSTRACT

Title of Dissertation: BEHAVIORAL PROBLEMS OF CHILDREN IN L.A: EXTENDED FAMILY, NEIGHBORHOOD, AND NATIVITY

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This dissertation consists of three papers that examine the association between family living arrangements and internalizing and externalizing behavioral problems in children. With increasing immigration and growing heterogeneity in family forms, extended family members are of increasing importance in children's lives. However, knowledge about extended family living arrangements is lacking. The first paper examines the association between the presence of co-resident extended kin and children's internalizing and externalizing behaviors. Children in the sample were found to be disadvantaged in extended households, especially with regard to internalizing behaviors. This association was found mostly among married-parent extended households. Further, this pattern emerged more clearly among children of documented immigrants, compared to those with native-born parents and those whose parents were undocumented immigrants. These findings suggest a need to revisit

previous theories on extended family living arrangements. The second paper examines what kinds of household extension are associated with child behavioral problems. I specify the types of household extension by their relation to the householder—vertical, horizontal, and non-kin. Results from the cross-sectional sample indicate that horizontal extension is associated with higher internalizing behavior problems in children. However, the results from fixed effects models suggest that this pattern may be due to selection effects. Fixed effects estimations show that children moving into vertically extended household *increase* externalizing behaviors or that children moving out of a vertically extended household *decrease* externalizing behaviors. I discuss what implications this type of transition represents. The third paper examines the interaction between extended family household structure and neighborhood characteristics on children's behavioral functioning. Findings suggest that the co-residence with extended kin is associated with both higher internalizing and externalizing behaviors for children. Although the health disadvantage of living with extended kin seems to be independent of the neighborhood income and racial minority concentration levels, extended kin moderate the associations with neighborhood structure. The advantage of living in higher-income neighborhood strengthens for extended families, reducing internalizing behavioral problems in children. Minority concentrated neighborhood functions as an advantage for extended families, decreasing externalizing behavioral problems. I conclude with discussion of future research and policy implications.

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by

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Chapter 3

Introduction

Emotional and behavioral functioning is an important developmental outcome as a strong predictor of future adjustment. Child developmental researchers measure children's emotional and behavioral dysfunction with internalizing and externalizing behavioral problems. Internalizing behavior problems are defined as "an over-control of emotions" in the form of withdrawal, anxiety, and depression, feelings of worthlessness or inferiority, and dependency (Guttmannova, Szanyi, and Cali 2008:2; Oldehinkel et al. 2004; Perle et al. 2013). On the other hand, externalizing behavior problems are characterized by "an under-control of emotions" such as delinquency, difficulties with interpersonal relationships, and displays of belligerence (Guttmannova et al. 2008:1). Internalizing and externalizing behavior during middle childhood can lead to adverse consequences in later life (Bornstein, Hahn, and Haynes 2010; Eccles 1999; García Coll and Marks 2009; Huston and Ripke 2006; King, Iacono, and McGue 2004). They are associated with lower high school graduation rates (McLeod and Kaiser 2004), and greater involvement in risky behaviors such as substance use and abuse (Fanti and Henrich 2010). Internalizing behaviors are a potential cause of suicide in their adolescence and adulthood (Liu, Chen, and Lewis 2011). Therefore, it is of great importance to identify children at risk for behavioral problems early in life (Gilliom and Shaw 2004).

Since families provide the most influential contexts to children's development (Bornstein 2002), identifying how family factors are associated with children's psychological well-being is important. Previous research has focused exclusively on disadvantages of single parent families compared to married parent families.

However, this body of literature omits an important dimension of family structure: extended family household structure. With increasing immigration (Van Hook and Glick 2007) and growing heterogeneity in family forms (Bengtson 2001), family relationships with extended kin and kin-like individuals are of increasing importance in children's lives. About a quarter of children live with someone other than a parent or sibling, and children in immigrant families (in which at least one of the parents is foreign-born) are twice as likely as those in native families to have non-nuclear adults in the home (Hernandez 2004). Immigrants share their house with such individuals, not only for economic reasons but also their involvement in migration networks where newcomers rely on previous immigrants for housing and settlement (Bean and Stevens 2003; Leach 2012; Menjívar 2000). Increasing diversity of American families both in nativity and the family forms calls for understanding how extended family living arrangements affect the psychological well-being of children, particularly those with immigrant parents.

However, knowledge about extended family living arrangements is lacking. It is unclear whether extended families support child emotional development. Some researchers assume that extended family members can support child emotional development by providing additional social and economic resources (Castiglia 1999; Davidson 2007; Hofferth, Boisjoly, and Duncan 1998), while others suggest that extended families crowd out valuable resources such as time, money, and affection from children (Leach 2012; Menjívar 2000:118; Portes 1995; Vallejo 2012). This inconsistency is mainly due to different samples researchers use. The favorable findings of extended families mostly came from the research focusing on single-

parent families. On the other hand, studies reporting a deleterious role of extended families focus on immigrant families, not particularly attending to single-parent families. Therefore, it is important to consider parental marital status as well as nativity of the sample in studying the influence of extended families on children.

Parental marital status should be an essential aspect to understanding extended family arrangements. Previous researchers proposed that extended families play different roles for single-parent families versus married-parent families (Jayakody, Chatters, and Taylor 1993). However, most extended family research has focused on the impact of extended families in single parent families, without comparing those within married families. The motivation for household extension may well differ between single and married parents. Single parents are more likely to be poor and need child care support from extended members. On the other hand, two parents are less likely to be in poverty and obtain child support from their spouses rather than from extended members. Indeed, Jayakody and colleagues found that married mothers tend to receive less support from extended families than do single mothers (Jayakody et al. 1993). Thus, I need to compare the impact of extended families on children by parental marital status.

Moreover, it is less known whether the same family contexts operate differently for children in immigrant families than for children in native families. Many immigration scholars have believed the provision of support from extended families is stronger for immigrants to outweigh their unfavorable social environment (Almeida et al. 2009; Behnke et al. 2008; Fuligni 1998; Hernandez, Denton, and Macartney 2007; Landale and Oropesa 2001; Portes and Rumbaut 1996, 2001).

However, the popular notion of protective extended family arrangements for immigrants is not fully examined (Viruell-Fuentes et al. 2013). In addition, given that many recent arrivals in the U.S are positioned in lower socioeconomic status (Dohan 2003), structural constraints will hinder immigrant families from properly functioning. Moreover, such hindrance will be larger for undocumented immigrant parents (Bean, Brown, and Bachmeier 2015; Suárez-Orozco, et al. 2011; Yoshikawa 2011). Hence, it is unknown how parental immigrant status shapes the association between extended family arrangements and the development of children.

There are various types of extended family living arrangements, and their associations with child emotional development can differ. Prior research has been focused on vertical kin (grandparents) in single mother families, emphasizing their child care assistance. Horizontal kin (aunts, uncles) or non-kin have been largely excluded, despite their demographic significance, especially among immigrants (Blank and Torrecilha 1998; Glick, Bean, and Hook 1997; Hondagneu-Sotelo 1994; Landale, Thomas, and Van Hook 2011; Leach 2012; Van Hook and Glick 2007). Because of the inability to bring older parents during migration, immigrants' extended family compositions are mainly horizontal kin. How these different types of extended families play a different role in children's emotional health remains unknown (for exception, see Almeida et al. 2011; Kana'iaupuni et al. 2005). In addition, extended households are less likely to be stable, and different types of extended households have different stability patterns. For example, horizontally extended households are less stable than are vertically extended households.

Although some suggest that the instability of such arrangements leads to fewer resources available to children (Landale et al. 2011), this idea has not been tested.

Lastly, the interactional association between extended family structure and neighborhood environment should be considered. A number of studies document the importance of social neighborhood environment in studying child outcomes (Amato and Fowler 2002; Cherlin 2004; Kupersmidt et al. 1995; Roosa et al. 2009; Wickrama and Bryant 2003). However, to the best of my knowledge, there is no study that considers extended family and neighborhood structure associations with child mental health, simultaneously. Much less is known about a potential interaction between extended family and neighborhood condition. Previous researchers have mentioned possible interactions between neighborhood environments and extended family on child mental health, without testing them (Deng et al. 2006; Gonzales et al. 2011; Roosa et al. 2005). Due to this neglect, whether the influence of extended kin is due to neighborhood environments, or how extended kin moderate the neighborhood environments' influence, is yet to be understood. In this vein, it is essential to place extended families within the neighborhood context.

In the first paper, I examine the association between co-residence with extended kin and children's internalizing and externalizing behaviors for native, documented immigrant, and unauthorized immigrant families, as well as how family structures moderate the role of extended kin. The second paper examines what kinds of household extension are associated with child behavioral problems, and how the patterns relate to the stability of these living arrangements. The third paper examines

how neighborhood environments mediate the influence of living with extended family members and how extended families moderate the neighborhood effects.

Theoretical Background

The theoretical framework of this study is based on child developmental ecology (Bronfenbrenner 1986; Bronfenbrenner and Morris 2006). Bronfenbrenner's (1986) developmental ecological model highlights the contextual environments that influence children's development and the significance of person–context interactions in developmental change. To understand the mechanism of person–context interactions, I adopt the theories of social ties on health (Bengtson 2001; Cohen 2004; Gee and Rhodes 2008; Hofferth et al. 1998; Kawachi and Berkman 2001; Portes 2000; Rook 1990; Thoits 2011; Umberson, Crosnoe, and Reczek 2010).

Child Development

Children are affected not only by individuals in the immediate environment such as family members and caregivers (Amato 1994; Bradley and Corwyn 2002; Cummings and Davies 1994; Duncan and Brooks-Gunn 1997; Gershoff et al. 2007; McLanahan and Sandefur 1994; Pachter et al. 2006; Yeung, Linver, and Brooks–Gunn 2002), but also factors in broader contexts such as the neighborhood structural disadvantages, and racial/ethnic discrimination (Aneshensel and Sucoff 1996; Leventhal and Brooks-Gunn 2000, 2003, Pebley and Sastry 2003, 2006).

There are several other settings that interact with children, although the family serves the principal context for child development. Spatially, the layers of these environments are called microsystems, mesosystems, exosystems, and macrosystems.

The microsystems involve the activities and relationships experienced by children in small settings such as family, peers, school and community. The mesosystems involve the interactions between two or more systems containing the children. The processes among these settings are interdependent. For instance, when parents encourage their child to participate in community events and activities, the socialization impact of neighbors is enhanced through parental support. The exosystems refer to the interactions taking place between two or more systems with which children do not directly interact. For example, the relationships parents have with their social ties, (e.g. friends, and neighbors) and events occurring in such relationships may affect children. The macrosystems are at the broadest level, consisting of the society and culture, with particular reference to the belief systems, opportunity structures, political ideology, economics, customs, and life style. For instance, changes in political ideology and policy environment can affect children and their families through processes at the local, family, and individual level. Thus, the ecological model provides a useful framework to inform researchers to consider how child development is facilitated by the interactions between multiple contexts, such as family, parental social network, neighborhood, and even policy contexts. Finally, the chronosystem involves changes in the characteristics of children as well as of the environment in which they live. For example, changes in family structures, socioeconomic status, and place of residence can produce a variety of effects on children.

Social Ties and Health

Many studies point to the importance of social ties (e.g. friendship and kinship network) in mental health outcomes (Gee and Rhodes 2008; Kawachi and Berkman 2001). Social ties refer to connections to and contacts with other people, and there are two aspects of social ties that affect mental health (Umberson et al. 2010). On one hand, social support enhances psychological well-being (Taylor and Repetti 1997). Social support involves emotional, informational, and instrumental assistance (Hofferth et al. 1998; Thoits 2011). Emotional support refers to affective interactions, esteem and value, encouragement, and sympathy. Informational assistance involves the provision of facts or experienced advice for resolving problems. This type of support can be "appraisal support—feedback about the person's interpretation of a situation and guidance regarding possible courses of action" (Cohen and McKay 1984; Thoits 2011:146). Instrumental support includes offering behavioral assistance (e.g. helping chores or fixing meals) or tangible assistance by material resources that can be used to purchase goods and services in a given situation (Hofferth 1998). On the other hand, stress coming from relationships that can be tense, conflicted, or overly demanding (Gee and Rhodes 2008; Rook 1990) contributes to psychological distress. Strain and life disruptions, the negative aspects of social ties, will work against the favorable function of social support.

Access to the functions of support is determined by the number, type and levels of a person's social ties (Thoits 2011). And these aspects of social ties depend on their demographic characteristics (e.g. Ertel, Glymour, and Berkman 2009; Kawachi and Berkman 2001). Research on minority families suggests structural

constraints present in minorities' social networks (Hogan, Eggebeen, and Clogg 1993; Roschelle 1997; Stack and Burton 1993). Blacks were less likely than whites to be involved in giving and receiving money and material resources, care, and household assistance between parents and adult children due to lack the financial and human capital resources. For similar reasons, the association between co-residing grandparents and cognitive stimulation was found to be negative for Black children, in contrast to the positive association for White children (Dunifon and Kowaleski-Jones 2007). The examination of kin and non-kin social support networks among African American, Chicano, Puerto Rican, and White families revealed that poverty wore down the support networks in race-ethnic communities (Roschelle 1997). Under socioeconomic difficulties, the individual and the family's ability to exchange help can suffer (Stack and Burton 1993).

Synthesis

The synthesis of these frameworks would be that children's behavioral functioning is linked to family and neighborhood environments. Social ties in family and neighborhood influence emotional and behavioral development of children, and the patterns will be shaped by their structural positions in which the social ties operate.

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Chapter 1: Extended Kin and Children's Behavioral Functioning: Family Structure and Parental Immigrant Status

Abstract

Using the Los Angeles Family and Neighborhood Survey (L.A. FANS), this paper examines the association between the presence of co-resident extended kin and children's internalizing and externalizing behaviors. The paper demonstrates the differential role of extended kin by family structure, as well as across parental immigrant status – specifically, nativity and documentation status. Children in the sample were found to be disadvantaged in extended family households, especially with regard to internalizing behaviors. This disadvantageous association was found mostly among married-parent extended family households, whereas there was no association between the presence of extended kin and behavior problems in children from single-parent families. This pattern emerged more clearly among children of documented immigrants, compared to those with native-born parents and those whose parents were unauthorized immigrants. These findings suggest a need to modify previous theories on extended family living arrangements; they also provide policy implications for immigrant families.

Background

Families provide the most influential contexts for children's development (Bornstein, 2002). Previous research has focused on the disadvantages of single-parent families compared to married-parent families (discussed below). However, little is known

about the influence of extended kin on child development. Children organize their emotions and behaviors in response to social experiences (Gross 2007), and extended family members can change the nature of relationships, as well as the amount and distribution of resources within the household (Jacobsen, Mather, & Dupuis, 2012). Thus, we need to identify how extended kin are associated with child emotional and behavioral development.

The influence of extended kin on children may be different by family structure, and across parental immigration status. In single-parent families, extended family members are more likely to provide resources to the host family, while they tend to receive support in married-parent families (Jayakody, Chatters, & Taylor, 1993). Many immigration scholars believe the provision of support from extended families is stronger for immigrants due to familism (discussed below). However, structural constraints may hinder immigrant families from properly functioning in this way (Menjívar 2000; Viruell-Fuentes, Morenoff JD, Williams DR, & House JS, 2013), partly due to asymmetric exchange relationships between the family and extended kin in migration networks (Brown, 2007; Vallejo, 2012). This hindrance may be even pronounced for unauthorized immigrants, due to their limited access to resources that require identification (Bean, Brown, & Bachmeier, 2015; Suárez-Orozco, Teranishi, Suárez-Orozco, & Yoshikawa, 2011; Yoshikawa, 2011). In other words, family structure, parental nativity and documentation status may differently affect the direction and quality of exchange relationships within extended family households, and thus these factors should be considered in understanding the role of extended kin on child development.

This paper examines the association between co-residence with extended kin and children's internalizing and externalizing behaviors for native, documented immigrant, and unauthorized immigrant families, as well as how family structures moderate the role of extended kin. I focus on internalizing and externalizing behaviors because they are more immediately responsive to social and emotional experiences in families than are other developmental outcomes, such as cognitive ability. Children with emotional and behavioral disorders are more likely to engage in risky behavior, experience relational hardship (Fanti & Henrich, 2010), and fail to graduate from high school (McLeod & Kaiser, 2004) if they do not receive adequate intervention. Internalizing and externalizing problem behaviors are often co-morbid, yet relate to different emotions and regulations (Eisenberg, Fabes, Guthrie, and Reiser 2000); thus, I examine both outcomes. By doing so, we identify the domains in which extended kin are more influential, to aid in consideration of effective interventions.

Childhood is a significant period in the life course, as individual trajectories set in this period may be retained over adolescence and beyond (García Coll and Marks 2009). To pinpoint the family's influence on children during a crucial developmental stage, we chose to study children in early and middle childhood (García Coll et al., 1996). Younger children are more susceptible to both negative and positive experiences; thus, these children stand to gain the most from interventions (Hertzman 2013).

Previous Research

Family structures are an important mechanism for understanding children's risk and resilience. It is known that single-parent families are disadvantaged in terms

of financial security and relational resources, compared to married-parent families (McLanahan and Sandefur 1994; Wen 2008). Research shows that children in single-parent families fare worse in terms of their cognitive and behavioral outcomes, relative to those in married-parent families (Barrett & Turner 2005; Carlson & Corcoran, 2001).

However, the implications for children of co-resident extended kin are less clear. On one hand, extended family members can provide additional material, human, and social capital resources (Castiglia, 1999; Hofferth, Boisjoly, & Duncan, 1998). With additional income from extended kin, parents may feel less constrained in paying for housing, energy, food, and other consumable goods; thus, they may invest more time, money and energy in caring for and monitoring their children. Emotional support, instruction, and social regulation by extended family members mitigate stress for mothers (Wilson, 1989, p. 380) and provide a sense of security for children (Castiglia 1999). Also, child care provided by extended kin can relieve mothers both financially and emotionally (Cohen, 2002; DeLeire & Kalil, 2002; Edin & Lein, 1997; Tienda & Glass, 1985), which may also benefit children. Extended kin are positively associated with child development in some studies (Dunifon & Kowaleski 2007; Foster & Kalil, 2007).

On the other hand, extended family members may require resources and increase family stress. Extended family members can be a source of stress by taking up housing space and through negative interactions with parents. If a child shares a space with other household members, s/he may have problems with interrupted sleep because of other members' different schedules, causing concentration difficulties

during the day and further behavior disorders (Solari and Mare 2012). Tension between mothers and extended family members regarding the exchange of assistance may harm children's emotional development (Choi & Marks, 2006; Cramer & McDonald, 1996; Okun & Keith, 1998; Taylor & Roberts, 1995). In addition, extended family members may not possess enough material, human, and social capital to help (Menjívar 2000), or may absorb resources that would otherwise be used for the children in a household (Leach 2012). Elderly members, who are more likely to be disabled or ill, may take valuable resources from the children, such as money, time, attention, and space. The increased caregiving burden on parents may lead to decreased interactions with children, which could affect child behavioral adjustment and psychological health. However, empirical evidence to support this idea is lacking.

Extended Family Household: Single-Parent vs. Married-Parent

A substantial number of studies on the influence of extended family do not address the potentially different implications of co-resident extended kin by family structure. Much of the literature focuses on single parents and suggests that extended family members play a positive role. With co-resident extended kin, children in single-parent families show no difference in delinquency outcomes (Dornbusch et al., 1985; Zimmerman, Salem, & Maton, 1995) or psychological well-being compared to those in married-parent families (S. G. Kellam, Ensminger, & Turner, 1977; Sheppard G. Kellam, Adams, Brown, & Ensminger, 1982). Married parents are generally less likely to live in poverty, and thus less likely to rely on kin networks for financial and

social assistance compared to single parents (Cohen, 2002; Wiemers, 2014). Thus, children with married parents may not benefit from co-residing extended family members as much as do children with single parents.

Extended Family Living Arrangements across Immigrant Groups

Parental immigrant status determines structural resources and behavioral characteristics (Glick & White, 2004). Foreign-born parents, including unauthorized immigrants (Passel and Taylor 2010), are more likely to be married (Landale et al., 2011), and are more likely than native families to have extended relatives in the household due to material hardship, including limited access to housing (Hernandez, 2004; Yoshikawa 2011). Immigrant families are also overrepresented among the poor, and tend to live in crowded housing (Hernandez, 2004). Undocumented immigrants have even less schooling, lower incomes, and fewer financial holdings than documented immigrants, limiting their ability to attain desirable housing (Hall & Greenman 2013).

Given that opportunities and resources differ by immigration status, the implications of extended kin may also differ across immigration groups. On one hand, some propose that extended kin in immigrant families provide children with greater health advantages, due to familism (Almeida, Molnar, Kawachi, & Subramanian, 2009; Behnke et al., 2008; Harrison, Wilson, Pine, Chan, & Buriel, 1990; Heard, 2007; Marsiglia, Parsai, & Kulis, 2009; Uttal, 1999). Familism can be defined as a sense of duty, respect, solidarity, and interdependence towards an individual's family (Cardoso & Thomson, 2010; Updegraff, McHale, Whiteman, Thayer, & Delgado,

2005). The extent to which such values are emphasized varies for different cultural and social groups (Fuligni & Pedersen, 2002). Because individuals who endorse familistic values tend to cooperate with family members (Behnke et al. 2008), immigrants are expected to receive greater benefits from their extended kin. It has been proposed that such supportive exchanges among extended kin give children of immigrants a health advantage (Heard, 2007; Zeiders et al., 2011).

On the other hand, the structural disadvantages facing immigrants limit their family functioning. Low socioeconomic status (Hogan, Eggebeen, and Clogg 1993) and low levels of human capital (Hernandez, 2004, p. 23) restrict the extent and quality of immigrant social networks. For example, Menjívar (2000) found that Salvadoran immigrants did not successfully exchange social support under conditions of extreme poverty. Indeed, racial minority immigrant parents (Turney & Kao, 2009) have smaller, less cohesive, and less diverse social networks than their US-born counterparts (Almeida, Kawachi, Molnar, & Subramanian, 2009; Viruell-Fuentes et al., 2013). In addition, research on migration networks, in which new arrivals rely on previous arrivals for housing and settlement (Vallejo 2012), may indicate that the children of more established immigrants have to share resources with newer additional members (Leach 2012).

Recent research attends to the limiting effects of undocumented status on immigrants' support networks (Viruell-Fuentes & Schulz, 2009). Yoshikawa (2011) assumes that undocumented parents would have less social support available in their social networks than documented or native parents, because extended adults in the households of undocumented parents tend to be also undocumented. Undocumented

immigrants are reluctant or unable to access resources that require identification; therefore, their children are further disadvantaged. In addition, grandparents, who provide the most significant source of child care, are less likely to co-reside or live near undocumented families (Yoshikawa 2011: 22). Hence, children of undocumented parents are expected to receive less support from extended kin compared to children of documented immigrants.

Immigration status may alter the role of extended kin in single- versus married-parent families. Considering that parental involvement in a migration network determines the direction of exchanges (Menjívar 2000; Vallejo 2012), the exchange relationship in extended families with married parents will be even more asymmetric for immigrant families, in which the nuclear family provides resources to co-resident extended kin. It is unclear, though, whether this pattern will hold for both documented and undocumented immigrant families, given the structural differences between these two groups.

Research Significance of the Current Study

The present study extends the literature in several ways. First, I focus on household structure as an important dimension of disadvantage in child development. I further identify the importance of distinguishing extended family households by family structure, testing whether the influence of extended kin differs between single-parent and married-parent families. Third, I answer important questions about immigrant families' documentation status; the Los Angeles Family and Neighborhood Survey

(L.A. FANS) provides data on respondents' documented status, which is unavailable in most surveys.

Hypotheses

This paper tests four hypotheses:

a) The co-residence of extended kin will be associated with lower child behavioral problems.

Numerous researchers have found a positive association between child development and the co-residence of extended kin. Although extended members may harm children's development by diverting resources and increasing family stress, previous empirical research has not supported this possibility.

b) The association between the co-residence of extended kin and children's behavioral problems will be conditional on parental marital status.

Compared to single-parent families, married-parent families are less likely to be poor, and thus less likely to rely on extended kin for support. For this reason, the co-residence of extended kin may not be as beneficial for married-parent families as it is for single-parent families.

c) The association between the co-residence of extended kin and children's behavioral problems will vary across immigrant groups by nativity and documentation status.

Despite the potentially stronger familism among immigrants, structural disadvantages (i.e., poverty) likely limit the extent and quality of support from extended kin. Undocumented status may further impair the support network functioning, reducing the potential benefits of extended kin support.

d) The interactional association between the co-residence with extended kin and family structure on children's problem behaviors will vary across immigrant groups by nativity and documentation status.

Immigrants are often involved in migration networks, in which extended kin rely on the nuclear family. For immigrant extended families, the differential implications of co-resident extended kin in single- versus married-parent families may be amplified. However, this asymmetric exchange relationship may not hold for undocumented immigrants, due to their weaker social position.

Data and Method

Sample

The data come from the first wave of the Los Angeles Family and Neighborhood Survey (L.A. FANS). The first wave was fielded between April 2000 and January 2002 (Peterson et al. 2007). In Los Angeles in 2000, the population was 45 percent Latino, 31 percent white, 12 percent Asian and Pacific Islander, and 10 percent black; and 36 percent of the population was foreign-born (U.S. Census Bureau 2000). The L.A. FANS sample closely corresponds to this population distribution. Racial minority immigrants start their settlement as a numerical majority in Los Angeles, and this context will provide a valuable barometer of future children of immigrants' adjustment into the U.S. (Landale et al. 2015).

The L.A. FANS procured information from 2950 households with children (age 17 or younger). Families with children and families living in poor neighborhoods were oversampled (Peterson et al. 2007), which I account for by using survey weights. In many sampled households, more than one respondent was interviewed. In

households with children, a randomly selected child (RSC) was chosen to be included. If the randomly selected child had any siblings (SIB) in the household, one of his or her siblings was also randomly selected (Peterson et al. 2007). Because some households contain more than one child, I account for clustering within households. A parent of the randomly selected child was selected as a respondent and designated as the primary caregiver; most were mothers, although fathers or grandparents could also be the primary caregiver. If the RSC's mother did not live in the household or was unable to answer questions about the child, the child's actual primary caregiver was selected as the primary caregiver respondent to provide information on the RSC and SIB. In each sampled household, one adult respondent was selected at random; this randomly selected adult and the primary caregiver respondent was the same person in some households.

The sample is limited to 1552 children and their siblings aged 3-11 in 1190 households whose primary caregiver completed an adult questionnaire, a parent questionnaire, and a primary caregiver questionnaire. About 99 percent of primary caregivers completed both a parent questionnaire and an adult questionnaire. Initially, there were 3041 children in 1911 households whose primary caregivers completed all three types of questionnaires. Among those, 1643 children were aged 3-11 (Behavior problems were assessed in children aged 3 years or older in the L.A. FANS, and primary school typically ends at age 11). One child of undocumented Asian immigrant parents was excluded because this child was distinct from the children of undocumented Latino parents who comprised the rest of the sample. Lastly, those with missing data on the measured variables were excluded (5.5 percent, n =90). The

excluded families were more likely to be immigrants, headed by single-parents, live with extended kin, have low income, have a depressed primary caregiver, and report more externalizing behaviors. (Tests using multiple imputation showed that these missing cases did not substantially change my results). The final sample includes 568 children of natives, 664 children of documented immigrants, and 320 children of undocumented immigrants.

Measures

Dependent Variable

The Behavior Problems Index was designed to assess children's behavior problems, including anxiety, depression, and aggression. This instrument has been used extensively in studies of mental health problems in children (Stevens and Volleberg 2008). Parents responded to the BPI questions using a three-point Likert scale that indicated how true each statement was of their child. The BPI consists of two subscales: internalizing and externalizing.

Internalizing behavior problems are defined as "an over-control of emotions" in the form of withdrawal, anxiety, and depression; feelings of worthlessness or inferiority; and dependency (Guttmannova, Szanyi, & Cali, 2008, p. 2). The measure consists of 11 items assessing children's feeling sad, depressed, unhappy, or exhibiting withdrawn behaviors. Items are measured on a three-point Likert scale: 1 if the statement is often true, 2 if the statement is sometimes true, and 3 if the statement is not true. A reliability test indicates a Cronbach's alpha of .73.

Externalizing behavior problems are characterized by "an under-control of emotions" in the form of delinquency, difficulties with interpersonal relationships,

and displays of belligerence (Guttmannova et al., 2008, p. 1). The measure consists of 17 items assessing children's disobedient behaviors, or trouble getting along with teachers and other children. A reliability test indicates a Cronbach's alpha of .87. Higher scores on both indices indicate greater incidence of behavior problems.

The measures of internalizing and externalizing behavior problem index scores are positively skewed. Heteroscedasticity and inflated standard errors of the estimates in regression analysis resulting from skewed variables can lead to reduced statistical power and larger confidence intervals (Berk, 1983). To reduce these problems, the behavior problem scores are logged. In order to make the descriptive statistics more interpretable, we logged them with the base of two, so that a one-unit increase in the dependent variable indicates a doubling of the behavior problem index score.

Independent Variables

The independent variable under investigation is the presence of extended kin (0= no extended kin, 1= at least one present). Extended family households are defined as households that include non-nuclear family member(s) including grandparents, parents (in-law), siblings (in-law), and grandchildren of the householder. Although 40 families (3 percent) in the sample had non-kin (e.g., friends) in their households, we do not define such households as extended family households because there are significant differences between kinship support and friendship support (Almeida, Subramanian, Kawachi, & Molnar, 2011; Xue, 2015). In addition, my preliminary analysis uncovered no confounding effects of non-kin in the association between

extended kin and the child outcomes studied; thus, I excluded the variable from the final models.

Moderators

Family Structure The family support system was measured using marital status of the primary caregiver, 0= married, 1= not married (divorced, separated, widowed, or never married). There was no statistically significant difference in child outcomes between previously married (divorced, separated, and widowed) and never-married families. Thus, I collapsed the non-married categories into one.

Primary Caregiver's immigrant status (nativity and documented status). Using questions about the primary caregiver's place of birth, we identified immigrant status. Next, their documented status was determined by a series of questions (Landale et al. 2015). First, the respondents were asked whether they were naturalized citizens. If not, they were asked whether they had a green card, or documented permanent residence. Immigrants who were neither citizens nor permanent residents were asked whether they had been granted asylum or refugee status. Finally, the respondents who did not have any of those statuses were asked whether they had a valid visa. Immigrants who were not authorized—neither naturalized citizens, permanent residents, nor documented—were coded as undocumented. The variable is categorical (0=US-born/native, 1=foreign-born/documented immigrant, 2=foreign-born/undocumented immigrant).

Children's nativity was not separately controlled. More than 90 percent of the children of documented immigrants, and more than 75 percent children of undocumented immigrants, were born in the United States (the 2nd generation).

Control variables

Primary Caregiver's depressive symptoms. A short form (CIDI-SF) questionnaire covers major depressive episodes (MD) of the primary caregivers. The CIDI-SF questions for MD reports the respondents' feeling sad, blue, or depressed for two weeks or more in the past 12 months (dysphoric); if they did, whether they had lost interest in most things like hobbies, work, or activities that usually give pleasure (anhedonic). The MD reports provide a probability between 0 and 1 that the person is suffering from major depression. Following Landale et al. (2015), I coded respondents as "depressed" if their probability of depression was greater than 0.5 and "not depressed" if the probability was less than 0.5. I controlled for this variable because of the correlation between parental report of behavioral problems and parental depression.

Primary Caregiver's race/ethnicity. Race/ethnicity of the primary caregiver was determined by self-report. The four racial or ethnic groups that were used in these analyses are white, black, Latino, and Asian.

Primary Caregiver's educational attainment. This variable is used as a dichotomous measure: 0=less than high school; 1=high school and greater. The plurality of primary caregivers in the L.A. FANS did not have a high school diploma; thus, high school completion was used as the cut-off.

Family income. The incomes from head of household, spouse/partner of head, and children were reported for the calendar year prior to the interview year. Except for family income, other variables were measured at the time of survey. The sum of that income was (natural) logged for the analysis.

Child sex and age. The variable for child's sex is dichotomous (0=female, 1=male), and age is continuous.

Descriptive Results

Table 1 presents the sample characteristics. I performed the significance tests using bivariate regression analyses (OLS or logistic) for all the variables on parent's nativity and documentation status. Compared with children of US-born parents, children of documented immigrant parents in this sample show significantly higher levels of internalizing behaviors (0.99 vs. 1.22). Relative to those of documented immigrants, children of undocumented immigrants report significantly higher internalizing behaviors (1.22 vs. 1.95). Regarding externalizing behaviors, on the other hand, children of documented immigrants have lower levels of behavioral problems than children of natives (1.96 vs. 2.27). However, when I compare the sample by documentation status of foreign-born parents, children of undocumented immigrants show significantly higher levels of externalizing behaviors (1.96 vs. 2.51).

There are significant differences in family and household structure across the immigrant status groups. Children of undocumented immigrants are the least likely to live in two-parent nuclear families, and are more likely to be with single parents than are documented immigrants (45 percent vs. 26 percent). Undocumented immigrants

are more likely to live with extended kin (36 percent) compared to those of US-born parents (22 percent) and documented immigrants (25 percent). When specifying extended family households by family structure, both documented and undocumented immigrants are more likely to live in married-parent extended family households; those who are documented are less likely to live in single-parent extended families than other groups.

The descriptive results for covariates show that children of immigrants, especially those of undocumented immigrants, are living in relatively disadvantaged conditions. Over 80 percent of children of undocumented immigrants, and about half with documented immigrant primary caregivers, have parents who did not complete high school, compared to 12 percent of their US-born counterparts. The difference in family incomes is striking. Undocumented immigrant families have only $10,829 ($=e^{9.29}$) annual income on average, which is less than one-third of the figure for native families and less than half of the figure for documented immigrants. Documented immigrant families have $23,623 ($=e^{10.07}$) annual income on average, which is about $19,400 lower than native families ($43,045, or $e^{10.67}$).

Analytical Results

Table 2 presents the results of ordinary least squares regression analyses for the full sample, and for each immigrant group: US-born, documented immigrant, and undocumented immigrant families. First, I look at the results for all groups. In Model 1, the presence of extended kin is associated with 19 percent higher (worse) internalizing behaviors [$=100*(2^{0.262}-1$], compared with those children without extended kin in the household, net of the array of covariates ($p<.01$). Similarly, the

co-residence of extended kin is associated with a higher incidence of externalizing behaviors, but the association is not statistically significant. In Model 2, the presence of extended kin negatively interacts with a single-parent family structure for both internalizing and externalizing behaviors, indicating that single-parent extended families have a lower incidence of problems than do married-parent extended families. The differences are significant at the marginal level ($p<.10$).

Table 3 presents the results for native families. For children of US-born parents, in Model 1, the presence of extended kin is associated with more internalizing behaviors among children, compared to households without extended kin, at a statistically marginal level ($p<.10$). For externalizing behaviors, extended kin are associated with greater incidence of problems among children, but the association is not statistically significant. In Model 2, for child internalizing behaviors, the presence of extended kin has almost no interactional association with single-parent families, indicating that the role of extended kin does not differ between single- and two-parent families. For children's externalizing behaviors, the presence of extended kin negatively interacts with single-parent family structure, indicating that single-parent extended families are associated with fewer problems than married-parent extended families, but the relationship is statistically not significant.

Next, I look at the results for children of documented immigrants (Table 4). In Model 1, the co-residence of extended kin is associated with about 19 percent higher (worse) internalizing behavior ($p<.05$). However, as Model 2 shows, the positive association between the presence of extended kin and child outcome mostly comes from married-parent families. Compared with those in nuclear families, children in

married-parent extended family households report 47.8 percent higher internalizing behaviors (p<.001), whereas children in single-parent extended family households show only about 13 percent higher internalizing behaviors [=100*{$2^{(0.727+0.564-1.110)}-1$}]. For externalizing behaviors, in Model 1, co-resident extended kin appear to have no significant influence on children. However, as Model 2 shows, family structure moderates the extended kin association. Compared with children in nuclear families, children in married-parent extended family households show 26 percent higher externalizing behavior, and those in single-parent extended family households show only 10 percent higher externalizing behavior [=100*{$2^{(0.313+0.520-.684)}-1$}]. The pattern is similar to the results for internalizing behaviors.

Lastly, I look at the results for children of undocumented immigrants (Table 5). In Model 1, the presence of extended kin has no statistically significant association with either internalizing or externalizing behaviors. Model 2 shows that the co-residence of extended kin has a positive interactional association with family structure for child internalizing behaviors, but the relationship is not statistically significant. For externalizing behaviors, the interaction between extended kin and family structure is negative, but the interaction term does not reach statistical significance.

In an analysis not shown, I tested whether the coefficients across three separate models are significantly different. Although the coefficient for extended kin does not differ across the immigrant groups, the interaction term does differ for internalizing behaviors. The coefficient of the interaction term between extended kin

and family structure is significantly different between documented immigrant families and native families ($p<.05$), as well as undocumented immigrant families ($p<.01$). This pattern is consistent with the result of testing three-way interactions among extended kin, family structure, and immigration status for all respondents (Appendix Table A).

In an additional set of models (Appendix Table B), I included a control for the total number of household members, which is highly correlated with the presence of extended kin, reducing by about 30 percent the coefficient of extended kin on children's internalizing behavior problems, and 50 percent on externalizing behavior problems. Nevertheless, the interaction terms between the presence of extended kin and family structure changed very little. This suggests that although the influence of co-residence with extended kin is partially attributable to crowded housing conditions, this is only the case among married-parent families.

Discussion and Conclusion

I examined how co-resident extended kin are associated with child behavior, how this association is moderated by family structure, and how the patterns vary across parental immigration and documentation status. I found that extended kin were significantly associated with higher (worse) internalizing behaviors, but the positive association was only significant among married-parent families. Research by Jayakody et al. (1993) implied that when married-couple families host extended kin, they were less likely to be receiving assistance and more likely to be providing it – which might work to the detriment of their children. Consistent with the more reciprocal relationship with extended kin in single-parent families, children in single-

parent extended family households showed no significant difference from those in nuclear families, which was also the case in previous findings (Dornbusch et al. 1985; Zimmerman, Salem, and Maton, 1995; Dunifon and Kowaleski-Jones 2007).

This pattern emerged even more strongly among children of documented immigrants, compared to those of natives and those of unauthorized immigrants. I suspect this is because more established families—such as those who are married and documented—tend to support poorer extended kin and others who are less able to provide benefits to their host families (Leach 2012; Vallejo 2012). Perhaps, the extended kin are new arrivals who are more likely to be in a position to receive support than to give it (Brown, 2007; Menjívar, 2000). One potential mediator of extended kin effects is household crowding, which could not be disentangled from family structure effects in these data; this question deserves additional attention.

While extended kin were significantly associated with higher (worse) internalizing behaviors, they were not significantly associated with externalizing behaviors. It may be that children are over-controlling their emotions and behaviors in extended families, rather than under-controlling them. Extended kin may contribute to over-controlling regulations and stimulate negative emotions (Eisenberg et al. 2000). Examples of negative stimulation could be tension between parents and extended members, increased caregiving burden for parents, or child stress from sharing money, time, attention, and space with additional family members. However, the precise mechanisms underlying these different patterns between extended kin and internalizing vs. externalizing behaviors are not clear. Identifying the different mechanisms requires further research.

Overall, these findings contrast with prior studies that have suggested extended family networks are protective for children (Dunifon & Kowaleski 2007; Foster & Kalil, 2007). This is probably due to three major differences from previous studies. First, many prior studies on extended families have focused on single-mother families (Castiglia 1999; Deleire and Kalil 2002; Dunifon & Kowaleski 2007). In this study, I attend not only to single-parent families but also to married-parent families. As our descriptive results show, children of immigrant families are more likely to live with extended kin, in the presence of married parents. Thus, incorporating this type of extended arrangement is essential, and this inclusion may explain why I found a positive association between the presence of extended kin in the household and child behavioral problems. Second, the sample consists primarily of families living in poorer Los Angeles areas. Family networks may not function as effectively under conditions of poverty (Hogan et al. 1993; Menjívar 2000). Third, the definition of extended family network is limited to co-resident extended kin in this study. Interactions beyond the household which might have been protective (such as from relatives living nearby) are thus not measured.

The results point to the need to modify extant theories on extended family support. Current theory views the extended family as a "problem-solving" system (Castiglia, 1999; Harrison, et al. 1990, p. 351; Wilson, 1989). Particularly, extended kin adults are assumed to be assets in immigrant families (Portes & Rumbaut, 2001). The theory should be revised to consider the familial and structural context of the co-residence with extended kin. The direction and quality of exchange relationships within extended family households vary by family structure and across parental

nativity and documentation status. Failure to distinguish extended families by family structure and immigration status masks important differences in the family dynamics within extended families.

The current study is not free from limitations. Information about extended family members' immigration status was unavailable. Ideally, future research should take into account how extended members' immigrant status may influence their family roles. This research will help identify whether extended family members are more burdensome than beneficial to their host family when they are newly arriving immigrants. In addition, the relatively small sample size for each sub-group, and the stratifying analyses on the sub-samples, make it difficult to be certain that the patterns are truly different across immigrant status. Future research should investigate whether the null results of the co-residence with extended kin for undocumented immigrant families can be replicated with other data. However, the L.A. FANS is one of the few representative data sources with detailed questions on the documentation status of parents.

Although my findings need to be confirmed with additional data, this research provides implications for policies. I reveal that co-residence with extended kin is significantly associated with higher internalizing behaviors among children, but the association holds only for married-parent families. Those families are more likely to live in crowded housing than are single-parent families. The results underscore the potential benefits of providing housing support, with an eye toward the demands on married-parent families who may be sharing their house with extended kin. The comparison across parental immigrant status shows that the differential implications

of co-residence with extended kin by family structure are the clearest among documented immigrant families. Although I cannot identify whether the co-resident extended kin are newly arriving immigrants, numerous researchers have documented previous arrivals offering housing to newcomers (Brown 2007; Menjívar 2000; Vallejo 2012). If the burden of helping new arrivals falls on documented immigrants, due to the lack of an integration policy for immigrants, it may be time to establish one for the sake of future citizens.

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Table 1. Weighted Descriptive Statistics of Sample by Parental Nativity and Documentation Status

	All	US-born[a]	Documented[b]	Undocumented
Internalizing BPI (log_2)	1.23	0.99	1.22 [a]	1.95 [a, b]
S.E.	*(0.04)*	*(0.07)*	*(0.07)*	*(0.08)*
Externalizing BPI (log_2)	2.18	2.27	1.96 [a, b]	2.51 [b]
	(0.05)	*(0.08)*	*(0.08)*	*(0.10)*
Child characteristics				
Child sex	0.50	0.49	0.51	0.48
(ref. girl)	*(0.02)*	*(0.03)*	*(0.03)*	*(0.04)*
Child age	7.02	7.06	7.04	6.84
	(0.09)	*(0.14)*	*(0.13)*	*(0.17)*
Primary caregiver characteristics				
US-born parents	0.44			
	(0.02)			
Immigrant	0.56			
	(0.02)			
Documented immigrant	0.41		1.00	0.00
	(0.02)			
Undocumented	0.15		0.00	1.00
	(0.01)			
White	0.22	0.42	0.09 [a]	0.00
	(0.02)	*(0.03)*	*(0.02)*	
Latino	0.56	0.28	0.70 [a]	1.00
	(0.02)	*(0.03)*	*(0.03)*	
Black	0.11	0.23	0.02 [a]	0.00
	(0.01)	*(0.03)*	*(0.01)*	
Asian	0.11	0.07	0.19 [a]	0.00
	(0.01)	*(0.02)*	*(0.02)*	*(0.01)*
Family income(ln)	10.22	10.67	10.07 [a]	9.29 [a, b]
	(0.05)	*(0.06)*	*(0.09)*	*(0.17)*
PCG depression	0.12	0.13	0.12	0.10
	(0.01)	*(0.02)*	*(0.02)*	*(0.02)*
PCG education.	0.63	0.88	0.53 [a]	0.18 [a, b]
(ref. <High)	*(0.02)*	*(0.02)*	*(0.03)*	*(0.03)*
Family household structure				
Single parenthood	0.35	0.39	0.26 [a]	0.45 [b]
	(0.02)	*(0.03)*	*(0.03)*	*(0.05)*
Extended HH	0.25	0.22	0.25	0.36 [a, b]

	(0.02)	*(0.03)*	*(0.03)*	*(0.05)*
Two parent, nuclear	0.51	0.52	0.56	0.34 [a, b]
	(0.02)	*(0.03)*	*(0.03)*	*(0.04)*
Two parent, extend	0.14	0.08	0.18 [a]	0.21 [a]
	(0.01)	*(0.02)*	*(0.02)*	*(0.04)*
Single parent, nuclear	0.24	0.26	0.19	0.29
	(0.02)	*(0.03)*	*(0.03)*	*(0.04)*
Single parent, extend	0.11	0.13	0.07 [a]	0.16 [b]
	(0.01)	*(0.02)*	*(0.01)*	*(0.03)*
Unweighted N	1552	568	664	320

Note: [a]: Significantly different from children of US-born parents. [b]: Significantly different from children of documented immigrant parents

Table 2 Results of OLS Regression on Behavioral Problems

	All			
	Internalizing BPI		Externalizing BPI	
	Model1	Model2	Model1	Model2
Child sex (ref. girl)	*.051*	*.052*	*.219**	.220*
S.E.	*(.071)*	*(.070)*	*(.088)*	*(.088)*
Child age	*-.025*†	*-.026*†	*-.053*†	-.054**
	(.014)	*(.014)*	*(.017)*	*(.017)*
Documented	.069	.045	-.352***	-.381***
(ref. US-born)	*(.107)*	*(.106)*	*(.129)*	*(.129)*
Undocumented	.584***	.554***	.054	.017
	(.132)	*(.131)*	*(.162)*	*(.163)*
Family income(ln)	*- .018*	*- .017*	*.004*	.006
	(.018)	*(.018)*	*(.028)*	*(.027)*
PCG depression	*.810****	*.811****	*.796****	.797***
	(.109)	*(.109)*	*(.111)*	*(.111)*
PCG education (ref. <High)	*-.283***	*-.272***	*- .030*	- .017
	(.100)	*(.101)*	*(.122)*	*(.122)*
Latino	*.232**	*.254**	*.228*†	.254†
	(.110)	*(.111)*	*(.137)*	*(.136)*
Black	*.132*	*.105*	*.105*	.072
	(.193)	*(.195)*	*(.233)*	*(.235)*
Asian	*.038*	*.043*	*- .169*	- .163
	(.167)	*(.164)*	*(.223)*	*(.220)*
Single parent (ref. married parent)	*.190**	*.288***	*.179*†	.298*
	(.091)	*(.110)*	*(.108)*	*(.130)*
Extended kin	*.262***	*.399****	*.173*	.338*
	(.088)	*(.112)*	*(.111)*	*(.145)*
Single-parent*Extended		*-.340*†		-.409†
		(.186)		*(.232)*
Intercept	*1.251****	*1.210****	*2.229****	2.180***
	(.262)	*(.260)*	*(.360)*	*(.358)*
R^2	.189	.192	.101	.104
Unweighted N	1552	1552	1552	1552

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Table 3. Results of OLS Regression on Behavioral Problems for Children of US-Born Parents

	US-born parents			
	Internalizing BPI		Externalizing BPI	
	Model1	Model2	Model1	Model2
Child sex (ref. girl)	.043	.042	107	.108
S.E.	*(.115)*	*(.115)*	*(.147)*	*(.147)*
Child age	-.043†	-.043†	- .043	- .043
	(.023)	*(.023)*	*(.029)*	*(.029)*
Family income(ln)	- .017	- .019	- .038	- .036
	(.054)	*(.054)*	*(.068)*	*(.068)*
PCG depression	.852***	.851***	.824***	.825***
	(.183)	*(.182)*	*(.173)*	*(.174)*
PCG education (ref. <High)	-.484*	-.490*	- .358	- .347
	(.210)	*(.214)*	*(.234)*	*(.237)*
Latino	.046	.040	- .062	- .050
	(.145)	*(.145)*	*(.171)*	*(.171)*
Black	.197	.205	.085	.068
	(.214)	*(.216)*	*(.260)*	*(.263)*
Asian	.258	.259	- .265	- .267
	(.291)	*(.293)*	*(.411)*	*(.404)*
Single parent (ref. married parent)	.004	- .027	- .016	.076
	(.161)	*(.192)*	*(.193)*	*(.234)*
Extended kin	.302†	.241	.315	.437
	(.155)	*(.243)*	*(.195)*	*(.294)*
Single-parent*Extended		.114		- .226
		(.343)		*(.423)*
Intercept	1.632*	1.660*	3.079***	3.022***
	(.672)	*(.687)*	*(.821)*	*(.838)*
R^2	.130	.131	.080	.081
Unweighted N	568	568	568	568

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Table 4. Results of OLS Regression on Behavioral Problems for Children of Documented Immigrant Parents

	Documented immigrants			
	Internalizing BPI		Internalizing BPI	
	Model1	Model1	Model1	Model1
Child sex (ref. girl)	.148	.146	.338**	.337**
S.E.	*(.102)*	*(.099)*	*(.124)*	*(.123)*
Child age	- .027	- .027	-.075***	-.076***
	(.020)	*(.019)*	*(.023)*	*(.023)*
Family income(ln)	- .025	- .022	.055†	.057†
	(.024)	*(.021)*	*(.033)*	*(.032)*
PCG depression	.834***	.836***	.839***	.840***
	(.144)	*(.135)*	*(.172)*	*(.168)*
PCG education (ref. <High)	.063	-.046	.382*	.393**
	(.137)	*(.127)*	*(.165)*	*(.160)*
Latino	.587***	.608***	.971***	.984***
	(.165)	*(.157)*	*(.223)*	*(.220)*
Black	.092	- .097	.273	.156
	(.358)	*(.363)*	*(.451)*	*(.456)*
Asian	.214	.189	.293	.277
	(.187)	*(.183)*	*(.265)*	*(.265)*
Single parent (ref. married parent)	.431**	.727***	.338*	.520**
	(.138)	*(.146)*	*(.148)*	*(.173)*
Extended kin	.262*	.564***	.127	.313
	(.132)	*(.143)*	*(.158)*	*(.195)*
Single-parent*Extended		-1.11***		-.684*
		(.269)		*(.302)*
Intercept	.880**	.768**	.590	.521
	(.303)	*(.282)*	*(.427)*	*(.422)*
R^2	.183	.219	.161	.170
Unweighted N	664	664	664	664

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Table 5. Results of OLS Regression on Behavioral Problems for Children of US-Undocumented Immigrant Parents

	Undocumented immigrants			
	Internalizing BPI		Internalizing BPI	
	Model1	Model1	Model1	Model1
Child sex (ref. girl)	- .146	- .153	.195	.205
S.E.	*(.143)*	*(.146)*	*(.177)*	*(.176)*
Child age	.015	.014	- .038	- .037
	(.028)	*(.028)*	*(.031)*	*(.031)*
Family income(ln)	- .010	-.010	-.099**	-.099**
	(.038)	*(.040)*	*(.036)*	*(.034)*
PCG depression	.427*	.428*	.493*	.491*
	(.198)	*(.192)*	*(.206)*	*(.210)*
PCG education (ref. <High)	-.352*	-.356*	- .335	- .330
	(.167)	*(.170)*	*(.229)*	*(.236)*
Latino				
Black				
Asian				
Single parent (ref. married parent)	.062	- .022	- .050	.061
	(.150)	*(.194)*	*(.204)*	*(.226)*
Extended kin	.204	.102	.090	.226
	(.155)	*(.217)*	*(.225)*	*(.278)*
Single-parent*Extended				
Intercept	1.931***	1.981***	3.596***	3.531***
	(.448)	*(.471)*	*(.417)*	*(.410)*
R^2	.062	.065	.067	.071
Unweighted N	320	320	320	320

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Chapter 2: Unequal Extended Families: Diversity, Instability, and Child Behavioral Functioning

Abstract

Using the cross-sectional and panel samples from the Los Angeles Family and Neighborhood Survey (L.A. FANS), this paper examines what kinds of household extension are associated with child behavioral problems, how children in extended family households experience structural transitions through the entrances and exits of extended members, and how the transitional patterns relate to the associations between extended family households and child behavioral problems. I specify the types of household extension by their relation to the householder: vertical, horizontal, and non-kin. Results from the cross-sectional sample indicate that horizontal extension is associated with higher internalizing behavior problems in children. However, the results from fixed effects models suggest that this pattern may be due to selection effects. Fixed effects estimations show that children who enter vertically extended households are at a higher risk of externalizing behavior problems. I discuss the implications of this type of transition and how future research should incorporate extended living arrangement patterns.

Background

Families provide the most influential contexts for child health outcomes. Family structures, living arrangements, and transitions affect the social, economic,

and psychological resources that strain or protect the health and well-being of children (Bornstein 2002). Family and child health research on family structure usually focuses on the marriage, divorce, and remarriage of parents, looking at the implications of living with single parents and the instability of such arrangements (Brown, Manning, and Stykes 2015; Carr and Springer 2010). Findings suggest that children in unmarried-parent families experience high instability in family structure, transitioning across multiple living arrangements (Aquilino 1996; Raley and Wildsmith 2004), and those children tend to fare less well on a number of child outcomes, including behavioral, emotional, and cognitive well-being (Brown 2004, 2006; Magnuson and Berger 2009).

Relying on parental marital history, however, largely ignores children's relationship with other non-nuclear adult members, whose presence may influence children's development. With increasing immigration (Van Hook and Glick 2007) and growing heterogeneity in family forms (Bengtson 2001), relationships with extended kin and kin-like individuals are of increasing importance in children's lives. About a quarter of children live with someone other than a parent or sibling, and children in immigrant families are twice as likely as those in native families to have non-nuclear adults in the home (Hernandez 2004; Landale, Thomas, and Van Hook 2011). Importantly, these extended households are more vulnerable to structural instability (Richards, White, and Tsui 1987; Van Hook and Glick 2007), through the entrance and exit of extended members (Hunter and Ensminger 1992), which can be disadvantageous to children (Rosenfeld 2015). Thus, ignoring extended households limits our understanding of the diversity and instability of American families.

The first paper demonstrated a negative association between presence of extended kin and child behavior functioning. However, I specified neither different types of extended households, nor the stability of extended households. Identifying the types of household extension is important, as different types of social ties have differential influences on the risks and resources of the family (Almeida et al. 2011; Kana'iaupuni et al. 2005). In addition, certain types of extended households are relatively less stable than others. For example, horizontally extended households are more unstable than are vertically extended households (Bethencourt and Ríos-Rull 2009; Glick and Van Hook 2011). Some suggest that the instability of such arrangements leads to fewer resources available to children (Landale et al. 2011), although this idea has not been tested.

In this research, I extended previous literature on extended living arrangements, considering both composition and transition influences on children's behavioral functioning. Two research questions guided my research: 1) what kinds of household extension are associated with child behavioral problems; and, 2) how do the different levels of stability translate into different associations with children's mental health? Using data from the Los Angeles Family and Neighborhood Survey, I accessed information on children's behavioral functioning and household composition, and traced the changes across two time points over five to six years. This research demonstrates how taking into account the composition and stability of extended households can enhance our understanding of linkages between living arrangements and child health.

Living Arrangements and Child Health

Family researchers have investigated living arrangement patterns and their implications for child well-being (Brown 2006, 2010; Carr and Springer 2010; McLanahan and Sandefur 1994). A long stream of research has highlighted the disadvantages of living with single parents, with higher behavior problems, higher rates of teenage pregnancy, and lower academic achievement (Cherlin 1999; McLanahan and Sandefur 1994). The most common explanations include socio-economic disadvantage (Bradley and Corwyn 2002; Gershoff et al. 2007; Pachter et al. 2006; Yeung, Linver, and Brooks–Gunn 2002); differential exposure to negative life events, and stigma (Barrett and Turner 2005); and selection effects (Conger, Conger, and Martin 2010; McLanahan and Percheski 2008).

In addition, instability in living arrangements is detrimental to child developmental outcomes. Transitions in living arrangements increase parents' and children's stress through increased conflict, adjustment to new family roles, and residential mobility (Raley and Wildsmith 2004). In particular, unpredictable household membership involved in the process of settlement may be stressful. The more these changes occur, the poorer developmental outcomes among children have been documented (Aquilino 1996; Cavanagh 2008; Cavanagh and Huston 2006; Wu 1996). Rosenfeld (2015) recently found that the negative child outcomes in non-traditional families are mostly explained by family instability.

Diversity and Instability of Extended Households and Child Health

However, this literature needs to expand to include the diversity and instability of extended households that characterizes many children's family lives in the U.S. First, there are a variety of types of extended households, and different types of social ties may imply different levels of resources for the family and children (Almeida et al. 2011; Kana'iaupuni et al. 2005). Almeida et al. (2011) found that kin support has stronger protective effects than non-kin support on risk of depression among parents in Chicago. By contrast, Kana'iaupuni et al. (2005) found that families in Mexico are less likely to receive monetary assistance from additional immediate kin (siblings and parents) than from additional non-kin. However, neither of the authors distinguished different kinds of kin, thus, the results might have masked important distinctions between vertical and horizontal kin's family roles. Overall, the knowledge is lacking on what kinds of household extension are associated with healthier children.

Not only variation, but also fluidity characterizes extended households (Van Hook and Glick 2007). Extended households are more prone to structural transitions than other households, mainly due to the frequent entrance or exit of extended members (Hunter and Ensminger 1992; Richards et al. 1987). Movement of non-nuclear members in and out of households as well as parental breakup will be negatively associated with child development (Rosenfeld 2015). However, due to analytical complexities, only a handful of researchers examine the transitions by non-nuclear family members, much less specifying the transition patterns by different types of household extension (Glick and Van Hook 2011; Landale et al. 2011). The

neglect of extended families in the literature may contribute to the normative nuclear family notion prevalent in family research (Gerstel 2011).

In this research, I identify three different types of extended members by the relationship to the householder, and I measure the transitions across extended households by entrances and exits of extended members. Those living with relatives one or two generations above the parents are categorized as *vertically extended households.* Those living with relatives in a similar generation as the parents are categorized as *horizontally extended households* (Glick, Bean, and Hook 1997; Van Hook and Glick 2007). These include aunts, uncles, or cousins and others related to the parents by blood or marriage. Those living with non-relatives, such as parent's friends, are categorized as *non-kin extended households.* While friendship support does not necessarily require co-residence, there is evidence that non-kin can be important household members, especially among racial or ethnic minorities (Hernandez 2004; Richards et al. 1987; Roschelle 1997).

Vertically Extended Households

Grandmothers and often grandfathers take care of the children and do other household chores in Black (Goldscheider and Bures 2003), Mexican (Leach 2012:45), Central American (Menjívar 2000:199), and Asian families (Kang and Cohen 2015). Grandparents are often invited to help raise their grandchildren, sometimes through labor force contributions (Treas 2008; Treas and Mazumdar 2004). Indeed, grandparents are more common where younger children are present (12 percent) than where children are older (8 percent: Hernandez 2004). Increasing social support is an

important motivation for this type of family extension (Angel and Tienda 1982; Edin and Lein 1997; Glick et al. 1997; Hemmens, Hoch, and Carp 1996).

Researchers generally found supportive roles of grandparents in child development. Previous research well documents grandparents' provision of economic and social support for the mother (Angel and Tienda 1982; Cohen 2002; DeLeire and Kalil 2002; Edin and Lein 1997; Glick et al. 1997; Hofferth, Boisjoly, and Duncan 1998), as well as additional sources of affection and a sense of security for the children (Castiglia 1999; Kellam et al. 1982; Kellam, Ensminger, and Turner 1977). Although some researchers found potential conflicts between grandparents and parents over parenting in low-income single mother families (Chase-Lansdale, Brooks-Gunn, and Zamsky 1994; Cramer and McDonald 1996; McDonald and Armstrong 2001), vertical kin are usually expected to provide assistance to children and families.

Horizontally Extended Households

Household extension, especially involving horizontal kin and non-kin of a similar age as the householder, usually occurs due to financial necessity (Angel and Tienda 1982; Harrison et al. 1990; Hemmens et al. 1996). Increases in poverty are found to increase the prevalence of horizontally extended households among Latinos (Glick et al. 1997:187). Similarly, low parental education and part-time work status is related to living with relatives such as aunts, uncles, or cousins, or non-relatives (Hernandez 2004:23). To respond to their hardships, extended family households can pool a variety of resources, or more effectively use limited resources by combining

the resources of more than one nuclear family unit (Edin and Lein 1997; Glick et al. 1997).

However, the literature on the influence of aunts and uncles on children is limited. Some older studies find that parental siblings provide financial and emotional support to mothers (Slaughter and Dilworth-Anderson 1985; Wilson 1986, 1989). However, the finding of Slaughter and Dilworth-Anderson's study (1985) came from cases in which children were experiencing chronic pain from sickle cell anemia when the father was absent from the home. Thus, it may not apply to families in general. In addition, the availability of kin does not always translate into social support (Stanton-Salazar 2001), especially when those kin are poor (Menjívar 2000). Moreover, immediate kin can reduce the chance of receiving financial support (Kana'iaupuni et al. 2005). The unmet needs by relatives may intensify tension between relatives and host families.

Non-kin Extended Households

There is no conclusive evidence that non-kin are either beneficial or harmful household guests (Franzini and Fernandez-Esquer 2004; Pugliesi and Shook 1998; Schwartz 2007; Walen and Lachman 2000). A handful of studies suggest non-kin extended members are beneficial (Dean, Kolody, and Wood 1990; Kana'iaupuni et al. 2005; Matt and Dean 1993). Kana'iaupuni et al. (2005) argue that friends and neighbors support poor families in Mexico both emotionally and financially. The support from non-kin can be substantial as it is "voluntary rather than obligatory" in nature (Almeida et al. 2009; see Dean et al., 1990). Since friends are often similar in

age, gender, or preference, they share "feelings of attachment based on consensus and sharing times and place together" (Almeida et al. 2009:1853; Matt and Dean 1993).

However, friendship support may not be as valuable as kinship support overall. Recent empirical study suggests that friendship support is less protective on risk of depression among adults compared to kinship support (Almeida et al. 2011). Similarly, an anthropological study suggests that relatives provide more robust, quality support than do friends because they are less inclined to exchange assistance when interactions cost more than they benefit (Xue 2015). Although these two different studies do not address co-resident non-kin, the findings provide some insights for speculation about non-kin extended households.

In sum, the level of resources extended members possess and contribute differs depending on their relation to the family and children. Therefore, different types of extended members should have different implications for the child.

Transitions across Extended Households

Different types of extended households have different transition patterns (Hunter and Ensminger 1992). For example, extended households with co-resident vertical kin are more likely to stay intact, while those with other relatives and non-kin are more likely to dissolve when extended members in need become more capable of living independently (Bethencourt and Ríos-Rull 2009; Glick and Van Hook 2011). In particular, the transition patterns of non-kin may be even more fluid (Almeida et al. 2011; Xue 2015). If different extended members do play different roles, as

hypothesized, it is crucial to understand how the different patterns of co-residential continuity relate to the unequal outcomes.

Given that the detrimental influence of unstable living arrangements (Aquilino, 1996; Cavanagh 2008; Cavanagh & Houston 2006; Raley and Wildsmith 2004; Rosenfeld 2015; Wu, 1996), I hypothesize that less stable types of extended households will be associated with worse predicted child behavioral outcomes. Identifying the transitional patterns across living arrangements can help explain the mechanism of household extension effects on child development.

Research Significance of the Current Study

I extend the family living arrangements and child health literature by considering different types of extended households and the transitions of non-nuclear family members beyond the parental breakup. This research fills an important gap in previous literature by specifying the diverse types of extended households according to the relationship of extended members with the family. Although there are important distinctions between vertical and horizontal kin's family roles, prior research does not distinguish them to identify the influence on children (Kana'iaupuni et al. 2005). I distinguished between vertical kin and horizontal kin, and added non-kin to the previous measure of extended households, answering what kinds of household extension are associated with healthier children (following Glick and Van Hook 2011; Landale et al. 2011). To the best of my knowledge, this is the first systematic research to test the associations between different types of household extension and children's behavioral functioning. In addition, I described the co-residential continuity and structural transitions across extended households, not only

to reflect the fluidity of extended households, but also to enhance the understanding of the association between child development and the dynamics of living arrangements.

Hypotheses

This research examines four hypotheses:

a) Vertically extended households will be the most likely to retain the same household structure, compared with horizontally extended households, and non-kin extended households.

Previous findings on the transition of extended members documented the relative stability of multigenerational or vertically extended households (Glick and Van Hook 2011; Hunter and Ensminger 1992). Other types of extended households are less likely to retain continuity.

b) Children living in vertically extended households will be associated with lower behavioral problems, compared with those in horizontally- and non-kin extended households.

A great body of literature has documented grandparents' social support for parents (Angel and Tienda 1982; Cohen 2002; DeLeire and Kalil 2002; Edin and Lein 1997; Treas 2008) and for children (Castiglia 1999; Kellam et al. 1982; Kellam, Ensminger, and Turner 1977). To note, the existing evidence is based on cross-sectional data analyses.

c) Children living in horizontally extended households will be associated with higher behavioral problems, compared with those in simple (not-extended) households.

There is no clear evidence about the influence of co-resident horizontal kin on children. Some research suggest aunts and uncles might benefit children indirectly, through supporting the mothers (Slaughter and Dilworth-Anderson 1985; Wilson 1986, 1989). However, more recent findings suggest a potentially negative impact on children, through reducing financial resources (Kana'iaupuni et al. 2005; Menjívar 2000).

d) Children living in non-kin extended households will not be associated with behavioral problems in children.

No previous research has systematically examined the role of co-resident non-kin in child development. Despite some optimistic views on friendship support (Dean et al. 1990; Kana'iaupuni et al. 2005), the positive interactions are limited to between the parents and non-kin, not between their children. In addition, empirical and anthropological research both suggest friendship support is of less robust and less quality support than kinship support.

Data and Method

Sample

The samples come from the Los Angeles Family and Neighborhood Survey (L.A. FANS). The first wave (L.A. FANS-1) was fielded between April 2000 and January 2002, throughout Los Angeles County. Fieldwork for the second wave (L.A. FANS-2) took place between August 2006 and December 2008. In Wave 2, primary respondents from Wave 1 who were still residing in Los Angeles County were interviewed, regardless of whether they continued to live in their Wave 1 neighborhoods (Peterson et al. 2011). (Note that I exclude individuals who moved

into the sampled neighborhoods between Waves 1 and 2 because I do not have information about their previous household compositions). I use the first wave and the panel data in order to answer different questions. If the patterns differ across these analyses, I discuss whether that derives from time or changes in variables. The cross-sectional data show how different types of extended households are associated with child behavioral functioning. The panel data show how stable the different living arrangements are and whether transitions into different living arrangements are associated with changes in child behavioral outcomes.

The L.A. FANS has a complex, stratified sampling design. Because families with children and families living in poor neighborhoods were oversampled, I account for this by using survey weights. In households with children, one child is randomly chosen (RSC). If the RSC has one or more siblings under age 17, one of his or her siblings (SIB) is randomly selected as well. I account for this clustering within households. The mother of the randomly selected child was designated as the primary caregiver, unless she did not live in the household or was unable to answer questions about the child. The analytical sample is limited to randomly selected children and their siblings, whose primary caregiver completed an adult questionnaire, a parent questionnaire, and a primary caregiver questionnaire.

The sampled children are aged 3-11 at Wave 1 and aged 8-17 at Wave 2. There is 34% attrition between the first and second wave (Peterson et al. 2011: 31). My sample from the first wave data set includes 1553 children in 1191 households, after excluding those missing on the measured variables (n =90, with 70 cases missing the outcome variables). The excluded households are more likely to be

headed by immigrant parents, single parents, include extended members, have low income, have a depressed primary caregiver, and report higher externalizing behaviors. The panel sample includes 1694 child-years clustered in 1003 households, after I drop 102 children due to missing variables (among them, 59 cases are missing the outcome variables). The excluded cases are more likely to include immigrants, single parents, less likely to include extended members, more educated primary caregiver, access to higher income, and report lower internalizing behaviors. I will discuss how the exclusion of missing cases might have changed my results in discussion section. The number of children captured in both wages without a missing variable is 691, and 312 children are captured only in the second wave because they were too young in the first wave.

Measures

Dependent Variable I measure children's behavior problems with the Behavior Problems Index developed by Peterson and Zill (1986). The instrument was designed to assess children's anxiety, depression, and aggression, and has been used extensively in child development studies. Parents responded to the BPI questions using a three-point Likert scale that indicated how true each statement was of their child. The instrument consists of two subscales: internalizing and externalizing.

The internalizing scale assesses the presence of withdrawn and sad behaviors (Guttmannova, Szanyi, and Cali 2008:2; Oldehinkel et al. 2004; Perle et al. 2013). The measure consists of eleven items: felt or complained that no one loved him/her, too fearful or anxious, easily confused and/or has seemed to be in a fog, felt worthless

or inferior, not liked by other children, had a lot of difficulty getting his/her mind off certain thoughts, unhappy, sad or depressed, withdrawn, and/or has not gotten involved with others, clinging to adults, cried too much, too dependent on others. A reliability test indicates a Cronbach's alpha of .73.

The externalizing scale assesses the presence of aggressive and related behavior (Guttmannova et al. 2008:1). The measure consists of seventeen items: disobedient at school, trouble getting along with teachers, sudden changes in mood, tense and/or nervous, has cheated or told lies, has argued too much, difficulty concentrating, cruel or mean to others, disobedient, not feel sorry after misbehaved, trouble getting along with other children, impulsive, restless, stubborn, has strong temper and easily lost it, has broken things on purpose, and demanded a lot of attention. A reliability test indicates a Cronbach's alpha of .87.

Most children have low behavior problem index scores, thus the distribution of the measure is skewed. To reduce the heteroscedasticity and inflated standard errors of the estimates in regression analysis resulting from skewed variables, the behavior problem scores are log transformed (Hamilton 2005).

Independent Variables I measure three types of extended households: vertical, horizontal, and non-kin. Inspired by Kamo (Kamo 2000), I create hierarchical categories where vertically extended household comes first, followed by horizontally extended, and then by non-kin extended household. For example, when the head of household lives with parents and siblings, which is the most common arrangement, I define this household as *vertically extended* based on the presence of vertical kin. When siblings, relatives, and friends co-reside, I classify this household as

horizontally extended based on the presence of horizontal kin. Horizontal kin include aunts, uncles, or cousins and others related by blood or marriage who are in a similar generation with the head of household. Non-kin extended households include only nonrelatives, without any blood- or marriage-related kin.

a) Vertically extended households refer to households with co-residing parents (in-law) or grandparents of the householder. Aunts and uncles whose age is more than 19 years older than the householder are counted as vertical kin. If the head of household lives with their adult children as well as grandchildren, the household is also defined as vertically extended. In either case, young children (under age 17) are living with grandparents or great grandparents.

b) Horizontally extended households refer to households with co-residing siblings (in-law), cousins, nieces and nephews of the householder. Aunts and uncles whose age is less than 19 years greater than the householder are counted as horizontal kin. In other words, they are considered uncles or aunts to the child.

c) Non-kin extended households refer to households with co-residing members who are not related by blood or marriage, such as friends. They are friends of children's parents. Boarders or renters are excluded from non-kin extended members.

These variables are dichotomous (0/1) and mutually exclusive, selected in descending order, so that, for example, those with vertical extension are coded into that category regardless of whether they also have horizontal or non-kin extended household members

Other variables

Primary Caregiver's immigrant status (nativity and documentation status) Following the previous researchers (Kang and Cohen 2017; Landale et al. 2015), I identify primary caregiver's immigrant status. The variable is categorical (0=US-born/native, 1=foreign-born/documented immigrant, 2=foreign-born/undocumented immigrant).

Primary Care Giver Single-parenthood. Based on the marital status of the primary care giver, this measure is dichotomous (0= currently married, 1= divorced, separated, widowed, and never married).

Primary Care Giver Depressive symptom. A short form questionnaire asks primary caregivers about major depressive episodes (MD). The MD reports provide a probability that the person is suffering from major depression, ranging between 0 and 1. Using this probability measure, I created a dichotomous measure (0=probability less than .50, 1=more than .50), following Landale et al. (2015).

Primary Care Giver's Educational attainment. The variable is used as a dichotomous measure: 0=less than high school; 1=high school and greater. Because the plurality of primary caregivers in the L.A. FANS do not have a high school diploma, I use high school graduation as the cutoff.

Family income. The sum of income from head of household, spouse/partner of head, and children, logged for the analysis.

Child sex, and age. Sex of child variable is dichotomous (0=female, 1=male), and age is continuous.

Primary Care Giver Race/ethnicity. The primary care giver reported their race and ethnicity. I use the four racial and ethnic groups: white, black, Latino, and Asian.

Analytical plan

To explore how different types of household extension are associated with stability of the living arrangements, I generate a 4 × 4 transition matrix, of which the 25 cells represent changes in household composition between Wave 1 and Wave 2; the five diagonal cells denote the case for which the same household composition is observed at both time points. This method follows Richards and colleagues (1987: 81).

To measure the impact of living arrangements, I perform OLS linear regression analyses using only the Wave 1 data sample, and fixed effect regression analyses using the panel data sample. I compare the results between OLS and fixed effect estimations to more fully understand the implications of extended living arrangements. OLS models measure the average difference across groups, such as between children in vertically extended households and simple households. Although the cross-sectional models of association may be biased, I gain efficiency from the larger sample size. Even though the sample size for the fixed effects regression is bigger than that for OLS regression (in Table 4 and Table 5), cases only affect the fixed effect regression if a family experiences changes in household structures between Wave 1 and Wave 2, so the effective sample size is smaller.

On the other hand, fixed effects models provides superior estimates, by controlling for variables that are unobserved (Allison 2005; Teachman 2011). In

addition, variables that are the same for a child across the two surveys such as race, sex, place of birth, education, and other individual traits are controlled for in the analysis, whether they are measured or not. (Although parental immigrant status changed among 49 families, this variable has no effects, thus I excluded the variable from the final models.) For this reason, fixed effects models tend to have larger standard errors (Allison 2005), and are less efficient. Nevertheless, a fixed effects model allows better estimates of the causal effect of family structural transitions on individual child outcomes.

Given the two-period panel data, the first difference equation represents this model:

$$(y_{i2} - y_{i1}) = (\mu_{j2} - \mu_{j1}) + \beta_1(F_{i2} - F_{i1}) + (\varepsilon_{i2} - \varepsilon_{i1}),$$

where y_{it} equals the observed outcome variable for child *i*, in time *t* (1 or 2), β_1 is the coefficient for the family-varying covariate F_{it}, μj represents child and family characteristics (e.g. race, sex of child) that are constant over time, and ε_{it} represents by time-varying unexplained variation. This model makes no assumptions about the distribution of these child-specific terms. They can be normally distributed (or not) and can be correlated with key explanatory variables, such as living arrangements.

Descriptive Results

Table 1 compares the sample characteristics of the Wave 1 data by the extended household types. Among those living in extended households, one half live in vertically extended households, about 40 percent live in horizontally extended households, and the rest live in non-kin extended households (with no other relatives present). There are some demographic differences in families across the three types of

extended households. Those living in vertically extended households tend to be native and documented immigrants (48% and 42%, respectively). Undocumented immigrants account for only 10 percent of those living in such arrangements. Three-fourths of those living in horizontally extended households are either documented or undocumented immigrant families. About two thirds in non-kin extended households are native families.

I perform the significance test using bivariate regression analyses (OLS or logistic) for all the variables by household structures and types with nuclear (simple) households as a reference group. The result reveals that the children in extended households, especially horizontal, have significantly higher levels of both internalizing and externalizing behavioral problems. Socioeconomic indicators suggest the relatively disadvantaged family environments would explain the worse behavioral outcomes of children in horizontally extended households. First, families in such extended households have the lowest household incomes. Second, only 40 percent of parents in horizontally extended households graduated from high school. The rate is less than two thirds of the children in simple family households. Note that parents in vertically extended households record the highest level of education, primarily because Asians, whose educational attainment is the highest, are more likely to live in such arrangements.

Table 2 also compares the sample characteristics by household structures and types, using the panel data from both waves. There is no difference between Wave 1 and panel data samples in the distributions of immigrants, the undocumented, race and ethnicity, child sex, primary caregiver's education and depression levels.

However, the panel data sample has older children (age 8-17 vs. age 3-11), higher average family income, and lower levels of household extension. In particular, the proportion of horizontally extended households drops from 11 percent to 7 percent. Other types of extended households are similarly represented in the panel data.

Table 3 describes the stability of the different types of household extension. The first column indicates the structure and type of households at Wave 1, and the first row shows the household types at Wave 2. The second column and row indicate the proportion of simple households without co-resident extended members, respectively for Wave 1 and Wave 2. The third column and row specify the proportion of extended households, which equals the sum of vertical, horizontal, and non-kin extended households. Each cell in 4 × 4 matrix represents the proportion of household staying or moving into the household type at Wave 2 for each household type of origin at Wave 1. For example, 37 percent of extended households at Wage 1 remain extended at Wave 2.

To further describe the household structure transitional patterns, I provide the number of children having experienced the changes. Among the 691 children who were captured in both wages without a missing variable, 212 children experienced a change in their living arrangements by the entrance or exit of extended members. About 66 percent (n=139) of children moved out of extended households, and 25 percent (n=52) of children moved into extended households. The rest of the children moved across different types of extended households. To note, about half of transitions (n=106) occurred between simple households and vertically extended households. There are 32 children who moved into vertically extended households;

the majority of such transition (84 percent) occurred among simple households. There are 74 children who moved out of vertically extended households, and most of those children (89 percent) then lived in simple households.

The results show that simple households are the most stable, followed by vertically extended households. About five years later, 91 percent of simple households, and 41 percent of vertically extended households have the same structures. Non-kin extended households are the least stable living arrangements. Only 1 percent of children residing in non-kin extended households (with no other relatives) still live in the same structure at Wave 2. About 30 percent of horizontally extended households maintain the same household structure. Overall, children are experiencing substantial changes in their living arrangements by entrances and exits of extended members, or by the child moving to a different household. In the later section, I will discuss how the different patterns of instability of living arrangements might be related to any differential effect of household extension.

The structural transition patterns across the extended households reveal several interesting characteristics about vertically extended households. First, vertically extended households are the least likely to become simple households, while they show the highest stability among the extended households. Considering that most extended households move into simple or nuclear households between Wave 1 and Wave 2, the transitional pattern of vertically extended households is unique. Second, vertically extended households are the most popular destination among simple households. Six percent of simple households move into vertically

extended households, compared to two percent moving into horizontally extended households. I discuss the implications of moving into this type of arrangement below.

Analytical Results

Table 4 presents the results of multivariate regression analyses for OLS and fixed effects models on internalizing behavioral problems. Model 1 shows the association between child behavior functioning and three types of extended households. In OLS estimations, children living in horizontally extended households show about 47 percent higher internalizing behaviors ($p<.001$), compared to those in simple households. In contrast to the OLS results, fixed effects estimations show that the estimates of horizontal extension are not substantial, and do not exceed statistical significance. Vertical household extension is associated with about 25 percent more internalizing behaviors ($p<.05$). Non-kin extension shows almost no association with the child behavioral health outcomes.

In Model 2, control variables are added to see whether the association in the previous models hold. In OLS estimations for internalizing behavior, the disadvantageous influence of living in horizontally extended households stays significant, though the magnitude of effects decreases from 47 to 26 percent ($p<.01$). In fixed effects estimations, the impact of vertical extension on internalizing behaviors weakens, now not exceeding statistical significance.

Table 5 presents the results for externalizing behavioral problems. In Model 1 of OLS estimations, children living in horizontally extended households show about 24 percent higher externalizing behaviors ($p<.05$), compared to those in simple households. By contrast, fixed effects estimations show that the estimates of

horizontal extension are neither substantial nor exceed statistical significance, consistent with the pattern for internalizing behavioral problems. Vertical household extension is associated with about a 26 percent increase in externalizing behaviors ($p<.01$). Non-kin extension has no association with externalizing behaviors in children.

In Model 2 of the OLS estimations, not only the significance but also the magnitude of the association between child externalizing behaviors and living in horizontally extended households disappears. In fixed effects estimations, vertical extension is associated with a 23 percent increase in externalizing behaviors ($p<.05$), even after controlling for other covariates. This patterns differ from that for internalizing behaviors.

Other control variables provide an insight to understanding child behavior functioning, as seen in the first paper. Primary caregiver's depression plays a significant role in children's internalizing and externalizing behavioral problems in both OLS and fixed effects estimations. Children with depressed primary caregivers report about 55 percent higher behavioral problems (OLS model), and primary caregiver's depression is associated with about a 15 percent increase in children's externalizing behavioral problems and 20 percent increase in internalizing behavioral problems (fixed effects). OLS estimation shows that primary caregiver's immigrant status, race and ethnicity, and marital status are important predictors of child mental health. Unauthorized immigrant status is associated with about 37 percent higher internalizing behaviors ($p<.001$), and documented status is about 25 percent lower externalizing behaviors ($p<.01$), compared to children of natives. Latino children

show about 16 percent higher internalizing (p <.05) and externalizing behaviors (p<.10). Primary caregiver's single parenthood is associated about 13 percent increase in children's behavioral problems in OLS model, but not in the fixed effects model.

Discussion and Conclusion

For a representative sample of children in Los Angeles, this paper examines the relationship between different types of extended households and children's behavioral problems, and their relation to stability patterns. It extends previous research on the determinants of children's behavioral adjustment by considering the diversity and fluidity of extended households. Different types of living arrangements exert differential influence on children, and show distinctive transition patterns. However, the fixed effects models suggest that the differential associations are less related to the stability of the living arrangements than to other family characteristics and dynamics not captured by variables in this study.

For horizontally extended households, the OLS result seems to support the kin strain hypothesis (Kana'iaupuni et al. 2005; Leach 2012), rather than kin support (Slaughter and Dilworth-Anderson 1985; Wilson 1986, 1989). Children in horizontally extended households report worse internalizing behavioral problems. However, the fixed estimation shows that horizontal extension does not aggravate child behavioral problems. My interpretation is that the apparent link can be an artifact of certain child personality characteristics (e.g., a propensity to internalizing behavior), family disadvantages (e.g., irregular work schedule, family conflicts), or socio-demographic backgrounds that make some parents more likely to report their

child behavior problems and more likely to live with relatives of the same generation. Future research needs to investigate what factors select families into horizontally extended households and worse child behavior outcomes, other than parental education and income, which are associated with horizontally extended households (Glick et al. 1997:187; Hernandez 2004:23).

For vertically extended households, the OLS and fixed effects estimations differ. Nevertheless, both results contradict previous findings that children living with grandparents show better behavioral adjustment (Sonuga-Barke and Mistry 2000). This discrepancy is mostly due to differences in sample demographics as well as in methods. Sonuga-Barke and Mistry (2000) studied Muslim families in U.K. using a small-scale, cross-sectional sample, while I used fixed effects models on a relatively large-scale, longitudinal sample of disadvantaged families in Los Angeles, most of whom are poor Latino immigrants.

More importantly, the fixed effects estimation shows that children moving into vertically extended household *increase* externalizing behaviors or that children moving out of a vertically extended household *decrease* externalizing behaviors. Given that there are more number of children who move out of vertically extended households than those move into (74 vs. 32), my first speculation is that the improvement of child externalizing behaviors is related to economic improvement of the family. Obtaining residential independence either by having grandparents move out of the household or leaving behind grandparents' house, may indicate the family enhances financial security. Another possibility is that the transition to vertically extended household coincides with other family transitions such as parental divorce.

Though I controlled for parental marital transition, I additionally tested the interaction term between single-parenthood and vertical extension (Table C in Appendix). I confirmed that the transition to vertically extended households increases externalizing behaviors, holding constant changes in parental marital status. Perhaps, grandparents move into the household in response to troubles in the family, including child behavioral problems. Or, grandparents moving in itself increases stress (Raley and Wildsmith 2004; Rosenfeld 2015) through troubles and conflicts with parents (Chase-Lansdale et al. 1994; Cramer and McDonald 1996; McDonald and Armstrong 2001). Future research needs to answer why the transition to vertically extended households is particularly negative for child externalizing behaviors.

Non-kin extension shows no association with child behavioral functioning. Given the small number of cases of non-kin extension, however, researchers should be cautious of this result. (Recall that some horizontally and vertically extended households in my sample include non-kin, but only those with non-kin and no other relatives are coded this way in my analysis.) Future research should examine the reliability of the estimation, ideally using national-level data.

I find little evidence that the patterns of co-residential continuity relate to the differential associations. Despite the relatively high stability among extended households, vertically extended households are not beneficial. On the other hand, extended member's exit is not necessarily detrimental to children, if the result is a simple household. For example, non-kin and horizontally extended households, the two least stable types, are the most likely to turn to simple households, and their low stability does not negatively affect children. Instead, the lack of ability to obtain

independent living arrangement appears disadvantageous. Vertically extended households are the least likely to become simple households. At the same time, when simple households move into other living arrangements, they are the most likely to live with vertical kin. Considering that children in vertically extended households show the highest level of externalizing behaviors, families' losing capacity to afford independent housing may worsen child behaviors.

Limitations

This study is not free from limitations. First, because only two waves are available, neither the number of household transitions nor the types of transitions during the period can be assessed, except for those captured at the survey. Because the interval between Wave 1 and Wave 2 is 5-6 years, it is possible that multiple household transitions have occurred during the period. Still, I sufficiently demonstrate the transitory nature of extended households.

Second, this study involves only co-residing members. However, relatives can be involved with family life through frequent visits, phone calls, or other communication media, even if they do not live together. In addition, while friends and neighbors living nearby or far away can offer social support, I count only co-resident friends. Despite this limitation, to examine the diversity and fluidity of household structures and their impacts on child mental health, I think the unit of analysis should be the household, defined by relationships with the householder. In doing so, I distinguish the implications of extended family from general source of social support.

Third, missing cases show some different characteristics from the analytical samples. The missing cases are disproportionately immigrants and single parents for the cross-sectional and panel data. However, the excluded cases from the panel sample are socioeconomically more advantaged and less likely to live in extended households. My tests using multiple imputation showed similar patterns with the results, except for internalizing behaviors of the fixed effects models (Table D and Table E in Appendix). The results from the multiply imputed data showed that the transitions to horizontally extended and non-kin extended households are significantly associated with increases in internalizing behaviors. By contrast, my analytical sample has shown that the structural transitions have no effect after other controls. The discrepancy may result from the excluded panel samples reporting lower internalizing behaviors in children. Therefore, researchers should be cautious of the effects of household extensions on internalizing behaviors because the data are not missing at random.

Contributions

This study reveals that not all extended households are equal and this inequality is producing disparities in child behavioral functioning. This finding should inspire more discussion on how best to support children in these marginalized households. The previous framework should be revised to consider the differential implications of extended households in child development beyond nuclear family based models. In the U.S. today, it is common for children to live with vertical kin,

horizontal kin, or non-kin. Future research should examine the cumulative consequences of such disadvantage in experiencing complex living arrangements.

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Table 1. Weighted Descriptive Statistics of Key Variables by Household Type, Wave1

Variable	All	Simple	Vertical	Horizontal	Non-kin
Internalizing BPI (ln)	.85	.78	.92	1.25***	.82
S.E.	*(.03)*	*(.04)*	*(.08)*	*(.08)*	*(.15)*
Externalizing BPI (ln)	1.51	1.46	1.57	1.71*	1.58
	(.04)	*(.04)*	*(.10)*	*(.10)*	*(.16)*
Child sex (ref. girl)	.50	.50	.54	.41	.63
	(.02)	*(.02)*	*(.04)*	*(.05)*	*(.11)*
Child age	7.02	7.02	7.01	6.94	7.10
	(.09)	*(.10)*	*(.20)*	*(.24)*	*(.56)*
US-born parents	.44	.45	.48	.25**	.67*
	(.02)	*(.02)*	*(.05)*	*(.06)*	*(.09)*
Documented	.41	.42	.42	.39	.25*
	(.02)	*(.02)*	*(.05)*	*(.06)*	*(.08)*
Undocumented	.15	.13	.10	.36***	.08
	(.01)	*(.01)*	*(.03)*	*(.06)*	*(.04)*
White	.22	.27	.11***	.06***	.25
	(.02)	*(.02)*	*(.03)*	*(.02)*	*(.09)*
Latino	.56	.52	.57	.81***	.49
	(.02)	*(.02)*	*(.05)*	*(.04)*	*(.12)*
Black	.11	.11	.11	.07	.26
	(.01)	*(.02)*	*(.04)*	*(.02)*	*(.13)*
Asian	.11	.10	.21*	.07	.00***
	(.01)	*(.01)*	*(.05)*	*(.03)*	
Family income(ln)	10.22	10.33	10.11†	9.73*	10.09
	(.05)	*(.06)*	*(.12)*	*(.23)*	*(.21)*
PCG depression	.12	.12	.13	.14	.15
	(.01)	*(.01)*	*(.03)*	*(.03)*	*(.07)*
PCG education (ref. <High)	.63	.65	.71	.40***	.69
	(.02)	*(.02)*	*(.04)*	*(.06)*	*(.09)*
Single parenthood	.35	.31	.43*	.45*	.52†
	(.02)	*(.02)*	*(.05)*	*(.06)*	*(.35)*
Extended Households	.28	.00	1.00	1.00	1.00
	(.02)				
Vertically extended	.14	.00	1.00	.00	.00
	(.01)				
Horizontally extended	.11	.00	.00	1.00	.00
	(.01)				
Non-kin extended	.03	.00	.00	.00	1.00
	(.01)				
N	1553	1090	231	179	53

Note: compared to simple households, ***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Table 2. Weighted Descriptive Statistics of Key Variables by Household Type, Panel

Variable	All	Simple	Vertical	Horizontal	Non-kin
Internalizing BPI (ln)	.79	.74	.89†	1.10**	.89
S.E.	*(.03)*	*(.03)*	*(.08)*	*(.13)*	*(.16)*
Externalizing BPI (ln)	1.50	1.45	1.69*	1.61	1.61
	(.04)	*(.04)*	*(.09)*	*(.13)*	*(.16)*
Child sex (ref. girl)	.51	.51	.54	.41	.43
	(.02)	*(.03)*	*(.05)*	*(.06)*	*(.11)*
Child age	9.65	9.92	9.01	8.53	7.91
	(.11)	*(.14)*	*(.33)*	*(.30)*	*(.77)*
US-born parents	.41	.43	.49	.12***	.56
	(.03)	*(.03)*	*(.06)*	*(.04)*	*(.11)*
Documented	.45	.45	.42	.50	.28*
	(.03)	*(.03)*	*(.06)*	*(.08)*	*(.09)*
Undocumented	.14	.12	.09	.38**	.16
	(.01)	*(.01)*	*(.03)*	*(.08)*	*(.07)*
White	.21	.24	.12*	.07***	.14
	(.02)	*(.03)*	*(.05)*	*(.03)*	*(.06)*
Latino	.60	.57	.62	.87***	.49
	(.03)	*(.03)*	*(.07)*	*(.04)*	*(.11)*
Black	.10	.10	.09	.02***	.31
	(.02)	*(.02)*	*(.04)*	*(.02)*	*(.13)*
Asian	.10	.09	.17	.04	.06
	(.02)	*(.02)*	*(.05)*	*(.03)*	*(.04)*
Family income(ln)	10.51	10.59	10.47	9.74*	10.55
	(.05)	*(.05)*	*(.16)*	*(.33)*	*(.15)*
PCG depression	.11	.11	.14	.15	.11
	(.01)	*(.01)*	*(.04)*	*(.04)*	*(.05)*
PCG education (ref.<High)	.64	.66	.72	.34***	.65
	(.02)	*(.03)*	*(.05)*	*(.06)*	*(.10)*
Single parenthood	.32	.30	.38	.34	.51†
	(.02)	*(.03)*	*(.06)*	*(.07)*	*(.12)*
Extended Households	.23	.00	1.00	1.00	1.00
	(.02)				
Vertically extended	.13	.00	1.00	.00	.00
	(.02)				
Horizontally extended	.07	.00	.00	1.00	.00
	(.01)				
Non-kin extended	.02	.00	.00	.00	1.00
	(.01)				
N	1694	1277	218	155	44

Note: compared to simple households, ***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Table 3. Household Structure Transitions from Wave 1 to Wave 2

	Family composition W2				
		Extended			
Family composition W1	Simple (.77)	Total (.23)	Vertical (.13)	Horizontal (.07)	Non kin (.02)
Simple (.72)	**.91**	.09	.06	.02	.01
Total Extended (.28)	.63	**.37**	.24	.12	.01
Vertical (.14)	.55	.45	**.41**	.04	.01
Horizontal (.11)	.68	.32	.01	**.29**	.02
Non kin (.03)	.87	.13	.07	.04	**.01**

Table 4. Results of OLS and Fixed effects models on Internalizing BPI

	Internalizing BPI			
	OLS Model1	Fixed Model1	OLS Model2	Fixed Model2
Child sex			.039	
			(.049)	
Child age			-.017†	-.028***
			(.010)	*(.006)*
Family income(ln)			- .013	- .020
			(.013)	*(.024)*
PCG depression			.561***	.198*
			(.076)	*(.085)*
PCG education			-.191**	
			(.068)	
Latino			.163*	
			(.076)	
Black			.091	
			(.134)	
Asian			.037	
			(.115)	
Documented			.044	
			(.074)	
Unauthorized			.374***	
			(.092)	
Single parent			.132*	.140
			(.063)	*(.118)*
Vertical	.141†	.250*	.126†	.158
	(.084)	*(.113)*	*(.075)*	*(.107)*
Horizontal	.471***	.132	.257**	.031
	(.090)	*(.108)*	*(.085)*	*(.105)*
Non-kin	.047	.081	.024	- .009
	(.158)	*(.199)*	*(.127)*	*(.190)*
Intercept	.776***	.821***	.862***	1.252***
	(.036)	*(.019)*	*(.181)*	*(.247)*
R2	.034	.007	.190	.050
N	1553	1694	1553	1694

***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Table 5. Results of OLS and Fixed effects models on Externalizing BPI

	Externalizing BPI			
	OLS Model1	Fixed Model1	OLS Model2	Fixed Model2
Child sex			.154*	
			(.061)	
Child age			-.037***	- .009
			(.011)	*(.007)*
Family income(ln)			.003	- .009
			(.019)	*(.031)*
PCG depression			.551***	.147†
			(.077)	*(.089)*
PCG education			- .018	
			(.085)	
Latino			.160†	
			(.095)	
Black			.073	
			(.162)	
Asian			- .111	
			(.154)	
Documented			-.247**	
			(.089)	
Unauthorized			.015	
			(.111)	
Single parent			.125†	.115
			(.075)	*(.113)*
Vertical	.108	.260**	.088	.225*
	(.108)	*(.098)*	*(.099)*	*(.101)*
Horizontal	.241*	.074	.161	.037
	(.106)	*(.117)*	*(.102)*	*(.116)*
Non-kin	.112	- .049	- .004	- .064
	(.164)	*(.188)*	*(.154)*	*(.184)*
Intercept	1.464***	1.471***	1.544***	1.602***
	(.042)	*(.019)*	*(.250)*	*(.306)*
R2	.007	.005	.101	.027
N	1553	1694	1553	1694

***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Chapter 3: The Community Context of Extended Family Structure and Child Behavioral Problems

Abstract

This paper examines contextual family effects by neighborhood characteristics on children's behavioral functioning, focusing on extended family structure. Using multi-level regression on the Los Angeles Family and Neighborhood Study data, I examine the relationship between co-resident extended kin and children's mental health, independent of neighborhood, neighborhood income, and racial minority concentration. I further test how extended kin moderate the impact of neighborhood environments. Findings suggest that the co-residence with extended kin is associated with both higher internalizing and externalizing behaviors for children. The health disadvantage of living with extended kin is independent of neighborhood income and racial minority concentration levels. However, extended kin moderate the association with neighborhood structure. The advantage of living in a higher-income neighborhood is stronger for those in extended families, reducing internalizing behavioral problems in children. Minority concentrated neighborhoods are associated with advantage for extended families, decreasing externalizing behavioral problems. I conclude with discussion of the multifaceted aspects of extended families.

Background

Life stresses increase risk for children's internalizing or externalizing behavior problems (Kim et al. 2003). Children's emotional and behavioral adjustment is

strongly linked with long-term well-being, including their educational attainment (McLeod and Kaiser 2004), and later psychopathologic conditions (King, Iacono, and McGue 2004). Bronfenbrenner's (1986) developmental ecological model highlights the contextual environments that influence children's emotional and behavioral adjustment and the significance of person–context interactions in developmental change. Based on this framework, previous researchers have focused on explaining why children in single parent families fare worse in behavioral functioning in relation to their neighborhood structural disadvantages (Hoffmann 2002, 2006; Kupersmidt et al. 1995; Wickrama and Bryant 2003). For example, stressors in the neighborhood partly explain some deleterious effects of growing up in single parent families, and single-parent families are affected more acutely in disadvantaged neighborhoods. This research demonstrates it is crucial to consider the family and neighborhood contexts simultaneously.

However, there is a dearth of knowledge of extended families and their residential contexts. Extended families involve various arrangements such as families living with older parents, adult siblings, or both. Most research ignores "the various parent and adults configurations" (Hoffmann 2006:868) and rarely described extended families' neighborhood environments because they are considered to be temporary arrangements (Glick, Bean, and Hook 1997; Glick and Van Hook 2011).

Extended families play a significant—positive or negative—role in child development. Earlier researchers suggested extended members might reduce delinquency behaviors of children by increasing monitoring and supervision (Dornbusch et al. 1985). Recent researchers suggested co-resident relatives might

distract resources from children (Leach 2012), and contribute to worse internalizing behavioral outcomes for children (see the previous papers). However, none of this research took account of the neighborhood structures in examining the influence of extended kin, thus it is unknown to what extent neighborhood conditions are related to co-residence with extended kin.

Extended family members can be important agents of community networks. How they interact with the neighborhood environment and alter the meaning of neighborhood contexts is unknown. On one hand, extended members may support families to overcome neighborhood structural disadvantages (Gaytán and Suárez-Orozco 2011) by providing a bridge to neighbors and drawing resources from local institutions (Deng et al. 2006; Gonzales et al. 2011; Kasnitz et al. 2009:116; Siantz 1997:154). On the other hand, extended members may not be able to reduce the neighborhood disadvantages because they are often unable to gain access to community resources due to weak or non-existent social ties with residents or low motivation among extended members themselves (Glick and Van Hook 2011, 2011; Leventhal and Brooks-Gunn 2000; Sampson, Raudenbush, and Earls 1997; Wilson 1987). No previous research has directly investigated these possibilities, so the question of how extended kin moderate effects of neighborhood condition remains unanswered.

This study aims to test the following questions: a) in what kinds of neighborhoods do extended families reside, b) do neighborhood characteristics mediate the influence of co-resident extended kin, and c) how do co-resident extended kin moderate the neighborhood characteristics' influence. To this end, I use

data from the Los Angeles Family and Neighborhood Study (L.A. FANS), which is designed to answer research questions on the effects of neighborhoods and families on children's development, provide information on the composition of households including extended members, and allow researchers to match the respondent families' residential addresses to census tract identifiers.

Given the relative prevalence of co-residence with extended kin among families with younger children (Hernandez 2004) and the relative paucity of family and neighborhood research on children in early and middle childhood period (García Coll et al. 1996), I focus on younger children.

Previous Research

I begin by reviewing the previous literature on the association between child development and family structures and the influence of neighborhood structures, as well as the interactive association between family structures and neighborhood environments. I discuss how these frameworks focusing on the disadvantages of single-parent families compared to two-parent families can (not) provide an understanding of the interactions between extended families and neighborhood structures.

Family structure and child mental health

Family structure studies have focused on the disadvantages of growing up in single parent families in comparison to two parent families (Carlson and Corcoran 2001; Cherlin 1999; Gilman et al. 2003; McLanahan and Sandefur 1994; Wen 2008). Explanations generally point to the disadvantages of living in single-parent families

as lack of access to socioeconomic resources and more exposure to social stress. Material hardship limits access to quality housing, medical and child-care, and nutrition, which negatively affect children's behavioral and emotional development (Bradley and Corwyn 2002; Brooks-Gunn and Duncan 1997). In addition, single-parent families are more prone to psychological distress from financial problems as well as from "stigma and reduced contact with the nonresident parent" (Barrett and Turner 2005:158). Parents' depressive symptom are strongly linked to children's behavioral problems (Fanti and Henrich 2010), as those with psychological distress tend to withdraw from their children (Gershoff et al. 2007; Yeung, Linver, and Brooks–Gunn 2002).

Neighborhood disadvantages and child mental health

These individual or family-level factors do not fully explain the association between family structure and problem behaviors. Researchers identify the neighborhood contexts that affect child development to include economic stratification and racial/ethnic segregation.

Low-income neighborhoods Economically deprived neighborhoods prevent families from accessing a broad range of facilities and services crucial to promote their children's well-being (Brooks-Gunn et al. 1993; Williams and Collins 2001; Williams and Williams-Morris 2000; Wilson 1991). Due to the disinvestment of economic resources in poor neighborhoods, children and families find it difficult to access recreational facilities and high quality medical care (Williams and Collins 2001). Lower physical activities (Monshouwer et al. 2013) and lower health care

utilization (Riley et al. 1993) are found to lead to greater mental health problems. In addition, residents in socioeconomically deprived neighborhoods frequently face crime (Simons et al. 2002), noise, and violence (Evans and English 2002). The stress from living in a harmful environment and less positive interactions among neighbors cause family members feelings of distress—fear, rundown, and powerlessness (Ross, Reynolds, and Geis 2000). Higher levels of family stress are documented to increase the chance of adjustment problems among children (Attar, Guerra, and Tolan 1994; Hoffmann 2002; Roosa et al. 2005).

Minority-concentrated neighborhoods Racial/ethnic segregation also affects the emotional well-being of youths (Aneshensel and Sucoff 1996). Some researchers propose that the strong informal social support which found in minority-concentrated neighborhoods enhances mental health and promotes "collective efficacy" to supervise children and adolescents (De Vos, Ultsch, and Kossiakoff 1992; Sampson et al. 1997). However, the ability of segregated neighborhoods to protect residents may be impaired by poverty and isolation (Alba et al. 2014; Frank, Cerdá, and Rendón 2007; Portes and Rumbaut 2001; Portes and Zhou 1993). Indeed, findings are contradictory. Some researchers found better health and behavioral outcomes in minority-concentrated neighborhoods, including the lower risk of first sex (Upchurch et al. 2001), cigarette smoking (Xue, Zimmerman, and Caldwell 2007), and mental health problems, including in a Canadian sample (Georgiades, Boyle, and Duku 2007; Hurd, Stoddard, and Zimmerman 2013). Others found worse adolescents' mental disorders (Aneshensel and Sucoff 1996; Hurd et al. 2013), adolescents' risk behaviors (Crowder and Teachman 2004; Frank et al. 2007), and internalizing and externalizing

behaviors (Katz et al. 2012; Xue et al. 2005) in neighborhoods with higher concentrations of racial minorities. Given that the negative findings are mostly from Los Angeles (Alba et al. 2014; Frank et al. 2007), minority-concentrated neighborhoods in this study may indicate a disadvantage rather than protection.

Interaction between families and neighborhood environments

Families interact with their community environments, which shape how families use their resources and manage their risks. Neighborhood contexts may mediate family influences. Mediating effects refer to the transmitting the effects of an independent variable on a dependent variable (MacKinnon, Fairchild, and Fritz 2007). When a neighborhood mediates family influences, some or all of the apparent effects of the family on children actually come from the neighborhood (Kowaleski-Jones and Dunifon 2006; McLanahan and Sandefur 1994). For example, poor neighborhood quality is linked to maternal depression (Roosa et al. 2005), which in turn operates to negatively affect child developmental adjustment. Single-parent families are more likely to live in disadvantaged neighborhoods due to lack of economic resources, and stressors in the neighborhood may partly explain the deleterious effects of growing up in single parent families through that mechanism.

Families may moderate neighborhoods' influences. Moderating effects refer to the modifying effects that affect the direction or strength of the relationship between independent and dependent variables (Hoffmann 2002; Wickrama and Bryant 2003). When a family moderates neighborhood influences, the family changes the direction of the neighborhood effects, or strengthens or dilutes the effects. The

structure of the family may indicate a differential capacity to deal with neighborhood resources and constraints. Single parent families usually have fewer financial, relational resources to deal with stressful situations and to protect the child from negative influences of the neighborhood (Amato and Fowler 2002; Cherlin 2004; Morgan et al. 2008). Roosa et al. (2009) support this argument with findings that parents and children of single-parent Mexican immigrant families appear to be more vulnerable to the risk for depression in disadvantaged neighborhoods than those of two-parent family counterparts because single-parent families unfavorably perceive the same neighborhood conditions. In other words, children in single-parent families are affected more acutely in disadvantaged neighborhood contexts.

Other findings, however, suggest that the association between family structure and child outcome is independent of neighborhood context. There is evidence that single-parent families exert an independent negative effect on adolescent's drug use, irrespective of the quality of the community (Hoffmann 2002). Another study finds no interactional association between disadvantaged community contexts and living in single-parent or stepparent families on adolescent's problem behavior (Hoffmann 2006). Conceivably, more proximal familial processes are more influential than are peripheral processes where families are embedded (Klebanov et al. 1997). Although community effects may not be as consequential as family effects, there is ample reason to suspect that community contexts operate with other aspects of family processes such that neighborhood environments mediate or moderate the influences of co-resident extended members.

Interaction between extended families and neighborhood environments

The frameworks discussed above might be useful for understanding the contextual effects of single- parent vs. two-parent families, but they offer limited understanding of the potential interaction between extended families and neighborhood contexts. Most of all, there is only a limited description on the neighborhood environments for extended families. Some researchers assume that extended families would live in racially segregated and low socioeconomic status neighborhoods, given that extended families tend to be racial minorities, less educated, and poor (Gerstel 2011; Leach 2012). Yet, compared to single-parent families, extended families are expected to live in neighborhoods with relatively higher SES (Kasnitz et al. 2009:116). Due to the relatively fewer number of extended families in such communities, those families may receive more support from local institutions and social networks (Anderson 1999), but also may experience relative deprivation (Lee 2004). However, whether this observation, based on the sample families in Philadelphia (Anderson 1999) and New York (Lee 2004), would apply to those in Los Angeles is unknown.

Provided this observation is true, what implication would this residential context mean to the children in extended families? Previous research focusing on the disadvantages of growing up single-parent families suggest that poor quality neighborhoods mediate the family effects on child adjustment through increasing family stress levels (Roosa et al. 2005). If, as hypothesized, extended families live in disadvantaged neighborhoods, compared to nuclear married-parent families, even though extended families were relatively better off than single-parent-alone families, it is possible that the neighborhood environment partly explain the disadvantage of

living with extended kin. Recent researchers showed that poor neighborhood quality stresses not only parents but also other members of the family (Santiago, Wadsworth, and Stump 2011), suggesting the mediating community effects on the influence of extended family members.

How would extended families moderate neighborhood context effects? There are two contradicting views. From the social support perspective, previous researchers generally expected that extended members would ameliorate the effects of neighborhood disadvantages, emphasizing the supportive role of extended families (Deng et al. 2006; Gonzales et al. 2011; Roosa et al. 2005). Extended members are thought to give more strength to the family to handle their neighborhood disadvantages (Gaytán and Suárez-Orozco 2011) by drawing information and resources from neighbors and local institutions (Kasnitz et al. 2009:116; Siantz 1997:154). Additional support networks from extended family may facilitate parental ability to supervise children or meet their children's emotional needs.

On the other hand, there are other possibilities in which extended members fail to bring community resources to the family. Neighborhood disadvantages can destroy social ties because residents are less likely to communicate one another (Leventhal and Brooks-Gunn 2000; Sampson et al. 1997; Wilson 1987). In this context, extended kin cannot provide access to the sharing of community resources, and they are unable to give much support for the family. In addition, extended members may have limited ties to a neighborhood because they have little motivation to invest in neighborhoods given their temporary status in the family (Glick et al. 1997; Glick and Van Hook 2011). None of these claims, however, is supported by a

rigorous test. I will examine how extended members may moderate the neighborhood condition effects for children.

Research Significance of the Current Study

The research extends from the previous studies in several ways. First, this study centralizes the role of extended families in child development. The disadvantage of sharing a house with relatives, unexplained by neighborhood quality, calls attention to the obstacles facing children in this living arrangement. Second, it is the first study that considers not only the neighborhood structures of extended families, but also the cross-level interactions between extended kin and neighborhood structures. This study demonstrates to what extent neighborhood conditions mediate the impact of the co-residence with extended kin and to what extent extended kin moderate the neighborhood influences. Lastly, with its neighborhood-based design and independent community survey—not based on residents' subjective perceptions of their community, the L.A. FANS addresses one limitation in most neighborhood research.

Hypotheses

a) Based on previous findings in New York (Kasnitz et al. 2009:116), I expect that extended families would be more likely to live in low income- and racial minority neighborhoods, compared to nuclear married-parent families, but less likely to do so than single-parent-alone families.

b) Given that neighborhood-level stressors may mediate the co-residence with extended members (Roosa et al. 2005; Santiago et al. 2011), I expect the

association between co-resident extended kin members and child behavioral problems would decrease or disappear, after controlling for neighborhood income and proportion of racial minorities.

c) Researchers have not reached an agreement on how extended family members may moderate the neighborhood conditions for children. Although some researchers expected that extended members would protect the family from the effects of disadvantageous neighborhoods (Deng et al. 2006; Gaytán and Suárez-Orozco 2011; Gonzales et al. 2011; Roosa et al. 2005), there is no empirical evidence. In addition, extended members may not interact with neighbors and local institutions, if they stay with the family temporarily (Glick et al. 1997; Glick and Van Hook 2011). Therefore, I expect the association between neighborhood conditions and child behavioral problems may not differ between extended and non-extended households.

Data and Method

The data used for this study come from the first wave of the Los Angeles Family and Neighborhood Survey (L.A. FANS) and the 2000 US Census Summary files. The L.A. FANS is a multi-stage stratified cluster sample, representative of 65 neighborhoods (Peterson et al. 2007). Families with children and families living in poor neighborhoods were oversampled. To reflect the survey design, I use survey weights in my analyses. The first wave was fielded between April 2000 and January 2002. To capture the community effect, I use the 2000 US Census Summary files to form the neighborhood contextual data (U.S. Census).

The analytical sample includes randomly selected children (RSC) and siblings (SIB), whose primary caregiver completed an adult questionnaire and a parent

questionnaire, as well as a primary caregiver questionnaire. The parent of the randomly selected child was selected as a respondent and designated the primary caregiver, most of whom are mothers of children. The analytical sample included 1553 children in 1191 households in 65 census tracts. Because some children are clustered in the same household, I account for the clustering in the analyses. The number of family households within each census tracts ranges from 9 to 36, and the number of children in each one ranges from 11 to 48.

Measures

Dependent Variable: Child Internalizing and Externalizing Behavioral Problems

The Behavior Problems Index was designed to assess children's behavior problems such as depression and aggression. This instrument has been used extensively in studies of behavior problems in children. In L.A.FANS, parents responded to the 28 questions using a three-point Likert scale that indicated how true each statement was of their child. The internalizing scale measure consists of eleven items (alpha=0.73), measuring the presence of withdrawn and sad behaviors, such as "felt or complained that no one loved him/her", "too fearful or anxious", and "felt worthless or inferior." The externalizing scale measure consists of seventeen items (alpha=0.87), assessing the presence of aggressive and related behavior, such as "disobedient at school," "trouble getting along with teachers," and "has been cruel or mean to others." Because the measures of internalizing and externalizing behavior problem index scores are highly skewed, I log scores to reduce problems with heteroscedasticity and inflated standard errors (Hamilton 2005).

Neighborhood characteristics

Using the 2000 U.S. Census contextual data set, I measure two aspects of neighborhoods: a) the proportion of non-white racial minorities, and b) median household income, which I logged due to the problem of heteroscedasticity. The measures of neighborhood structures are grand-mean centered so that the interpretation of the estimates of interaction terms have a meaningful value.

Extended kin

The independent/treatment variable under investigation is the presence of extended kin (0= no extended kin present, 1= extended kin present). Extended kin are defined as co-resident non-nuclear family member(s) such as grandparents, parents (in-law), siblings (in-law), aunts, uncles, nieces, nephews, cousins, adult children, and grandchildren of the householder.

Control variables

Primary Caregiver's depressive symptoms. This continuous variable is constructed from scores on a short form of the Composite International Diagnostic Interview (CIDI-SF). The questionnaire covers Major Depressive episodes (MD) of the primary care givers. The MD reports provide a probability between 0 and 1 that the person is suffering from major depression.

Primary caregiver's marital status. Single-parenthood is measured for the primary care giver (0= currently married, 1= divorced, separated, widowed, and never

married). There was no statistically significant difference in child outcomes between previously married (divorced, separated, and widowed) and never married families. Thus, I collapsed the two categories into one, in contrast with currently married families.

Other demographic, family, and child characteristics include *primary caregiver's race/ethnicity.* The four racial/ethnic groups used in the analyses are White, Black, Latino, and Asian. Using questions about primary care giver's place of birth and a series of questions about their documentation status, I identify their *immigrant status (nativity and legal status)*. The variable is categorical as reported in Chapter 2 (0=US-born/native, 1=foreign-born/documented, 2=foreign-born/undocumented). *Primary caregiver's educational attainment* is a dichotomous variable that measures whether primary caregiver completed high school: 0=less than high school; 1=high school and greater. *Family income* measures the sum of income from head of household, spouse/partner of head, and children, and is logged for the analysis. Sex of child variable is dichotomous (0=female, 1=male); age is continuous.

Analytical Plan

To test the interaction between extended family structure and neighborhood environments, I employed multilevel regression analyses. In L.A. FANS, individual children and siblings (Level 1) are nested within families (Level 2), and families are nested within neighborhoods (Level 3). Unlike ordinary regression analysis, random-effects regression models make no assumption that each observation is independent but rather assume that data within clusters are dependent to some degree (Aber et al.

1997; Brooks-Gunn et al. 1997; Jencks and Mayer 1990; Roosa et al. 2003). To account for the correlation of outcomes within the same clusters, the multilevel regression partitioned the residual error terms across each level of the analysis (Georgiades et al. 2007).

Random Slope

Across neighborhoods, the association between extended kin and child emotional and behavioral adjustment may vary. Such variability can be modeled by adding random coefficients. Based on the literature I reviewed, I specify the extended family structure variable as random at level 3. Using the log-likelihood test, I decided to allow the effects of extended family structure on child behavioral problems to vary across neighborhoods because it significantly increases the model fit compared to a random intercept model.

I specify only the level 1 and level 2 intercepts and the extended family variable as random at level 3. Although it is theoretically possible to include a large number of random coefficients in multilevel models, I restrict the number of variables for practical reasons. First, my research question is to answer how the impact of extended families vary across neighborhoods. Second, the sparse community subsamples as well as the moderate size of total sample (about 1550 cases) limit the number of random coefficients (Goldstein 1995; Hoffmann 2006). Therefore, other variables are not allowed to vary across neighborhoods.

The research models the outcome for children (y) in terms of a neighborhood-level variable and a family-level variable. The following three-level regression model is adopted from Raudenbush and Bryk (2002).

$y_{ijk}=\beta_1 + \beta_2 C_{1ijk} + \beta_3 C_{2ijk} + \beta_4 N_{1k} + \beta_5 N_{2k} + \beta_6(\text{Extended kin})_{jk} + \beta_7 N_{1k}(\text{Extended kin})_{jk} + \beta_8 N_{2k}(\text{Extended kin})_{jk} + \beta_m X_{jk} + \mu_k(\text{Extended kin})_{jk} + (\mu_k + \gamma_{jk} + \varepsilon_{ijk})$, where y_{ijk} equals the observed outcome variable for child *i*, within family *j*, and within neighborhood *k*. β_1 is the intercept of the regression model, or the grand mean for each outcome variable. From β_2 to β_m are the coefficients for the independent variable as well as controls for individual children, families, and neighborhoods. C_{1ijk} and C_{2ijk} are the sex and age of the child in family *j* in neighborhood *k*. N_{1k} and N_{2k} are the variables for the neighborhood level income and the proportion of racial minorities. In particular, β_7 and β_8 are the coefficients for the interaction terms between the presence of extended family and the neighborhood variables. X_{mjk} includes other family level control variables: primary caregiver's single parenthood, nativity and immigrant status, race, education level, and probability of depressive symptom.

The three random terms reflect the residual variation in which ε_{ijk} is an independent residual at the child level, distributed normally, $N(0, \sigma\varepsilon^2)$, in the population of children; γ_{jk} at the family level with variance, $N(0, \sigma\gamma^2)$, and μ_k at the neighborhood level with $N(0, \sigma\mu^2)$. To allow the slope of extended family structure to vary across neighborhoods, I add the term $\mu_k(\text{Extended kin})_{jk}$. Here, the inclusion of the random terms separates this model from an OLS regression model. If children clustering within neighborhoods has little effect on the outcome data, estimates of μ_k

will all be near 0 and the estimate of variance (σ_a^2) will approach 0. By contrast, if children clustering within neighborhood have a strong effect on the outcome data, estimates of μ_k will deviate from 0 and differ for each neighborhood k, increasing the value of neighborhood variance ($\sigma\mu^2$) will increase in value.

Descriptive Results

Table 1 presents the sample characteristics, comparing across family and household structures. Family structure is specified by the marital status of parents, and household structure by the presence of extended kin. I perform the significance test using bivariate regression analyses (OLS or logistic) for all the variables on family household structures, having nuclear two-parent family household and nuclear single-parent family household as reference groups. Compared to the children in nuclear two-parent family households, those in extended family households show significantly higher levels of internalizing and externalizing behavioral problems. There is no significant difference on the dependent variables between children in extended households and nuclear single-parent family households.

The results of family and neighborhood characteristics suggest disadvantages facing children in extended families. Compared to nuclear two-parent families, extended families have lower family income and more depressed and less educated primary caregivers. In addition, they reside in neighborhoods with lower median household incomes and higher proportion of racial minority residents. Extended families live in neighborhoods in which median household income is \$34,544 ($e^{10.45}$) and about 82 percent of neighbors are racial minorities. The average proportion of

racial minorities in neighborhoods where nuclear, two-parent families live is 67 percent, and median household income is $43,477 ($e^{10.68}$). In sum, extended family largely corresponds with a disadvantaged living arrangement for children.

Analytical Results

Table 2 presents a set of increasingly complex models for internalizing behavioral problems. Following Raudenbush and Bryk (2002), I will first estimate a variance components model to determine whether the variability in problem behaviors differed across census tracts. Model 1 presents the multilevel null model. The average logged internalizing behavioral problems in the sample are 0.91. The random effects variances present the variability in internalizing behavioral problems attributable to neighborhood and family differences. Rescaling these variances produces the estimated Intra Class Correlation (ICC) expressed as percentages: the between-neighborhood variance associated with child internalizing behaviors accounts for about 16 percent of the total individual variance [=.102/(.102+.379+.154)]. This neighborhood-level variance is considered relatively high (Leventhal and Brooks-Gunn 2000). About 60 percent of the total variance associated with child internalizing behaviors is accounted for by the between-household variance; and approximately 24 percent is accounted for at the individual child level.

Model 2 presents the results of random intercept estimates. The presence of extended kin is associated with a higher level of children's internalizing behavioral problems, even with the control variables. Living with an extended family member is associated with about 16 percent increase in internalizing behaviors (p<.01), compared to those without an extended member. Control variables show patterns as

expected. Primary caregiver's depression and undocumented status exhibits a strong, positive association with internalizing behavioral problems, and primary caregiver's education is negatively associated with internalizing behaviors.

In Model 3, I examine the extent to which neighborhood characteristics influence children's internalizing behaviors and how much the neighborhood effects explain the association between the extended family household structure and child outcome. Neighborhood income level presents a strong and negative association with child internalizing behavioral problems. A one standard deviation increase in logged neighborhood income is associated with about 36 percent {=[($e^{-0.355}$)-1]*100} lower level of internalizing behaviors than average-income neighborhoods. A higher proportion of racial minorities in the neighborhood is positively associated with internalizing behaviors, but the association is not significant. The neighborhood income level and the proportion of racial minorities, however, do not reduce the coefficients on extended family household, which means that the extended kin influence is not explained by the neighborhood contexts.

Model 4 shows the results of random coefficient estimates. The extended family structure variable is specified as random at level 3. A random slope model for the extended family effects improve the model fit ($-2\Delta LL(2)=1005.6$, $p<.0001$). On average, the presence of extended kin is associated with 12 percent higher internalizing behavioral problems. However, the association differs significantly across neighborhoods. To estimate the size of the variance, I calculate: fixed slope ± 1.96*SQRT (random slope variance). About 95% of the neighborhoods have extended family slopes between -0.60 to 0.85 [= $0.123\pm(1.96*\sqrt{(0.136)})$]. In other

words, extended families are negatively associated with child internalizing behaviors in some neighborhoods, while positively associated in others.

Model 5 and Model 6 examine to what extent extended kin moderate the neighborhood structural disadvantage by adding a cross-level interaction between the presence of an extended household member and neighborhood structure. Note that both random coefficient effects of the extended kin in Model 5 and 6 are still statistically significant, even after the cross-level interaction terms. This indicates that the extended family (dis)advantage cannot be predicted from neighborhood income or proportion of racial minorities. Nevertheless, the cross-level interaction terms will show how extended kin moderate the effects of neighborhood environments.

In Model 5, I test the interaction between extended family household and the proportion of racial minorities. The association between child internalizing behavior and the proportion of racial minorities in neighborhoods is conditional on the presence of extended kin, at a statistically marginal level ($p<.10$). With one unit increase in the proportion of racial minorities in neighborhood, children living with extended kin show about 160 percent higher $\{100*[e^{(0.116+0.839)}-1]\}$ internalizing behavioral problems, compared to those without extended kin.

In Model 6, I test the interaction between extended family and the neighborhood income level. The association between child internalizing behavior and neighborhood income level is conditional on the presence of extended kin, at a statistically significant level ($p<.05$). With one unit increase in logged neighborhood income, children living with extended kin show about 47 percent lower

{=100*[$e^{|(0.116-0.499)|}$-1] } internalizing behavioral problem scores, compared to those without extended kin.

Figure 1 shows the predicted means of logged internalizing behavioral problems for nuclear and extended families across neighborhood median household income levels. I generated the figure using STATA's marginsplot command. The results are based on Model 6 of the multilevel regression analyses. Since median household income is grand-mean-centered, zero value indicates the average median household income ($e^{10.56}$, or $38,561). In neighborhoods with below the average median household income, children in extended families show higher predicted internalizing behavioral problems. However, in neighborhoods about 0.1 above the average logged neighborhood median household income ($e^{10.66}$, or $42, 616), children in extended families show *lower* internalizing behavioral problems, compared to nuclear, single-parent families. Children in extended families show *lower* internalizing behaviors in neighborhoods about 0.3 above the average logged neighborhood median household income ($e^{10.86}$, or $52, 052), compared to nuclear, two-parent families.

Table 3 presents a set of increasingly complex models for externalizing behavioral problems. Model 1 presents the multilevel null model. The average logged externalizing behavioral problems in the sample are 1.53. The random effects variances present the variability in externalizing behavioral problems attributable to neighborhood and family differences. Rescaling these variances produces the estimated Intra Class Correlation (ICC) expressed as percentages: the between-neighborhood variance associated with child externalizing behaviors accounts for

about 9 percent of the total individual variance. About 56 percent of the total variance associated with child externalizing behaviors is accounted for by the between-household variance; and approximately 35 percent is accounted for at individual child level.

Model 2 presents the results of random intercept estimates. The presence of extended family shows positive associations with children's externalizing behavioral problems, even with the control variables. Living with extended member is associated with 19 percent increase in externalizing behaviors ($p<.05$). Primary care giver's depression exhibits a strong, positive association with the child externalizing behavioral problems; and documented immigrant parents show a negative association, though marginally significant.

In Model 3, I examine the extent to which neighborhood characteristics influence children's externalizing behaviors and how much the neighborhood effects explain the association between the extended family household structure and child outcome. One unit increase in logged neighborhood income is associated with lower externalizing behaviors, as expected. One unit increase in the proportion of racial minorities in neighborhoods is associated with higher externalizing behaviors. However, neither neighborhood income level nor proportion of racial minorities in neighborhood presents a significant association with child externalizing behavioral problems. In addition, they do not reduce the association for living in extended family households, indicating that the extended kin influence is independent of the neighborhood contexts.

Model 4 shows the results of random coefficient estimates. The presence of extended family variable is specified as random at level 3. The random effects results show the association between extended household and externalizing behaviors differs significantly across neighborhoods. On average, the difference in externalizing behavioral problem explained by the presence of extended kin is 14 percent ($p<.05$). But, a 95% random effects confidence interval for the extended kin effect, calculated as fixed slope ± 1.96*SQRT (random slope variance), reveals that 95% of the neighborhoods have extended family slopes between -0.762 and 1.042 [= 0.140 ± (1.96*√(0.212))]. In other words, extended kin decrease child externalizing behavioral problems in some neighborhoods, while increasing them in others. A random slope for the extended kin influence results in an improvement in model fit (-2ΔLL(2)=1201, $p<.0001$).

In Model 5, I test the interaction between extended family household and the neighborhood proportion of racial minorities. The association between child externalizing behavior and the proportion of racial minorities in neighborhoods is significantly conditional on the presence of extended kin ($p<.05$). With one unit increase in the proportion of racial minorities, children living with extended kin show 60 percent lower $\{100*[e^{|(0.146-0.616)|}-1]\}$ externalizing behavioral problem, compared to those without extended kin.

In Model 6, I test the interaction between extended family and the neighborhood income level. The presence of extended kin does not significantly moderate the effects of neighborhood income level. Although children living with

extended kin appear to show higher externalizing behaviors at higher neighborhood income levels, the interaction is not statistically significant.

Figure 2 shows the predicted means of logged externalizing behavioral problems for nuclear and extended families across the percentage of racial minorities in neighborhood. The results are based on Model 5 of the multilevel regression analyses. The proportion of racial minorities in neighborhood is grand-mean-centered, thus zero value indicates the average proportion of racial minorities across neighborhoods (73%). Although children in extended families show higher externalizing behavioral problems, they are predicted to have *lower* externalizing behavioral problems, compared to those in nuclear, single-parent families, when living in neighborhoods with about 10 percentage points above the average minority proportion. In neighborhoods with about 30 percentage points above the average minority proportion, children in extended families are predicted to have *lower* externalizing behavioral problems, compared to those in nuclear, two-parent families. Although such neighborhoods exist, they are rare (accounting for less than 1 percent of children).

In an additional set of models (not shown), I replaced the proportion of non-White racial minorities with the proportion of respondents' own racial and ethnic groups to test whether the concentration of racial minorities had the same implication with the concentration of co-ethnics. The result was consistent with the pattern above, suggesting that there was no difference.

Discussion and Conclusion

I investigate 1) in what kinds of neighborhoods extended families live, 2) whether neighborhood environments mediate the effects of living with extended family members on child mental health, and 3) how extended members moderate the neighborhood influences. The descriptive results show that extended families are more likely to reside in low income and minority concentrated neighborhoods. It is likely that the neighborhood quality is related to the distribution of this family type. Extended families tend to be racial minorities with lower incomes, thus they are concentrated in low income, and racially segregated neighborhoods. Unlike the families in New York in Kasinitz et al's (2009) study, extended families do not live in significantly better neighborhoods in terms of incomes and racial minority segregation than do nuclear single parent families.

In order to answer the second question, I first examine the association between extended family members and child behavioral outcomes. The presence of extended kin is an important predictor of child internalizing and externalizing behavioral problems. Importantly, neighborhood characteristics do not mediate any effects of co-resident extended members. This finding is consistent with a previous study in which the higher drug use among adolescents in single parent families is unexplained by the community quality (Hoffmann 2002). Even after introducing the neighborhood condition variables, neither changes the magnitude nor significance of the coefficient of extended kin. The presence of extended members seems to be independently associated with child disadvantage, not explained by their neighborhood income and proportion of racial minorities.

To explain the apparent independence, I look at the descriptive analyses results to see whether the distribution of extended families is unrelated to the neighborhood quality. Even if extended families are concentrated in low income, and racially segregated neighborhoods, neighborhood level stressors apparently do not mediate extended kin effects. My conjecture is that the mechanism of extended kin exacerbating child mental health occurs within the household, such that extended kin inadvertently absorb family resources that could have been used for children (Leach 2012). Such resources can be family income or savings. Due to data limitations, I was not able to prove this speculation. Future research should investigate the link between family resource distribution and child health among extended families.

However, the association between neighborhood characteristics and child outcomes significantly is conditional on extended family household structure. The way extended kin moderate the neighborhood environments differs by the outcome of interest. When it comes to internalizing behavioral problems, children in extended families show significantly better outcomes (fewer problems) than those in nuclear families, within higher-income neighborhoods. In racial minority concentrated neighborhoods, children in extended families apparently do worse than those in nuclear families, although the relationship does not exceed statistical significance. For externalizing behavioral problems, however, the disadvantage of living in neighborhoods with a higher proportion of racial minorities is weaker among children in extended households. These contrasting results underscore the importance of distinguishing between internalizing and externalizing behavioral problems in

understanding of family, and neighborhood structural influences on child mental health.

I propose possible explanations for why extended kin are more adverse in minority concentrated neighborhoods with regard to child internalizing behavioral problems, while the opposite is true for externalizing behavioral problems. My first interpretation is that the "collective efficacy" to supervise children and provide support (De Vos et al. 1992; Sampson et al. 1997) is less effective to promote emotional development than regulate behavioral deviance. While externalizing behaviors are outer-directed and cause conflicts with others, internalizing behaviors are inner-directed, thus they are more difficult to detect than are externalizing behaviors (Levesque 2014). Neighbors and extended kin will more easily recognize externalizing behaviors of children and supervise them, whereas those adults would less detect internalizing behaviors and intervene in them. Second, the family resources shared with extended members might have to do more with internalizing behaviors than with externalizing behaviors, making children more vulnerable to neighborhood stressors. To identify the resources crucial to the emotional domain, however, is beyond the scope of this study.

This study has limitations. First, the use of cross-sectional data limits my interpretation of family and neighborhood effects. Even though the use of panel data should add strength to my study, in addition to the complication of adding a fourth level to the models (for time), the attrition rate between the first and second wave of the L.A. FANS is 34 percent. I was concerned that the attrition would bias the result as the distribution of some key variables was changed; the panel data sample has the

higher family income, and lower levels of household extension. This could be the subject of future investigation. Second, the measurement of neighborhoods relies on the demarcation of census tract in this study. Census tracts may not match the geographic scale of neighborhoods that residents define, which are potentially smaller than census tract boundaries (Abada, Hou, and Ram 2007; Roosa et al. 2003). Moreover, limiting to census tracts of residence necessarily disregard the influence of potential social and economic conditions nearby tract boundaries (Meersman 2005). Still, census tracts are considered the best available geographic unit to approximate the usual concept of a neighborhood (Crowder and Teachman 2004; Elliott et al. 1996).

This study provides policy implications. First, the significant interactional association between extended kin and neighborhood characteristics suggests that non-nuclear extended members can be important agents of community networks, even if they were temporary arrangements. I argue that researchers and service providers should develop community programs that engage not only parents and children, but also extended family members to promote child welfare. Second, the distinct patterns for internalizing and externalizing behavioral problems suggest community intervention programs be targeted more for internalizing behavioral problems in low-income and minority concentrated neighborhoods. The precise mechanism through which extended kin moderates the neighborhood stressors and resources deserves future study. Researchers can start with the question of how each family member (including non-nuclear members) uses community resources, and how extended families contribute and share family resources among the members. To this end,

future research should collect information from extended members including their human, economic, and social resources.

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Table 1. Weighted descriptive statistics of sample by family household structures

	All	Nuclear, Two-Parent	Nuclear, Single-parent	Extended
Internalizing BPI (ln)	.85	.68 [b]	.99 [a]	1.06 [a]
S.E.	*(.04)*	*(.04)*	*(.07)*	*(.06)*
Externalizing BPI (ln)	1.51	1.38 [b]	1.67 [a]	1.63 [a]
	(.04)	*(.05)*	*(.08)*	*(.08)*
Child characteristics				
Child sex (ref. girl)	.50	.52	.49	.49
	(.02)	*(.02)*	*(.04)*	*(.04)*
Child age	7.02	7.00	7.09	7.02
	(.09)	*(.13)*	*(.18)*	*(.17)*
Primary caregiver characteristics				
US-born parents	.44	.45	.48	.38
	(.04)	*(.06)*	*(.05)*	*(.05)*
Legal immigrant	.41	.45	.33	.41
	(.03)	*(.05)*	*(.04)*	*(.04)*
Undocumented	.15	.10	.18	.21 [a]
	(.02)	*(.02)*	*(.04)*	*(.04)*
White	.22	.32 [b]	.16 [a]	.09 [a]
	(.04)	*(.06)*	*(.04)*	*(.02)*
Latino	.56	.52	.54	.68 [a, b]
	(.04)	*(.05)*	*(.05)*	*(.05)*
Black	.11	.04 [b]	.28 [a]	.09 [a, b]
	(.02)	*(.01)*	*(.04)*	*(.03)*
Asian	.11	.13 [b]	.03 [a]	.15 [b]
	(.02)	*(.03)*	*(.01)*	*(.03)*
Family income(ln)	10.22	10.56 [b]	9.82 [a]	9.94 [a]
	(.08)	*(.11)*	*(.11)*	*(.11)*
PCG depression	.11	.08 [b]	.15 [a]	.12
	(.01)	*(.01)*	*(.02)*	*(.02)*
PCG education (ref. <High)	.63	.69 [b]	.57 [a]	.57 [a]
	(.03)	*(.05)*	*(.04)*	*(.04)*
Family household structure				
Single parent	.35			.44
	(.03)			*(.04)*
Extended	.25			
	(.02)			
Neighborhood structure				
Proportion of Racial minority	.73	.67 [b]	.79 [a]	.82 [a]
	(.03)	*(.04)*	*(.03)*	*(.02)*
Median HH income	10.56	10.68 [b]	10.42 [a]	10.45 [a]
	(.05)	*(.09)*	*(.04)*	*(.04)*
Unweighted N	1553	752	391	410

Note: [a]: Significantly different from nuclear two-parent families. [b]: Significantly different from nuclear single-parent families.

Table 2. Multilevel regression results on internalizing behavioral problems (ln)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Child sex (ref. girl)		.042	.043	.040	.040	.040
(S.E.)		*(.045)*	*(.045)*	*(.045)*	*(.045)*	*(.045)*
Child age		- .009	- .009	- .010	- .010	- .010
		(.010)	*(.010)*	*(.010)*	*(.010)*	*(.010)*
Legal Immigrant parents		.102	.101	.085	.086	.086
(ref. US-born)		*(.067)*	*(.066)*	*(.069)*	*(.069)*	*(.069)*
Undocumented immigrants		.391***	.380***	.382***	.382***	.382***
		(.096)	*(.096)*	*(.096)*	*(.096)*	*(.095)*
Family income(ln)		.004	.005	.002	.002	.002
		(.012)	*(.013)*	*(.013)*	*(.013)*	*(.013)*
PCG depression		.643***	.641***	.652***	.652***	.649***
		(.094)	*(.094)*	*(.095)*	*(.095)*	*(.095)*
PCG education (ref. <High)		-.196*	-.191*	-.197*	-.197*	-.200*
		(.063)	*(.064)*	*(.068)*	*(.068)*	*(.067)*
Latino		.040	.019	.001	.001	.000
		(.079)	*(.078)*	*(.083)*	*(.083)*	*(.083)*
Black		.028	.013	.033	.033	.034
		(.104)	*(.102)*	*(.104)*	*(.104)*	*(.105)*
Asian		.018	.013	- .009	- .009	- .010
		(.098)	*(.096)*	*(.095)*	*(.095)*	*(.094)*
Single parent		.108†	.105†	.115*	.115*	.114*
		(.057)	*(.057)*	*(.057)*	*(.057)*	*(.057)*
Extended HH		.160**	.158**	.123*	.116*	.116*
		(.056)	*(.055)*	*(.051)*	*(.055)*	*(.055)*
Racial minorities (%)			.109	.108	.088	.160
			(.231)	*(.261)*	*(.249)*	*(.267)*
Median HH income			-.355*	-.420*	-.412*	-.342*
			(.156)	*(.096)*	*(.191)*	*(.175)*
% Racial minorities * Extend kin					.839†	
					(.451)	
Median HH income * Extended kin						-.499*
						(.252)
Intercept	.908***	.733***	.744***	.812***	.810***	.805***
	(.041)	*(.180)*	*(.183)*	*(.186)*	*(.186)*	*(.186)*
Random-effects						
Extended HH (lv-3)				.136	.169	.168
				(.022)	*(.042)*	*(.037)*
Level 3, Neighborhood	.102	.040	.031	.057	.057	.053
	(.014)	*(.007)*	*(.007)*	*(.011)*	*(.011)*	*(.009)*
Level 2, Family	.379	.316	.315	.290	.289	.289

	(.038)	*(.034)*	*(.034)*	*(.035)*	*(.035)*	*(.035)*
Level 1, Child	.154	.154	.154	.155	.155	.155
	(.027)	*(.027)*	*(.027)*	*(.027)*	*(.027)*	*(.027)*
Log pseudo-likelihood	-34641.6	-33130.1	-33085.1	-32582.3	-32574.9	-32570.6

***: p<.0001, **: p<.01, *: p<.05, †: p<.10.

Note: PCG refers to primary care giver; HH refers to household.

Table 3. Multilevel Regression Results on Externalizing Behavioral Problems (ln)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Child sex (ref. girl)		.149†	.149†	.140	.140	.140
(S.E.)		*(.090)*	*(.090)*	*(.092)*	*(.092)*	*(.092)*
Child age		-.035*	-.035*	-.034*	-.034*	-.034*
		(.017)	*(.017)*	*(.017)*	*(.017)*	*(.017)*
Legal Immigrant parents		-.150†	-.152†	-.166†	-.167†	-.166†
(ref. US-born)		*(.090)*	*(.090)*	*(.095)*	*(.095)*	*(.095)*
Undocumented immigrants		.118	.111	.110	.110	.110
		(.151)	*(.150)*	*(.144)*	*(.144)*	*(.144)*
Family income(ln)		.025	.026	.025	.025	.025
		(.019)	*(.020)*	*(.020)*	*(.020)*	*(.020)*
PCG depression		.679***	.676***	.717***	.717***	.718***
		(.094)	*(.095)*	*(.097)*	*(.097)*	*(.096)*
PCG education (ref. <High)		- .057	- .054	- .066	- .066	- .065
		(.082)	*(.082)*	*(.091)*	*(.091)*	*(.091)*
Latino		- .075	- .090	- .100	- .100	- .100
		(.104)	*(.105)*	*(.109)*	*(.109)*	*(.108)*
Black		- .017	- .027	- .020	- .020	- .021
		(.131)	*(.132)*	*(.131)*	*(.131)*	*(.131)*
Asian		- .173	- .178	- .177	- .178	- .177
		(.123)	*(.122)*	*(.117)*	*(.117)*	*(.117)*
Single parent		.045	.043	.060	.059	.060
		(.060)	*(.060)*	*(.065)*	*(.065)*	*(.065)*
Extended HH		.192*	.191*	.140*	.146*	.142*
		(.080)	*(.080)*	*(.063)*	*(.061)*	*(.061)*
Racial minorities (%)			.321	.294	.308	.277
			(.254)	*(.249)*	*(.253)*	*(.234)*
Median HH income			- .129	- .156	- .161	- .179
			(.177)	*(.203)*	*(.201)*	*(.186)*
% Racial minorities * Extend HH					-.616*	
					(.252)	
Median HH income * Extended HH						.175
						(.206)
Intercept	1.529**	1.435**	1.442**	1.494**	1.496**	1.494**
	(.036)	*(.236)*	*(.237)*	*(.249)*	*(.249)*	*(.249)*
Random-effects						
Extended HH (lv-3)				.212	.196	.198
				(.039)	*(.035)*	*(.037)*
Level 3, Neighborhood	.079	.062	.043	.070	.070	.070
	(.015)	*(.013)*	*(.007)*	*(.011)*	*(.011)*	*(.011)*

Level 2, Family	.510	.448	.448	.403	.403	.103
	(.057)	*(.049)*	*(.049)*	*(.047)*	*(.047)*	*(.047)*
Level 1, Child	.298	.290	.290	.291	.291	.291
	(.042)	*(.042)*	*(.042)*	*(.042)*	*(.042)*	*(.042)*
Log pseudo-likelihood	-44002.2	-42740.2	-42726.1	-42125.5	-42122.1	-42124.4

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Figure 1 Predicted internalizing behavioral problems (ln) by household structure on neighborhood median household income (ln)

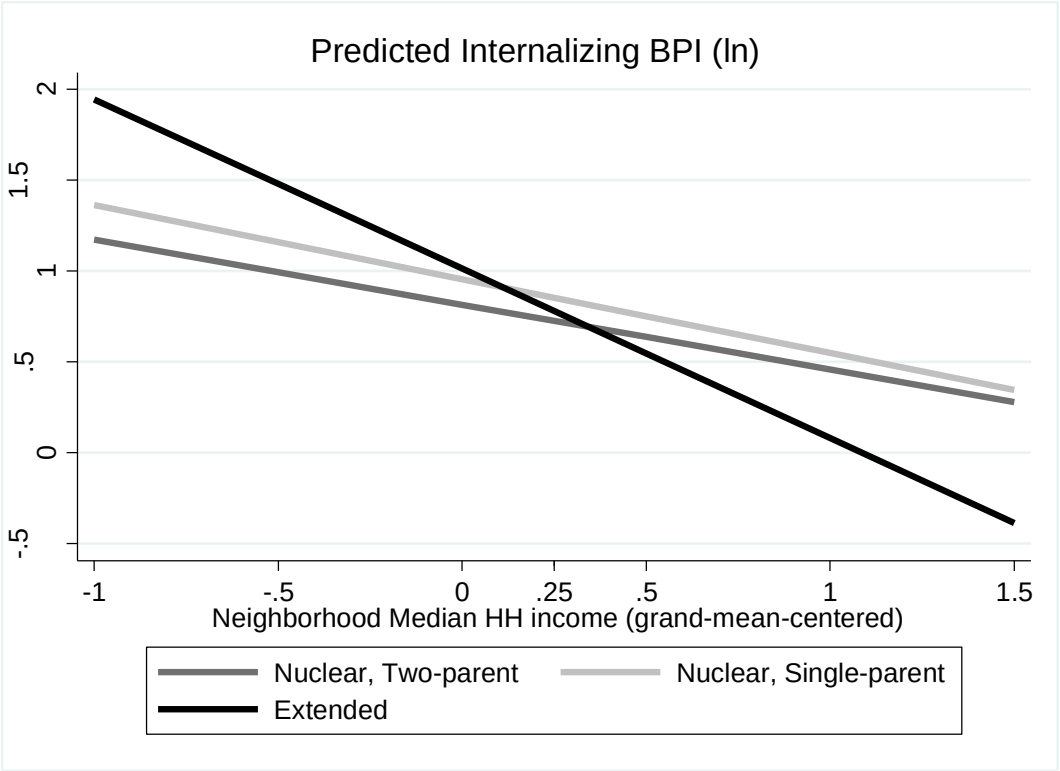
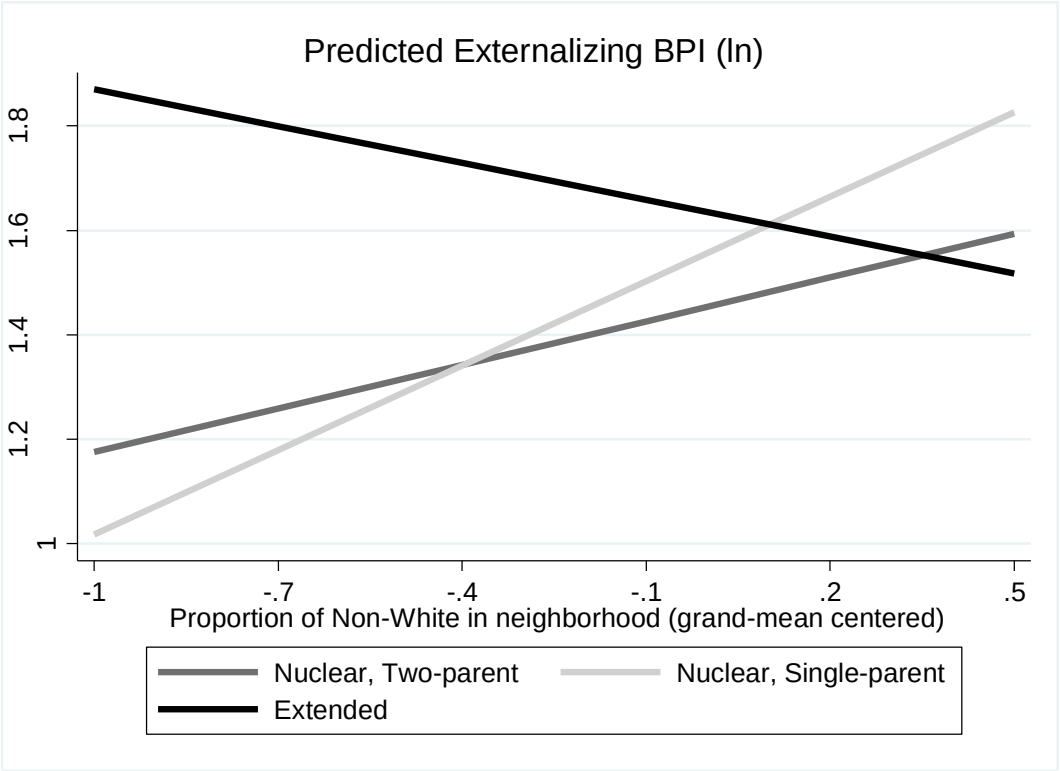


Figure 2. Predicted Externalizing Behavioral Problems (ln) by household structure on the proportion of racial minorities in neighborhood



Chapter 4: Conclusion

Summary

Using the Los Angeles Family and Neighborhood Study data, I examined the association between the presence of co-resident extended kin and children's internalizing and externalizing behaviors, answering one big research question: Do extended households benefit or harm child development? I answer this question by demonstrating the differential role of extended family members. My findings suggest that the supportive extended family is not universal in contrast with prior studies (Foster and Kalil 2007; Zeiders, Roosa, and Tein 2011). The association between extended kin and child behavioral functioning varies by a) family structure and parental immigration status, b) the types of household extension, and c) by residential contexts.

In the first paper, I found that the supportive extended family is only limited to single parent families. For children in two-parent families, extended kin are associated with significantly higher internalizing behaviors than those in two parent nuclear families. It appears that extended family members are more likely to provide resources to the single-parent families, while they tend to receive support in married-parent families (Jayakody, Chatters, and Taylor 1993). I also found a distinctive pattern for documented immigrant families. The negative role of extended kin for children in two-parent families is more clearly observed among documented immigrant families. It is probably because more established immigrant families support poorer extended kin, distracting resources that could be used for the children (Leach 2012; Menjívar 2000; Vallejo 2012; Viruell-Fuentes et al. 2013). The results

contrast with the belief that immigrants receive greater benefit from extended kin due to their stronger familistic values (Behnke et al. 2008; Harrison et al. 1990; Heard 2007; Marsiglia, Parsai, and Kulis 2009; Sabogal et al. 1987; Updegraff et al. 2005; Uttal 1999).

In the second paper, I found that different types of extended members exert differential influence on children, and show distinctive transition patterns. However, the differential associations are not related to the stability of the living arrangements but to other family characteristics not captured by variables in this study. In OLS estimation, co-resident horizontal kin is significantly associated with higher levels of internalizing behavioral problems. However, fixed effects estimation shows that horizontal extension does not cause the increase in child behavioral problems, suggesting there is a selection effect. More importantly, children moving into vertically extended household show increased level of externalizing behaviors. I interpreted that moving into vertically extended households might indicate a hardship and stress in the family (Raley and Wildsmith 2004; Rosenfeld 2015). Lastly, non-kin extended members have no association with child internalizing and externalizing behavioral problem, consistent with the findings of Almeida (2011) and Xue (2015). To summarize, kin are more influential than non-kin on emotional and behavioral development of children, and the entrance of vertical kin is an important predictor of externalizing behaviors.

In the third paper, I confirmed the impact of extended family household structure on child behavioral problems as an important risk factor. Importantly, the disadvantage was unexplained by neighborhood quality. Although extended families

tend to be poorer and racial minorities, and concentrated in low income and minority-concentrated neighborhoods, the impact of extended members was not mediated by the neighborhood environments. Possibly, extended members directly affect child emotional and behavioral development through absorbing family resources or reducing privacy. In addition, I found multifaceted aspects of extended families. Extended kin moderate the association between neighborhood environments and the child outcomes, depending on the outcome of interest. Extended kin apparently intensified the negative implication of living in low-income neighborhoods when it comes to internalizing behavioral problems. By contrast, extended kin transformed the apparent disadvantage of living in minority concentrated neighborhoods into an advantage for children in extended families, decreasing externalizing behavioral problems. My research emphasizes the importance of extended family household structures and their contextual effects when investigating child mental health outcomes.

To the best of my knowledge, this is the first systematic research that identifies extended family households with the family structure, relational types, and residential contexts, and tests the associations with children's emotional and behavioral development across parental immigrant status and neighborhood environments. Based on my findings, I argue that the previous framework should be revised to consider the implications of extended families in youth emotional development beyond the nuclear family based models. In reality, it is common for children to live with extended kin— especially horizontal kin—in their childhood, in the presence of two married parents, if they have immigrant parents. In addition,

children in extended households experience more transitions than those in nuclear households. Note that the entrance of vertical kin plays an important role in predicting child behavioral problems, particularly externalizing behaviors. Given that the prevalence of children of immigrants living in extended family households and the increasing importance of children of immigrants in the child population (Passel 2011), I call for more attention to these marginalized extended families.

Implications for future research and policy

I conclude with a direction for future research and a suggestion for public policy. First, future research should take into account the potential economic contribution by extended members, if data allow. Information about extended kin members in the L.A. FANS is limited, thus I do not know about their income. The present data do not allow disaggregating household incomes by respective income earners, hence it is impossible to know whether the additional member contributes to family income (Angel and Tienda 1982; Glick, Bean, and Hook 1997) or drains income from the host family (Kana'iaupuni et al. 2005; Leach 2012). Using the Panel Study of Income Dynamics, future researchers can overcome this limitation.

Second, I did not distinguish whether the primary caregiver and his/her children are the primary residents in the household or in someone else's home in the analyses. There is a clear difference between inviting relatives in home and living in someone else's home. Indeed, there is a substantial difference in the homeownership across nativity and legal status groups, where native families are the most likely to be the primary resident, followed by documented immigrants, and undocumented

immigrants, who are the least likely to own a house (Hall and Greenman 2013). However, this factor does not change any pattern in the association between the presence of co-resident kin and child behavioral problems. In other words, living with non-nuclear members affects children, regardless of their primary resident status. Whether this pattern is unique to the population in Los Angeles is unknown. Future research should identify "in whose home" children and their families live in extended households (Cohen and Casper 2002). Possibly, the association between extended family members and child developmental outcomes differ between primary resident families and guest families, if other data were used.

An additional avenue for future research is to examine whether the associations observed for children in Los Angeles replicate in other geographic areas. Los Angeles is one of the "traditional urban immigrant gateway areas" containing ethnic/immigrant enclaves (Landale et al. 2015; Viruell-Fuentes, Miranda, and Abdulrahim 2012:2102). The current study provides a valuable barometer of future children of immigrants' adjustment into the U.S in complex living arrangements. However, immigrants are increasingly dispersing to new destinations along with the restructuring of the U.S. economy (Viruell-Fuentes et al. 2012). Therefore, it deserves future study whether the findings are similar in other states and communities with different levels of racial composition, poverty level, and immigration history (Crosnoe and Fuligni 2012; Perreira and Ornelas 2011:209).

This study provides a suggestion that is relevant to public policy. It is important to note that the deficiency of adequate formal support system often leads families, particularly immigrant families to build their own support networks.

Household extension is one such strategy. Limited access to public assistance and socioeconomic resource for immigrants is central to the apparently deleterious effects of living with extended families for children. Enhancing the quality of immigrant social network pools can be one solution. For example, allowing GED completion programs as well as GED tests can promote the human capital of immigrant social network pools. Like many other states, California requires a state or government issued identification, such as driving license, SSN card, which undocumented immigrants cannot provide. Policy makers should consider permitting the undocumented to submit different forms of identification. In this way, undocumented individuals are highly motivated to pursue their education, increasing their life chance to social mobility (Yoshikawa 2011:78). In a similar vein, providing housing subsidy or Section 8—a rental certificate program that allows very low-income households choosing private rental housing so they have enlarged affordable housing choices—with (both documented and undocumented) immigrants can ease the problems of substandard housing condition facing most children of undocumented immigrant families (Hall and Grennman 2003).

Given the significant interactional association between extended kin and neighborhood characteristics, community programs should be developed to engage not only parents and children, but also extended family members to promote child welfare. Importantly, researchers, educators, and service providers should pay attention to the fact that children in extended family households within lower-income and minority-concentrated neighborhoods are at a higher risk of internalizing behavioral problems. To better support children living in complex living

arrangements, first, more financial and social assistance is needed to educate families and community members on the importance of child emotional health. Because internalizing behaviors are more difficult to be recognized, educating parents, teachers and all members of communities would be crucial to promoting child emotional health. Next, families and communities should recognize the potential of extended members' human, economic, and social resources. Extended members can be important agents of community networks, such as reducing child externalizing behaviors through enhancing supervision of children. Community organizations should consider promoting parenting programs for all family members, not just for parents, so families can better use community resources. By doing so, we can ensure all children have a fair chance to prosper, however complex are their living arrangements.

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Appendices

Table A. OLS regression on behavioral problems with three-way interactions

	All	
	Internalizing BPI	Externalizing BPI
Child sex (ref. girl)	*.051*	.222*
S.E.	*(.070)*	*(.088)*
Child age	*-.025*†	-.053**
	(.014)	*(.017)*
Documented	-.132	-.411**
(ref. US-born)	*(.123)*	*(.153)*
Undocumented	.640***	.132
	(.181)	*(.215)*
Family income(ln)	*- .022*	.002
	(.018)	*(.028)*
PCG depression	*.811****	.794***
	(.105)	*(.109)*
PCG education (ref. <High)	*-.270***	- .009
	(.097)	*(.122)*
Latino	*.244**	.230†
	(.111)	*(.136)*
Black	*.188*	.096
	(.204)	*(.245)*
Asian	*.081*	- .149
	(.162)	*(.219)*
Single parent (ref. married parent)	*.006*	.179
	(.347)	*(.219)*
Extended kin	*.286*	.462
	(.252)	*(.307)*
Single-parent*Extended	*-.016*†	-.365
	(.347)	*(.427)*
Single-parent*Documented	.709**	.327
	(.228)	*(.282)*
Single-parent*Undocumented	-.034	-.069
	(.255)	*(.324)*
Extended*Documented	.269	.172
	(.264)	*(.368)*
Extended*Undocumented	-.167	.228
	(.336)	*(.416)*
Single-parent*Extended*Documented	-1.034*	.217
	(.446)	*(.534)*
Single-parent*Extended*Undocumented	.195	.042
	(.463)	*(.615)*
Intercept	*1.326****	2.212***
	(.263)	*(.366)*
R^2	.208	.108
Unweighted N	1552	1552

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Table B. OLS regression on behavioral problems after controlling for the total number of household members

	All	
	Internalizing BPI	Externalizing BPI
Child sex (ref. girl)	*.048*	.215*
S.E.	*(.070)*	*(.087)*
Child age	*-.027†*	-.054**
	(.014)	*(.017)*
Documented	.060	-.365**
(ref. US-born)	*(.106)*	*(.129)*
Undocumented	.565***	.030
	(.132)	*(.163)*
Family income(ln)	*- .015*	.008
	(.018)	*(.026)*
PCG depression	*.814****	.800***
	(.108)	*(.111)*
PCG education (ref. <High)	*-.244**	- .012
	(.102)	*(.123)*
Latino	*.221**	.220
	(.111)	*(.137)*
Black	*.082*	.046
	(.191)	*(.233)*
Asian	*.055*	- .155
	(.164)	*(.222)*
Single parent (ref. married parent)	*.311***	.324*
	(.108)	*(.131)*
Extended kin	*.312**	.246
	(.115)	*(.154)*
Single-parent*Extended	*-.343†*	-.414†
	(.186)	*(.232)*
Total number of household members	*.040*	.044
	(.029)	*(.029)*
Intercept	*.994****	1.944***
	.282	*(.379)*
R^2	.196	.107
Unweighted N	1552	1552

***: p<.0001, **: p<.01, *: p<.05, †: p<.10

Table C. Fixed effects models for internalizing and externalizing BPI with single-parent*vertical interaction

	Internalizing	Externalizing
	Fixed Model	Fixed Model
Child age	- .027***	- .008
	(.006)	*(.007)*
Family income(ln)	- .020	- .009
	(.024)	*(.031)*
PCG Depression	.198*	.147†
	(.085)	*(.097)*
Single parent	.129	.122
	(.127)	*(.113)*
Vertical	.130	.178
	(.129)	*(.111)*
Horizontal	.032	.039
	(.105)	*(.116)*
Non-kin	- .009	- .064
	(.190)	*(.184)*
Single-parent* Vertical	.066	.110
	(.207)	*(.187)*
Intercept	1.252***	1.607***
	(.247)	*(.306)*
R2	.063	.020
N	1694	1694

***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Table D. Results of OLS and Fixed effects models on Internalizing BPI on Multiply Imputed Sample

	Internalizing BPI			
	OLS Model1	Fixed Model1	OLS Model2	Fixed Model2
Child sex			.019	
			(.049)	
Child age			-.015	-.016**
			(.010)	*(.005)*
Family income(ln)			-.014	- .063***
			(.013)	*(.013)*
PCG depression			.556***	.392***
			(.074)	*(.057)*
PCG education			-.163*	
			(.068)	
Latino			.174*	
			(.078)	
Black			.042	
			(.113)	
Asian			.060	
			(.113)	
Documented			.032	
			(.074)	
Unauthorized			.377***	
			(.091)	
Single-parent			.128*	.150**
			(.062)	*(.044)*
Vertical	.164†	.153*	.151*	.096
	(.084)	*(.061)*	*(.076)*	*(.059)*
Horizontal	.466***	.223	.248**	.152*
	(.087)	*(.068)*	*(.083)*	*.067*
Non-kin	.064	.306	.060	.243*
	(.151)	*(.118)*	*(.125)*	*.115*
Intercept	.775***	.812***	.838***	1.544***
	(.035)	*(.025)*	*(.181)*	*.145*
N	1638	1733	1638	1733

***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$

Table E. Results of OLS and fixed effects models on externalizing BPI on multiply imputed sample

	Externalizing BPI			
	OLS Model1	Fixed Model1	OLS Model2	Fixed Model2
Child sex			.144*	
			(.059)	
Child age			-.036**	- .010
			(.011)	*(.005)*
Family income(ln)			.004	- .016
			(.019)	*(.015)*
PCG depression			.547***	.352***
			(.077)	*(.065)*
PCG education			- .023	
			(.082)	
Latino			.150	
			(.092)	
Black			.071	
			(.156)	
Asian			- .079	
			(.150)	
Documented			-.249**	
			(.087)	
Unauthorized			.032	
			(.108)	
Single parents			.118	.131*
			(.072)	*(.152)*
Vertical	.115	.230**	.102	.196**
	(.103)	*(.068)*	*(.096)*	*(.068)*
Horizontal	.265**	.097	.178†	.060
	(.102)	*(.077)*	*(.098)*	*(.076)*
Non-kin	.109	.099	.000	.065
	(.160)	*(.130)*	*(.152)*	*(.130)*
Intercept	1.469***	1.458***	1.542***	1.639***
	(.041)	*(.029)*	*(.245)*	*(.165)*
N	1638	1733	1638	1733

***: $p<.001$, **: $p<.01$, *: $p<.05$, †: $p<.10$